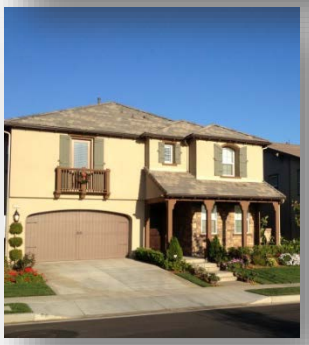
APPENDIX 1

2-2: Residential Planning Areas

2-2.a: Planning Area 1

The westerly neighborhood of the community follows the SFD1standards of the Low Density Residential use designation as set in Chapter 6: Design Objectives and Guidelines. The main access to the neighborhood is through Mediterra Parkway, the main gateway into the community from Greenspot Road leading to Avenida Ramblas and Mediterra Park. To the north, interrupted with a Pocket Park, is a Multi-Use Trail and fire access that link to the trail-system and the other amenities of the community. This neighborhood provides opportunity for move-up homebuyers and growing families with a range of lot sizes and shapes, and close proximity to recreational and social amenities. As shown on Tentative Tract Map 18893 the area of PA 1 is approximately 23.93 acres; the total number of lots is 87, yielding a density of approximately 3.6 lots per acre. The minimum lot size is 6,500 sf with an average lot size of approximately 8,400 sf.



2-2.b: Planning Area 2

This neighborhood follows the SFD2 standards of the Low Density Residential designation as set in Chapter 6: Design Objectives and Guidelines. The lots are designed to encourage recessed garages and architecture forward, enhancing the street scene and the overall neighborhood feel. This area takes access from Greenspot Road through Mediterra Parkway leading to Avenida Ramblas, the interior collector street. This area is surrounded by the Agricultural / Equestrian land use to the north, the other neighborhoods on the west (PA 1) and east (PA's 3 and 4), and the frontage with Greenspot Road to the south. Mediterra Park is located at the north-westerly edge with visibility and ease of access to the park, to the North Fork Trail, and to the Hillside trails. As shown on Tentative Tract Map 18893 the area of PA 2 is approximately 11.3 acres; the number of lots is 51, yielding a density of approximately 4.5 lots per acre. The minimum lot size is 5,500 sf with an average of approximately 7,000 sf.

2-2.c: Planning Area 3

The natural topography rises in this Planning Area to the north with spectacular views of the valley below. This provides a great opportunity for larger lots and homes for move-up homebuyers. This neighborhood follows the SFD3 design standards of the Low Density Residential land use designation as set in Chapter 6: Design Objectives and Guidelines.

Surrounding this neighborhood is the A/Eq area to the north with an existing estate residence and hillside open space to the north, the other neighborhoods to the west (PA 2) and to the south (PA 4), and a vacant property to the east. The neighborhood is composed of a series of cul-de-sacs, some of which give vehicular access to the existing estate lot to the north, the fire department in case of emergency, and to the North Fork Trail. Along the southerly edge of this area are the interior collector street Avenida Ramblas and the Paseo Ramblas which connect the different neighborhoods by vehicular and pedestrian means.

As shown on Tentative Tract Map 18893 the area of PA 3 is approximately 20.31 acres; the total number of lots is 62, yielding a density of approximately 3.05 lots per acre. The minimum lot size is 7,200 sf and the average lot size is approximately 9,500 sf.

2-2.d: Planning Area 4

PA 4 consists of Medium Density product creating opportunities for homeownership by starting families or empty nesters. This Planning Area requires a site planning approach specific to the residential product to be proposed by the home builder. The site plan shall adhere to the Mediterra Plan's intent and theme of connected and walkable community, and shall incorporate among others the following planning principles:

1. Provide a housing product that distinguishes but is complementary to the other planning areas and accommodates a higher density and a wider opportunity for home ownership.
2. Preserve the functionality and traffic calming qualities of Avenida Ramblas and the desirability of and accessibility to Paseo Ramblas for pedestrian mobility. Vehicular connection to Avenida Ramblas shall be limited to local internal streets only; garage access to residential units shall be oriented to the internal streets of this Planning Area.
3. Capitalize on common uses and open spaces provided by the Plan, such as the Mediterra Park and recreation area, Paseo, and trails. Enhance pedestrian opportunity for access to and connectivity with the community's amenities and other neighborhoods.

General design standards for Medium Density are set in Chapter 6: Design Objectives and Guidelines. The area of PA 4 is approximately 9.91 acres and the total number of units is 110; under Scenario 2 the area is increased by a net of 1.92 acres for a total of 11.83 acres while maintaining the maximum number of residential units at 110.

2-2.e: Planning Area 5

PA 5 is approximately 13-acres and has the A/Eq land use with a maximum of 6 estate lots including the existing estate residence, yielding a maximum density of 0.46 dwelling units per acre. Access to PA 5 is preserved through a new cul-de-sac and a frontage road along the northerly edges of PA 2 and 3 (Street R and Street L respectively as shown on TTM 18893). The Plan does not include design standards and guidelines for Planning Area 5. This area will require separate site planning, approval process, and building permits in accordance with the A/Eq designation if residential development is implemented in the future.

2-2.f: Planning Area 6

PA 6 is approximately 2.16 acres and is designated for a neighborhood park with recreational area, exercise, and gathering opportunities for the community residents; the neighborhood park is referred to as Mediterra Park in the Plan. Section 2-1.d: Parks and Recreation gives a general description of this component of the Land Use Plan, and Chapter 8: Open Space and Recreational Uses details the improvements planned for this Planning Area.

2-2.g: Planning Area 7

As described in Section 2-1.e PA 7 is mostly preserved in its current condition with limited uses and access as Open Space and as a backdrop of the community with hiking on trails and other permitted outdoor activities.

2-2.h: Planning Area 8

The main intent of this PA is to include the Water Quality Management Plan Basin for the entire Mediterra community and for implementation of needed measures for the containment and treatment of storm water runoff from Mediterra. As described in Section 2-1.f other infrastructure facilities may be allowed in that area for the benefit of Mediterra or the East Highlands area as may be required by the City of Highland or other agencies.

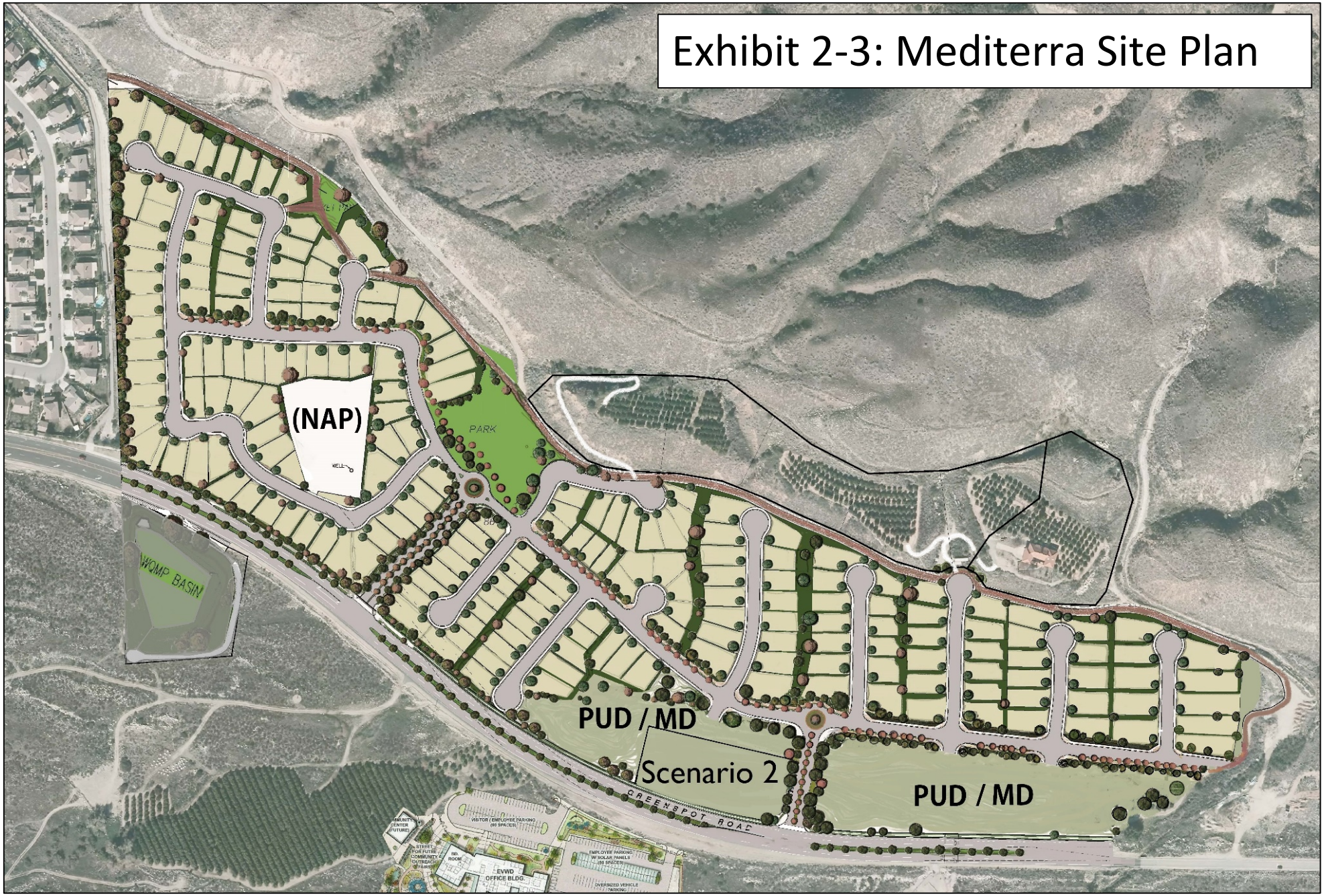
Table 2-2: Planning Areas and Land Uses

Plan Component	Acreage	No. of Lots / Units	Density Target (du/ac)	Min. Lot Size	Permitted Land Uses
Planning Area 1	23.93	87	3.6	6,500 sq.ft	Low Density Residential (2.1 - 6.0 du/ac) - Single Family Detached – SFD 1 / Recreation / Support Improvements
Planning Area 2	11.30	51	4.5	5,500 sq.ft	Low Density Residential (2.1 - 6.0 du/ac) - Single Family Detached – SFD 2 / Recreation / Support Improvements
Planning Area 3	20.31	62	3.1	7,200 sq.ft	Low Density Residential (2.1 - 6.0 du/ac) - Single Family Detached – SFD 3/ Recreation / Support Improvements
Planning Area 4	9.91 (11.83)*	110	6.1 - 12.0	N/A	Medium Density – MD (6.1 - 12.0 du/ac) / Recreation / Support Improvements and Infrastructure
Planning Area 5	13.00	6	0.5	1.0 ac	Agriculture / Equestrian - A/Eq (0-2.0 du/ac)
Planning Area 6	2.16	N/A	N/A	N/A	Park and Recreation
Planning Area 7	94.62	N/A	N/A	N/A	Open space / Passive Recreation / Public Facilities
Planning Area 8	3.50	N/A	N/A	N/A	PD / Public Facilities / Water Quality Management and Compatible Uses
Total:	**178.73 (180.65)***	**316**			

* including the net 1.92-acre Muni site per Scenario 2 after Greenspot Road right-of-way dedication.

Unless stated otherwise in the Plan or the approved Tentative Tract Map, the permitted uses shall follow Table 16.16.030.A Uses Permitted within Residential Districts of the City of Highland Municipal Code as applicable.

Exhibit 2-3: Mediterra Site Plan



APPENDIX 2

AIR QUALITY and GHG IMPACT ANALYSES

MEDITERRA AT EAST HIGHLANDS

CITY OF HIGHLAND, CALIFORNIA

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Date:

February 12, 2015

Project No.: P14-048 AQ

ATMOSPHERIC SETTING

The climate of Highland, in the eastern San Bernardino Valley, as with all of Southern California, is governed largely by the strength and location of the semi-permanent high pressure center over the Pacific Ocean and the moderating effects of the nearby vast oceanic heat reservoir. Local climatic conditions are characterized by very warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and comfortable humidity levels. Unfortunately, the same climatic conditions that create such a desirable living climate combine to severely restrict the ability of the local atmosphere to disperse the large volumes of air pollution generated by the population and industry attracted in part by the climate.

Mediterra is situated in an area where the pollutants generated in coastal portions of the Los Angeles basin undergo photochemical reactions and then move inland across the project site during the daily sea breeze cycle. The resulting smog at times gives San Bernardino County some of the worst air quality in all of California. Fortunately, significant air quality improvement in the last decade suggests that healthful air quality may someday be attained despite the limited regional meteorological dispersion potential.

Winds across the project area are an important meteorological parameter because they control both the initial rate of dilution of locally generated air pollutant emissions as well as controlling their regional trajectory. Winds across the project site display a very unidirectional onshore flow from the southwest-west that is strongest in summer with a weaker offshore return flow from the northeast that is strongest on winter nights when the land is colder than the ocean. The onshore winds during the day average 6-8 mph while the offshore flow is often calm or drifts slowly westward at 1-3 mph.

During the daytime, any locally generated air emissions are thus rapidly transported eastward toward Banning Pass without generating any localized air quality impacts. The nocturnal drainage winds which move slowly across the area have some potential for localized stagnation, but fortunately, these winds have their origin in the adjacent mountains where background pollution levels are low such that any localized contributions do not create any unhealthful impacts.

In conjunction with the two characteristic wind regimes that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. The summer on-shore flow is capped by a massive dome of warm, sinking air which caps a shallow layer of cooler ocean air. These marine/subsidence inversions act like a giant lid over the basin. They allow for local mixing of emissions, but they confine the entire polluted air mass within the basin until it escapes into the desert or along the thermal chimneys formed along heated mountain slopes.

In winter, when the air near the ground cools while the air aloft remains warm, radiation inversions are formed that trap low-level emissions such as automobile exhaust near their source. As background levels of primary vehicular exhaust rise during the seaward return flow, the combination of rising non-local baseline levels plus emissions trapped locally by these radiation

inversions creates micro-scale air pollution "hot spots" near freeways, shopping centers and other traffic concentrations in coastal areas of the Los Angeles Basin. Because the nocturnal airflow down the slopes of Mt. San Gorgonio has its origin in very lightly developed areas of the San Bernardino Mountains, background pollution levels at night in winter are very low in the project vicinity. Localized air pollution contributions are insufficient to create a "hot spot" potential when superimposed upon the clean nocturnal baseline. The combination of winds and inversions are thus critical determinants in leading to the degraded air quality in summer, and the generally good air quality in winter in the project area.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the Mediterra at East Highlands project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)[8]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[8]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (6/4/13)**

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (6/4/13)**

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2014, but the final numerical value has not yet been selected. It will require additional public input in 2016, then three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2025. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be close to 2030.

A new federal one-hour standard for nitrogen dioxide (NO_2) was adopted in 2010. This standard is more stringent than the existing state standard. Based upon air quality monitoring data throughout Southern California, the basin was designated as "attainment" for the new national one-hour standard.

BASELINE AIR QUALITY

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the South Coast Air Quality Management District (SCAQMD) at its Central San Bernardino monitoring station. The SCAQMD monitoring station at Redlands is physically closer to the project site (4 miles) than the Central San Bernardino Station (8 miles). However, the Redlands site does not monitor the full spectrum of pollutants (only ozone and PM-10). The San Bernardino site has therefore been selected as best describing project site baseline air quality. This station measures both regional pollution levels such as dust (particulates) and smog, as well as levels of primary vehicular pollutants such as carbon monoxide. Table 3 summarizes the last five years of the published data from the Central San Bernardino monitoring station.

a. Photochemical smog (ozone) levels frequently exceed standards in San Bernardino. The 8-hour state ozone standard has been exceeded an average of 18 percent of all days in the past five years near the project site while the 1-hour state standard has been violated an average of 10 percent of all days. While ozone levels are still high, they are much lower than 10 to 20 years ago.

b. Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

c. Respirable dust (PM-10) levels very infrequently exceed the state standard with approximately seven percent of all measurement days above the threshold. However, the less stringent federal PM-10 standard was not violated in the last five years.

d. Some fraction of PM-10 is comprised of ultra-small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). PM-2.5 readings rarely exceed the federal 24-hour PM-2.5 ambient standard (seven times in the last five years).

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3

Air Quality Monitoring Summary (2009-2012)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	**2009**	**2010**	**2011**	**2012**	**2013**
Ozone					
1-Hour > 0.09 ppm (S)	53	27	40	41	22
8-Hour > 0.07 ppm (S)	78	60	66	74	53
8- Hour > 0.075 ppm (F)	61	40	39	54	36
Max. 1-Hour Conc. (ppm)	0.050	0.129	0.135	0.124	0.139
Max. 8-Hour Conc. (ppm)	0.127	0.105	0.121	0.109	0.112
Carbon Monoxide					
1-hour > 20. ppm (S)	0	0	0	0	0
8- Hour > 9. ppm (S,F)	0	0	0	0	0
Max 1-hour Conc. (ppm)	2.5	2.0	1.9	xx	xx
Max 8-hour Conc. (ppm)	2.2	1.7	1.7	1.7	1.7
Nitrogen Dioxide					
1-Hour > 0.18 ppm (S)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.084	0.069	0.062	0.067	0.072
Inhalable Particulates (PM-10)					
24-hour > 50 $\mu g/m^3$ (S)	10/52	2/59	2/60	1/55	3/60
24-hour > 150 $\mu g/m^3$ (F)	0/52	0/59	0/60	0/55	0/60
Max. 24-Hr. Conc. ($\mu g/m^3$)	64.	61.	54.	53.	102.
Ultra-Fine Particulates (PM-2.5)					
24-Hour > 35 $\mu g/m^3$ (F)	2/110	2/119	2/101	0/107	1/110
Max. 24-Hr. Conc. ($\mu g/m^3$)	37.8	39.3	65.0	34.8	55.3

xx = not reported on CARB website

Source: South Coast Air Quality Management District;
San Bernardino 4th Street Monitoring Station

data: www.arb.ca.gov/adam/

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification sets a later attainment deadline (2024), but also requires the air basin to adopt even more stringent emissions controls.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2010[a]	2015[b]	2020[b]	2025[b]
NOx	603	451	357	289
VOC	544	429	400	393
PM-10	160	155	161	165
PM-2.5	71	67	67	68

[a]2010 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the ARB submittal to EPA as part of the California State Implementation Plan (SIP) is expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked around eight years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the 2012 AQMP contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP is believed to satisfy hourly attainment planning requirements.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing residential land use projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based

upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Except for the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust generated by heavy construction equipment, there are no secondary impact indicators associated with project construction or operations.

For PM-2.5 exhaust emissions, recently adopted policies require the gradual conversion of delivery fleets to diesel alternatives, or the use of “clean” diesel if their emissions are demonstrated to be as low as those from alternative fuels. Because health risks from toxic air contaminants (TAC’s) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief portion of a project lifetime during construction, and only in dilute quantity because prevailing daytime winds are from west to east away from the closest existing homes.

SENSITIVE RECEPTORS

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called “sensitive receptors.” Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease). Residential areas adjacent to a proposed site are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. The residential uses along the western project perimeter would be considered the closest sensitive receptors.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new buildings. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions.” Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM-10 emissions during site grading and other disturbance are estimated to be about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "PM-2.5") was adopted in 1997. A limited amount of construction activity particulate matter is in the PM-2.5 range. PM-2.5 emissions are estimated to comprise 10-20 percent of PM-10.

CalEEMod was developed by the SCAQMD to provide a model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Although exhaust emissions will result from on and off-site heavy equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Estimated construction emissions were modeled using CalEEMod2013.2.2 to identify maximum daily emissions for each pollutant during project construction. Construction emissions include all emissions associated with the construction equipment, worker trips, and supply truck deliveries.

The proposed development of 277 single family residences was modeled in CalEEMod2013.2.2. The modeled prototype construction equipment fleet and schedule is indicated in Table 6 and based on CalEEMod defaults for a project of this size.

Table 6

Construction Activity Equipment Fleet

Phase Name and Duration	**Equipment**
Grading (160 days)	1 Grader
	2 Excavators
	1 Dozer
	2 Scrapers
	2 Loader/Backhoes
Construction (500 days)	1 Crane
	3 Forklifts
	1 Generator Set
	1 Welder
	3 Loader/Backhoes
Paving (100 days)	2 Pavers
	2 Paving Equipment
	2 Rollers

Utilizing this indicated equipment fleet shown in Tables 6 the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
2015						
Unmitigated	6.9	79.2	52.3	0.1	12.6	7.1
Mitigated	6.9	79.2	52.3	0.1	7.4	4.9
2016						
Unmitigated	4.1	31.6	28.0	0.0	3.3	2.2
Mitigated	4.1	31.6	28.0	0.0	3.3	2.2
2017						
Unmitigated	38.1	29.2	26.8	0.0	3.1	2.1
Mitigated	38.1	29.2	26.8	0.0	3.1	2.1
SCAQMD Thresholds	75	100	550	150	150	55

Peak daily construction activity emissions are estimated be below SCAQMD CEQA thresholds without the need for added mitigation. The only model-based mitigation measured applied for this project was watering exposed dirt surfaces at least three times per day to minimize the generation of fugitive dust generation during grading.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project the nearest sensitive use is the adjacent residences and therefore a 25 meter distance was selected for analysis.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following tables should be used to determine the maximum daily disturbed-acreage for comparison to LSTs. Table 8 shows the equipment fleet assigned by the computer model for the LST analysis.

Table 8
Maximum Daily Disturbed Acreage per Equipment Type

Equipment Type	Acres/8-hr-day
Crawler Tractor	0.5
Graders	0.5
Rubber Tired Dozers	0.5
Scrapers	1

Based on this table, the proposed project will result in 3.0 disturbed daily acres during peak construction grading activity:

(1 dozer x 0.5 + 1 grader x 0.5 +2 scrapers x 1= 3.0 acres disturbed).

The following thresholds and emissions in Table 9 are therefore determined (pounds per day):

Table 9
LST and Project Emissions (pounds/day)

LST 3.0 acres/25 meters Central San Bernardino Valley	**CO**	**NOx**	**PM-10**	**PM-2.5**
Max On-Site Emissions *	1,230	203	10	6
Grading				
Unmitigated	51	79	12	7
Mitigated	51	79	7	5
Construction				
Unmitigated	19	30	2	2
Mitigated	19	30	2	2
Paving				
Unmitigated	15	20	1	1
Mitigated	15	20	1	1

CalEEMod Output in Appendix
*interpolated between a 2 and 5 acre site

LSTs were compared to the maximum daily construction activities. As seen in Table 9, with active dust suppression, mitigated emissions meet the LST for construction thresholds. LST impacts are less-than-significant.

Therefore, the following construction mitigation measure is necessary to ensure LST thresholds are maintained below significance thresholds:

- Exposed surfaces will be watered at least three times per day during grading activities

OPERATIONAL IMPACTS

The project would generate 2,637 daily trips using trip generation numbers provided by the project traffic consultant. Operational emissions were calculated using CalEEMod2013.2.2 for an assumed project build-out year of 2018 as a target for full occupancy. The operational impacts are shown in Table 10. As shown, operational emissions will not exceed applicable SCAQMD operational emissions CEQA thresholds of significance.

Table 10
Daily Operational Impacts

	Operational Emissions (lbs/day)						
Source	**ROG**	**NOx**	**CO**	**SO_2**	**PM-10**	**PM-2.5**	**CO2**
Area	12.1	0.3	23.0	0.0	0.5	0.4	5,353.4
Energy	0.2	2.1	0.9	0.0	0.2	0.2	2,658.4
Mobile	8.7	25.2	102.0	0.3	19.4	5.5	23,578.9
Total	**21.0**	**27.6**	**125.9**	**0.3**	**20.1**	**6.1**	**31,590.7**
SCAQMD Threshold	55	55	550	150	150	55	-
Exceeds Threshold?	No	No	No	No	No	No	NA

Source: CalEEMod2013.2.2 Output in Appendix
*assumes use of natural gas hearths for residential use

CONSTRUCTION EMISSIONS MITIGATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin and proximity of adjacent residential uses. Recommended mitigation includes:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Address previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control includes:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve),

general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO_2e for residential use projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold

of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The build-out timetable for this project is assumed to be approximately three years. During project construction, the CalEEMod2013.2.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 11.

Table 11
Construction Emissions (Metric Tons CO_2e)

	CO_2e
Year 2015	688.3
Year 2016	529.2
Year 2017	430.8
Total	1,648.3
Amortized	**55.0**

*CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered individually less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO_2(e) emissions are summarized in the CalEEMod2013.2.2 output files found in the appendix of this report.

The total operational and annualized construction emissions are identified in Table 12.

Table 12
Operational Emissions

Consumption Source	**MT CO_2(e) tons/year**
Area Sources	65.0
Energy Utilization	1,039.5
Mobile Source	3,704.6
Solid Waste Generation	147.7
Water Consumption	108.2
Annualized Construction	55.0
Total	**5,120.0**
Guideline Threshold	3,500

This total is above the guideline threshold of 3,500 MTY CO_2e for residential projects suggested by the SCAQMD. Project-related GHG emissions would not exceed the 10,000 MT CO_2e level for industrial sources (although the project is not industrial in nature, this comparison is provided as a reference because it is the only formally adopted numerical CEQA threshold for GHGs). This project total includes both direct (amortized construction, area source and on-site mobile emissions) and indirect (electricity, solid waste and water usage) GHG emissions. Hence, the project will result in generation of a substantial level of greenhouse gases. The finding triggers a requirement to incorporate reasonable and feasible project design features to reduce project-related GHG emissions.

In order to support a finding that project-related GHG emissions have been reduced as much as is reasonably possible, the project must be consistent with applicable plans and policies. Unfortunately, there exists a patchwork quilt of guidance on how to determine such consistency. The most promising course of action is that many local jurisdictions are adopting Climate Action Plans (CAP) to specifically address the shared responsibilities of developers, government and various agencies in minimizing GHG emissions as they affect climate change.

The San Bernardino Associated Governments (SANBAG) has developed a model CAP recommended for adoption by its member communities. SANBAG released the Final version of the San Bernardino County Regional Greenhouse Gas Reduction Plan and its Final Environmental Impact Report (FEIR) for certification on March 5, 2014 at the SANBAG Board of Directors Meeting. The regional plan presents the goals identified by the participating cities in reducing GHG emissions by levels they have individually selected. The regional plan includes an inventory of 2008 GHG emissions, forecast of 2020 emissions, GHG reduction measures for each participating city, and baseline information for the development of city climate action plans. All comments received in response to the DEIR and the Regional Greenhouse Reduction Plan have been reviewed and considered by SANBAG in preparation of the FEIR. Within the EIR, the City of Highland has contributed a chapter entitled *Greenhouse Gas Inventories and Reduction Plan EIR (Volume X: Draft 4.9 City of Highland).*

The draft CAP quantifies the existing baseline CO_2(e) emissions, estimates the future GHG emissions for the business as usual (BAU) scenario, calculates the emissions reductions likely to be achieved from state and federal programs, and then realistically estimates the additional reductions that could be realized from local initiatives. The City of Highland has selected a goal to reduce its community GHG emissions to a level that is 22 percent below its projected emissions in 2020. The City will meet and exceed this goal through a combination of state (63%) and local (37%) efforts. The City actually exceeds the goal with only state/county level actions, but has committed to several additional local measures. The Pavely vehicle standards, the states low carbon fuel standard, the renewable portfolio standards (RPS), and other state measures will reduce GHG in Highland's on-road, solid waste, and building energy sectors in 2020.

The objective of the CAP would be to achieve a combined 37 percent reduction (22% growth and 15% AB-32 target) by 2020. The estimated attainable reduction from all state and regional programs is 32%. An additional reduction of 5% or more is needed from local actions. Table 13

summarizes the annual GHG emissions for baseline conditions, for future growth, for existing GHG reduction programs and for feasible local actions. With realistic estimates of GHG reduction effectiveness, AB-32 targets can be reached.

Table 13
SANBAG Highland Emissions (MT CO_2e /year)

Scenario	Annual Emissions	
2008 Baseline	**267,058**	
2020 BAU	**303,538**	**(+12%)**
2020 With Plan	**196,157**	
Reductions	**107,381**	**(-35%)**

The above table demonstrates that Highland exceeds its emissions reduction goal.

Most of the "local measures" apply to city-wide implementation actions beyond the scope of any single development such as Mediterra. Table 14 summarizes the estimated local measure reduction potential. Measures such as more bicycle trails, coordinated traffic signals, expanded transit routes or schedules, fixed guide ways, etc. cannot be implemented effectively on a single project basis. A development can support these measures by providing space or infrastructure for their integration into a regional system, but cannot implement them individually. The project design features (PDF) for Mediterra that are consistent with the model CAP include:

<u>Energy Conservation, Green Building Design and Recycling</u>

- Coordinate energy-related policies and actions with local utilities and energy agencies.
- Incorporate passive solar design techniques including building orientation, energy-saving materials, roof overhangs, and window and door placement.
- Channel runoff to permeable surfaces through the design of roofs and rain gutter systems and drainage courses.
- Distribute and participate in incentive programs for incorporation of solar and photovoltaic panels (active solar) into existing or new buildings.
- Encourage new development to provide reasonable and secure space for bicycle storage.

<u>Solid Waste Management/Recycling</u>

- Continue to implement the policies and programs identified in the City's SRR (Source Reduction and Recycling Element) and
- HHW (Household Hazardous Waste Element), and develop measures to evaluate their effectiveness.

Green Building and Planning Practices

- Encourage landscaping practices that increase energy efficiency and conserve natural resources.
- Using native and drought-tolerant landscaping (xeriscaping‖) and drip irrigation to conserve water resources.
- Encourage designs that channel runoff to permeable surfaces.
- Encourage transit-oriented, infill development to make efficient use of existing land.
- Encourage site planning and building orientation that maximizes solar and wind resources for cooling and heating.
- During construction, require developers and builders to protect topsoil in order to reduce dust and runoff impacts.

As noted above, the overall contribution is limited. However, the importance of any design features lies more in the possible integration into a sub-regional program rather than the effectiveness of any individual developer-sponsored measure.

Table 14
2020 GHG Reductions for Highland (MT/CO_2(e)/year)

Local Measure by Sector		**Emissions Reductions**
State and County Measures		
State-1	Renewable Portfolio Standard	14,504
State-2	Title 24	4,227
State-3	AB 1190	3,902
State-4	Solar Water Heating	147
State-5	Industrial Boiler Efficiency	354
State-6	Pavley and Low Carbon Fuel Standard	36,772
State-7	AB 32 Transportation Reduction Strategies	3,217
State-8	Low Carbon Fuel Standard Off Road	1,190
State-9	AB 32 Methane Capture	0
County-1	County GHG Reduction Plan Landfill Controls	3,715
Building Energy		
E-4	Solar Installation for New Housing	113
E-5	Solar Installation for New Commercial	138
Water-4	Implement SBX 7-7	32,807
Subtotal		**33,058**
On-Road Transportation		
Transportation-2	Smart Bus Technologies	436
Off-Road Equipment		
Off-Road-2	Idling Ordinance	90
Wastewater Treatment		
Water-4	Implement SBX 7-7	271
Water Conveyance		
Water-4	Implement SBX 7-7	2,387
GHG Performance Standard for New Development		
PS-1	GHG Performance Standard for New Development (30% below BAU)	3,114
State and County Measures		68,038
Total Reductions		**107,381***

*may not be exact due to round-off

APPENDIX

CALEEMOD2013.2.2 COMPUTER MODEL OUTPUT

Mediterra at E Highlands

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	277.00	Dwelling Unit	89.94	498,600.00	792

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grade: 160 days, Construction: 500 days, Pave: 100 days

Off-road Equipment -

Off-road Equipment - Grading: 2 excavators, 1 grader, 1 dozer, 2 scrapers, 2 loader/backhoes

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Vehicle Trips - 9.52 trips per day per traffic report

Construction Off-road Equipment Mitigation -

Area Mitigation - natural gas hearths, low VOC paint

Energy Mitigation - exceed title 24 by 15%

Water Mitigation - low flow water fixtures

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	109.00
tblConstructionPhase	NumDays	1,550.00	500.00
tblConstructionPhase	NumDays	155.00	160.00
tblConstructionPhase	NumDays	110.00	109.00
tblConstructionPhase	PhaseEndDate	5/31/2018	12/30/2017
tblConstructionPhase	PhaseEndDate	7/12/2017	7/19/2017
tblConstructionPhase	PhaseEndDate	12/19/2017	12/30/2017
tblConstructionPhase	PhaseStartDate	12/31/2017	8/1/2017
tblConstructionPhase	PhaseStartDate	8/13/2015	8/20/2015
tblConstructionPhase	PhaseStartDate	7/20/2017	8/1/2017
tblGrading	AcresOfGrading	400.00	387.50
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	10.08	9.52
tblVehicleTrips	WD_TR	9.57	9.52

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8674	79.1621	52.2726	0.0646	8.8140	3.8042	12.6182	3.6468	3.4998	7.1467	0.0000	6,732.6496	6,732.6496	1.9497	0.0000	6,773.5927
2016	4.0731	31.6324	27.9853	0.0475	1.3053	2.0190	3.3243	0.3498	1.8960	2.2458	0.0000	4,513.4628	4,513.4628	0.7277	0.0000	4,528.7447
2017	38.1489	29.2481	26.8138	0.0475	1.3053	1.8280	3.1333	0.3499	1.7160	2.0658	0.0000	4,427.8643	4,427.8643	0.7483	0.0000	4,443.5792
Total	**49.0894**	**140.0426**	**107.0717**	**0.1596**	**11.4246**	**7.6512**	**19.0757**	**4.3465**	**7.1118**	**11.4583**	**0.0000**	**15,673.9768**	**15,673.9768**	**3.4257**	**0.0000**	**15,745.9166**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	6.8674	79.1621	52.2726	0.0646	3.5738	3.8042	7.3780	1.4584	3.4998	4.9582	0.0000	6,732.6496	6,732.6496	1.9497	0.0000	6,773.5927
2016	4.0731	31.6324	27.9853	0.0475	1.3053	2.0190	3.3243	0.3498	1.8960	2.2458	0.0000	4,513.4628	4,513.4628	0.7277	0.0000	4,528.7447
2017	38.1489	29.2481	26.8138	0.0475	1.3053	1.8280	3.1333	0.3499	1.7160	2.0658	0.0000	4,427.8643	4,427.8643	0.7483	0.0000	4,443.5792
Total	**49.0894**	**140.0426**	**107.0717**	**0.1596**	**6.1844**	**7.6512**	**13.8356**	**2.1581**	**7.1118**	**9.2699**	**0.0000**	**15,673.9768**	**15,673.9768**	**3.4257**	**0.0000**	**15,745.9165**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**45.87**	**0.00**	**27.47**	**50.35**	**0.00**	**19.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	84.2341	2.1087	162.2463	0.2227		21.2852	21.2852		21.2819	21.2819	2,594.6364	5,027.1490	7,621.7854	7.7785	0.1761	7,839.7263
Energy	0.2764	2.3616	1.0049	0.0151		0.1909	0.1909		0.1909	0.1909		3,014.8064	3,014.8064	0.0578	0.0553	3,033.1540
Mobile	8.6575	25.1985	102.0050	0.2857	19.1108	0.3865	19.4974	5.1063	0.3561	5.4624		23,561.0153	23,561.0153	0.8544		23,578.9581
Total	**93.1680**	**29.6688**	**265.2562**	**0.5235**	**19.1108**	**21.8626**	**40.9735**	**5.1063**	**21.8289**	**26.9352**	**2,594.6364**	**31,602.9707**	**34,197.6071**	**8.6907**	**0.2314**	**34,451.8384**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	12.1341	0.2672	23.0409	1.2100e-003		0.4600	0.4600		0.4565	0.4565	0.0000	5,320.4431	5,320.4431	0.1420	0.0968	5,353.4284
Energy	0.2422	2.0698	0.8808	0.0132		0.1673	0.1673		0.1673	0.1673		2,642.2722	2,642.2722	0.0506	0.0484	2,658.3527
Mobile	8.6575	25.1985	102.0050	0.2857	19.1108	0.3865	19.4974	5.1063	0.3561	5.4624		23,561.0153	23,561.0153	0.8544		23,578.9581
Total	**21.0338**	**27.5354**	**125.9266**	**0.3001**	**19.1108**	**1.0138**	**20.1247**	**5.1063**	**0.9799**	**6.0862**	**0.0000**	**31,523.7307**	**31,523.7307**	**1.0470**	**0.1452**	**31,590.7391**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**77.42**	**7.19**	**52.53**	**42.67**	**0.00**	**95.36**	**50.88**	**0.00**	**95.51**	**77.40**	**100.00**	**0.25**	**7.82**	**87.95**	**37.23**	**8.30**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2015	8/12/2015	5	160	
2	Building Construction	Building Construction	8/20/2015	7/19/2017	5	500	
3	Paving	Paving	8/1/2017	12/30/2017	5	109	
4	Architectural Coating	Architectural Coating	8/1/2017	12/30/2017	5	109	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 0

Residential Indoor: 1,009,665; Residential Outdoor: 336,555; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	100.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.5905	0.0000	8.5905	3.5876	0.0000	3.5876			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980		6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**8.5905**	**3.8022**	**12.3927**	**3.5876**	**3.4980**	**7.0856**		**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0922	0.1154	1.4326	2.8300e-003	0.2236	1.9700e-003	0.2255	0.0593	1.8000e-003	0.0611		246.4063	246.4063	0.0133		246.6847
Total	**0.0922**	**0.1154**	**1.4326**	**2.8300e-003**	**0.2236**	**1.9700e-003**	**0.2255**	**0.0593**	**1.8000e-003**	**0.0611**		**246.4063**	**246.4063**	**0.0133**		**246.6847**

3.2 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3503	0.0000	3.3503	1.3992	0.0000	1.3992			0.0000			0.0000
Off-Road	6.7751	79.0467	50.8400	0.0618		3.8022	3.8022		3.4980	3.4980	0.0000	6,486.2433	6,486.2433	1.9364		6,526.9080
Total	**6.7751**	**79.0467**	**50.8400**	**0.0618**	**3.3503**	**3.8022**	**7.1525**	**1.3992**	**3.4980**	**4.8972**	**0.0000**	**6,486.2433**	**6,486.2433**	**1.9364**		**6,526.9080**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0922	0.1154	1.4326	2.8300e-003	0.2236	1.9700e-003	0.2255	0.0593	1.8000e-003	0.0611		246.4063	246.4063	0.0133		246.6847
Total	**0.0922**	**0.1154**	**1.4326**	**2.8300e-003**	**0.2236**	**1.9700e-003**	**0.2255**	**0.0593**	**1.8000e-003**	**0.0611**		**246.4063**	**246.4063**	**0.0133**		**246.6847**

3.3 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**		**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2835	2.9480	3.2521	6.5400e-003	0.1874	0.0510	0.2384	0.0534	0.0469	0.1002		661.8679	661.8679	5.2000e-003		661.9771
Worker	0.4612	0.5772	7.1632	0.0142	1.1178	9.8400e-003	1.1276	0.2964	9.0200e-003	0.3055		1,232.0317	1,232.0317	0.0663		1,233.4235
Total	**0.7447**	**3.5252**	**10.4152**	**0.0207**	**1.3052**	**0.0608**	**1.3660**	**0.3498**	**0.0559**	**0.4057**		**1,893.8996**	**1,893.8996**	**0.0715**		**1,895.4006**

3.3 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904	0.0000	2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**	**0.0000**	**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2835	2.9480	3.2521	6.5400e-003	0.1874	0.0510	0.2384	0.0534	0.0469	0.1002		661.8679	661.8679	5.2000e-003		661.9771
Worker	0.4612	0.5772	7.1632	0.0142	1.1178	9.8400e-003	1.1276	0.2964	9.0200e-003	0.3055		1,232.0317	1,232.0317	0.0663		1,233.4235
Total	**0.7447**	**3.5252**	**10.4152**	**0.0207**	**1.3052**	**0.0608**	**1.3660**	**0.3498**	**0.0559**	**0.4057**		**1,893.8996**	**1,893.8996**	**0.0715**		**1,895.4006**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2506	2.6054	2.9924	6.5300e-003	0.1875	0.0423	0.2298	0.0534	0.0389	0.0923		654.5939	654.5939	4.7000e-003		654.6925
Worker	0.4163	0.5207	6.4863	0.0142	1.1178	9.3400e-003	1.1271	0.2964	8.5900e-003	0.3050		1,189.5826	1,189.5826	0.0610		1,190.8632
Total	**0.6669**	**3.1260**	**9.4787**	**0.0207**	**1.3053**	**0.0517**	**1.3569**	**0.3498**	**0.0475**	**0.3973**		**1,844.1764**	**1,844.1764**	**0.0657**		**1,845.5557**

3.3 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2506	2.6054	2.9924	6.5300e-003	0.1875	0.0423	0.2298	0.0534	0.0389	0.0923		654.5939	654.5939	4.7000e-003		654.6925
Worker	0.4163	0.5207	6.4863	0.0142	1.1178	9.3400e-003	1.1271	0.2964	8.5900e-003	0.3050		1,189.5826	1,189.5826	0.0610		1,190.8632
Total	**0.6669**	**3.1260**	**9.4787**	**0.0207**	**1.3053**	**0.0517**	**1.3569**	**0.3498**	**0.0475**	**0.3973**		**1,844.1764**	**1,844.1764**	**0.0657**		**1,845.5557**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2297	2.3723	2.8143	6.5200e-003	0.1876	0.0378	0.2253	0.0534	0.0347	0.0881		644.0015	644.0015	4.5400e-003		644.0969
Worker	0.3743	0.4702	5.8704	0.0142	1.1178	8.9900e-003	1.1268	0.2964	8.2900e-003	0.3047		1,144.0575	1,144.0575	0.0563		1,145.2394
Total	**0.6040**	**2.8425**	**8.6846**	**0.0207**	**1.3053**	**0.0467**	**1.3521**	**0.3499**	**0.0430**	**0.3929**		**1,788.0590**	**1,788.0590**	**0.0608**		**1,789.3363**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2297	2.3723	2.8143	6.5200e-003	0.1876	0.0378	0.2253	0.0534	0.0347	0.0881		644.0015	644.0015	4.5400e-003		644.0969
Worker	0.3743	0.4702	5.8704	0.0142	1.1178	8.9900e-003	1.1268	0.2964	8.2900e-003	0.3047		1,144.0575	1,144.0575	0.0563		1,145.2394
Total	**0.6040**	**2.8425**	**8.6846**	**0.0207**	**1.3053**	**0.0467**	**1.3521**	**0.3499**	**0.0430**	**0.3929**		**1,788.0590**	**1,788.0590**	**0.0608**		**1,789.3363**

3.4 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9074	20.2964	14.7270	0.0223		1.1384	1.1384		1.0473	1.0473		2,281.0588	2,281.0588	0.6989		2,295.7360
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9074**	**20.2964**	**14.7270**	**0.0223**		**1.1384**	**1.1384**		**1.0473**	**1.0473**		**2,281.0588**	**2,281.0588**	**0.6989**		**2,295.7360**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0705	0.8806	2.1200e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2400e-003	0.0457		171.6086	171.6086	8.4400e-003		171.7859
Total	**0.0561**	**0.0705**	**0.8806**	**2.1200e-003**	**0.1677**	**1.3500e-003**	**0.1690**	**0.0445**	**1.2400e-003**	**0.0457**		**171.6086**	**171.6086**	**8.4400e-003**		**171.7859**

3.4 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9074	20.2964	14.7270	0.0223		1.1384	1.1384		1.0473	1.0473	0.0000	2,281.0588	2,281.0588	0.6989		2,295.7360
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9074**	**20.2964**	**14.7270**	**0.0223**		**1.1384**	**1.1384**		**1.0473**	**1.0473**	**0.0000**	**2,281.0588**	**2,281.0588**	**0.6989**		**2,295.7360**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0705	0.8806	2.1200e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2400e-003	0.0457		171.6086	171.6086	8.4400e-003		171.7859
Total	**0.0561**	**0.0705**	**0.8806**	**2.1200e-003**	**0.1677**	**1.3500e-003**	**0.1690**	**0.0445**	**1.2400e-003**	**0.0457**		**171.6086**	**171.6086**	**8.4400e-003**		**171.7859**

3.5 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.7783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**36.1106**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0940	1.1741	2.8300e-003	0.2236	1.8000e-003	0.2254	0.0593	1.6600e-003	0.0610		228.8115	228.8115	0.0113		229.0479
Total	**0.0749**	**0.0940**	**1.1741**	**2.8300e-003**	**0.2236**	**1.8000e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**228.8115**	**228.8115**	**0.0113**		**229.0479**

3.5 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	35.7783					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**36.1106**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0940	1.1741	2.8300e-003	0.2236	1.8000e-003	0.2254	0.0593	1.6600e-003	0.0610		228.8115	228.8115	0.0113		229.0479
Total	**0.0749**	**0.0940**	**1.1741**	**2.8300e-003**	**0.2236**	**1.8000e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**228.8115**	**228.8115**	**0.0113**		**229.0479**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.6575	25.1985	102.0050	0.2857	19.1108	0.3865	19.4974	5.1063	0.3561	5.4624		23,561.0153	23,561.0153	0.8544		23,578.9581
Unmitigated	8.6575	25.1985	102.0050	0.2857	19.1108	0.3865	19.4974	5.1063	0.3561	5.4624		23,561.0153	23,561.0153	0.8544		23,578.9581

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	2,637.04	2,637.04	2429.29	8,909,750	8,909,750
Total	2,637.04	2,637.04	2,429.29	8,909,750	8,909,750

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.512137	0.059943	0.180601	0.139123	0.042256	0.006647	0.016115	0.031670	0.001940	0.002502	0.004362	0.000588	0.002117

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.2422	2.0698	0.8808	0.0132		0.1673	0.1673		0.1673	0.1673		2,642.2722	2,642.2722	0.0506	0.0484	2,658.3527
NaturalGas Unmitigated	0.2764	2.3616	1.0049	0.0151		0.1909	0.1909		0.1909	0.1909		3,014.8064	3,014.8064	0.0578	0.0553	3,033.1540

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	25625.9	0.2764	2.3616	1.0049	0.0151		0.1909	0.1909		0.1909	0.1909		3,014.8064	3,014.8064	0.0578	0.0553	3,033.1540
Total		**0.2764**	**2.3616**	**1.0049**	**0.0151**		**0.1909**	**0.1909**		**0.1909**	**0.1909**		**3,014.8064**	**3,014.8064**	**0.0578**	**0.0553**	**3,033.1540**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	22.4593	0.2422	2.0698	0.8808	0.0132		0.1673	0.1673		0.1673	0.1673		2,642.2722	2,642.2722	0.0506	0.0484	2,658.3527
Total		**0.2422**	**2.0698**	**0.8808**	**0.0132**		**0.1673**	**0.1673**		**0.1673**	**0.1673**		**2,642.2722**	**2,642.2722**	**0.0506**	**0.0484**	**2,658.3527**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	12.1341	0.2672	23.0409	1.2100e-003		0.4600	0.4600		0.4565	0.4565	0.0000	5,320.4431	5,320.4431	0.1420	0.0968	5,353.4284
Unmitigated	84.2341	2.1087	162.2463	0.2227		21.2852	21.2852		21.2819	21.2819	2,594.6364	5,027.1490	7,621.7854	7.7785	0.1761	7,839.7263

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	9.8723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	72.5840	1.8416	139.2318	0.2215		21.1596	21.1596		21.1562	21.1562	2,594.6364	4,986.0000	7,580.6364	7.7377	0.1761	7,797.7210
Landscaping	0.7094	0.2671	23.0145	1.2100e-003		0.1256	0.1256		0.1256	0.1256		41.1490	41.1490	0.0408		42.0054
Architectural Coating	1.0685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**84.2341**	**2.1087**	**162.2463**	**0.2227**		**21.2852**	**21.2852**		**21.2819**	**21.2819**	**2,594.6364**	**5,027.1490**	**7,621.7854**	**7.7785**	**0.1761**	**7,839.7263**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	9.8723					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.4839	2.0000e-005	0.0264	0.0000		0.3344	0.3344		0.3308	0.3308	0.0000	5,279.2941	5,279.2941	0.1012	0.0968	5,311.4230
Landscaping	0.7094	0.2671	23.0145	1.2100e-003		0.1256	0.1256		0.1256	0.1256		41.1490	41.1490	0.0408		42.0054
Architectural Coating	1.0685					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**12.1341**	**0.2671**	**23.0409**	**1.2100e-003**		**0.4600**	**0.4600**		**0.4565**	**0.4565**	**0.0000**	**5,320.4431**	**5,320.4431**	**0.1420**	**0.0968**	**5,353.4284**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Mediterra at E Highlands

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	277.00	Dwelling Unit	89.94	498,600.00	792

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2018
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Grade: 160 days, Construction: 500 days, Pave: 100 days

Off-road Equipment -

Off-road Equipment - Grading: 2 excavators, 1 grader, 1 dozer, 2 scrapers, 2 loader/backhoes

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Vehicle Trips - 9.52 trips per day per traffic report

Construction Off-road Equipment Mitigation -

Area Mitigation - natural gas hearths, low VOC paint

Energy Mitigation - exceed title 24 by 15%

Water Mitigation - low flow water fixtures

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	110.00	109.00
tblConstructionPhase	NumDays	1,550.00	500.00
tblConstructionPhase	NumDays	155.00	160.00
tblConstructionPhase	NumDays	110.00	109.00
tblConstructionPhase	PhaseEndDate	5/31/2018	12/30/2017
tblConstructionPhase	PhaseEndDate	7/12/2017	7/19/2017
tblConstructionPhase	PhaseEndDate	12/19/2017	12/30/2017
tblConstructionPhase	PhaseStartDate	12/31/2017	8/1/2017
tblConstructionPhase	PhaseStartDate	8/13/2015	8/20/2015
tblConstructionPhase	PhaseStartDate	7/20/2017	8/1/2017
tblGrading	AcresOfGrading	400.00	387.50
tblProjectCharacteristics	OperationalYear	2014	2018
tblVehicleTrips	ST_TR	10.08	9.52
tblVehicleTrips	WD_TR	9.57	9.52

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.7607	7.9550	5.5815	7.4000e-003	0.7663	0.4089	1.1752	0.3082	0.3782	0.6864	0.0000	684.7152	684.7152	0.1740	0.0000	688.3691
2016	0.5317	4.1523	3.6707	6.1100e-003	0.1673	0.2635	0.4308	0.0449	0.2474	0.2923	0.0000	527.3742	527.3742	0.0862	0.0000	529.1835
2017	2.3438	3.3386	2.9381	4.9800e-003	0.1126	0.2024	0.3150	0.0302	0.1894	0.2196	0.0000	429.0745	429.0745	0.0831	0.0000	430.8194
Total	**3.6361**	**15.4459**	**12.1903**	**0.0185**	**1.0461**	**0.8748**	**1.9209**	**0.3832**	**0.8151**	**1.1983**	**0.0000**	**1,641.1639**	**1,641.1639**	**0.3433**	**0.0000**	**1,648.3720**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.7607	7.9550	5.5815	7.4000e-003	0.3471	0.4089	0.7560	0.1331	0.3782	0.5113	0.0000	684.7145	684.7145	0.1740	0.0000	688.3684
2016	0.5317	4.1523	3.6707	6.1100e-003	0.1673	0.2635	0.4308	0.0449	0.2474	0.2923	0.0000	527.3738	527.3738	0.0862	0.0000	529.1831
2017	2.3438	3.3386	2.9381	4.9800e-003	0.1126	0.2024	0.3150	0.0302	0.1894	0.2196	0.0000	429.0742	429.0742	0.0831	0.0000	430.8191
Total	**3.6361**	**15.4459**	**12.1903**	**0.0185**	**0.6269**	**0.8748**	**1.5017**	**0.2082**	**0.8151**	**1.0232**	**0.0000**	**1,641.1625**	**1,641.1625**	**0.3433**	**0.0000**	**1,648.3706**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**40.07**	**0.00**	**21.82**	**45.68**	**0.00**	**14.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9927	0.0564	4.6172	2.9200e-003		0.2802	0.2802		0.2802	0.2802	29.4227	61.2065	90.6292	0.0924	2.0000e-003	93.1880
Energy	0.0504	0.4310	0.1834	2.7500e-003		0.0349	0.0349		0.0349	0.0349	0.0000	1,107.8865	1,107.8865	0.0376	0.0149	1,113.3065
Mobile	1.5269	4.8613	18.1956	0.0494	3.3765	0.0696	3.4461	0.9035	0.0641	0.9677	0.0000	3,701.7005	3,701.7005	0.1394	0.0000	3,704.6272
Waste						0.0000	0.0000		0.0000	0.0000	65.9152	0.0000	65.9152	3.8955	0.0000	147.7203
Water						0.0000	0.0000		0.0000	0.0000	5.7257	103.4227	109.1484	0.5928	0.0149	126.2075
Total	**4.5700**	**5.3487**	**22.9962**	**0.0551**	**3.3765**	**0.3846**	**3.7611**	**0.9035**	**0.3791**	**1.2827**	**101.0636**	**4,974.2161**	**5,075.2797**	**4.7576**	**0.0318**	**5,185.0494**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.0914	0.0334	2.8771	1.5000e-004		0.0199	0.0199		0.0198	0.0198	0.0000	64.5324	64.5324	5.7700e-003	1.1000e-003	64.9939
Energy	0.0442	0.3777	0.1607	2.4100e-003		0.0305	0.0305		0.0305	0.0305	0.0000	1,034.5451	1,034.5451	0.0358	0.0137	1,039.5441
Mobile	1.5269	4.8613	18.1956	0.0494	3.3765	0.0696	3.4461	0.9035	0.0641	0.9677	0.0000	3,701.7005	3,701.7005	0.1394	0.0000	3,704.6272
Waste						0.0000	0.0000		0.0000	0.0000	65.9152	0.0000	65.9152	3.8955	0.0000	147.7203
Water						0.0000	0.0000		0.0000	0.0000	4.5806	89.9729	94.5535	0.4745	0.0120	108.2218
Total	**3.6625**	**5.2725**	**21.2335**	**0.0519**	**3.3765**	**0.1200**	**3.4965**	**0.9035**	**0.1145**	**1.0180**	**70.4958**	**4,890.7508**	**4,961.2466**	**4.5510**	**0.0268**	**5,065.1072**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**19.86**	**1.43**	**7.67**	**5.65**	**0.00**	**68.80**	**7.04**	**0.00**	**69.80**	**20.63**	**30.25**	**1.68**	**2.25**	**4.34**	**15.91**	**2.31**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2015	8/12/2015	5	160	
2	Building Construction	Building Construction	8/20/2015	7/19/2017	5	500	
3	Paving	Paving	8/1/2017	12/30/2017	5	109	
4	Architectural Coating	Architectural Coating	8/1/2017	12/30/2017	5	109	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 0

Residential Indoor: 1,009,665; Residential Outdoor: 336,555; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	100.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6872	0.0000	0.6872	0.2870	0.0000	0.2870	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5420	6.3237	4.0672	4.9400e-003		0.3042	0.3042		0.2798	0.2798	0.0000	470.7377	470.7377	0.1405	0.0000	473.6889
Total	**0.5420**	**6.3237**	**4.0672**	**4.9400e-003**	**0.6872**	**0.3042**	**0.9914**	**0.2870**	**0.2798**	**0.5668**	**0.0000**	**470.7377**	**470.7377**	**0.1405**	**0.0000**	**473.6889**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1300e-003	0.0104	0.1085	2.2000e-004	0.0176	1.6000e-004	0.0177	4.6600e-003	1.4000e-004	4.8100e-003	0.0000	17.0351	17.0351	9.6000e-004	0.0000	17.0553
Total	**7.1300e-003**	**0.0104**	**0.1085**	**2.2000e-004**	**0.0176**	**1.6000e-004**	**0.0177**	**4.6600e-003**	**1.4000e-004**	**4.8100e-003**	**0.0000**	**17.0351**	**17.0351**	**9.6000e-004**	**0.0000**	**17.0553**

3.2 Grading - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2680	0.0000	0.2680	0.1119	0.0000	0.1119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5420	6.3237	4.0672	4.9400e-003		0.3042	0.3042		0.2798	0.2798	0.0000	470.7371	470.7371	0.1405	0.0000	473.6883
Total	**0.5420**	**6.3237**	**4.0672**	**4.9400e-003**	**0.2680**	**0.3042**	**0.5722**	**0.1119**	**0.2798**	**0.3918**	**0.0000**	**470.7371**	**470.7371**	**0.1405**	**0.0000**	**473.6883**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1300e-003	0.0104	0.1085	2.2000e-004	0.0176	1.6000e-004	0.0177	4.6600e-003	1.4000e-004	4.8100e-003	0.0000	17.0351	17.0351	9.6000e-004	0.0000	17.0553
Total	**7.1300e-003**	**0.0104**	**0.1085**	**2.2000e-004**	**0.0176**	**1.6000e-004**	**0.0177**	**4.6600e-003**	**1.4000e-004**	**4.8100e-003**	**0.0000**	**17.0351**	**17.0351**	**9.6000e-004**	**0.0000**	**17.0553**

3.3 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1756	1.4414	0.8997	1.2900e-003		0.1016	0.1016		0.0955	0.0955	0.0000	117.1173	117.1173	0.0294	0.0000	117.7344
Total	**0.1756**	**1.4414**	**0.8997**	**1.2900e-003**		**0.1016**	**0.1016**		**0.0955**	**0.0955**	**0.0000**	**117.1173**	**117.1173**	**0.0294**	**0.0000**	**117.7344**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.1480	0.1805	3.1000e-004	8.8600e-003	2.4600e-003	0.0113	2.5300e-003	2.2600e-003	4.7900e-003	0.0000	28.7200	28.7200	2.3000e-004	0.0000	28.7248
Worker	0.0214	0.0313	0.3255	6.5000e-004	0.0527	4.7000e-004	0.0531	0.0140	4.3000e-004	0.0144	0.0000	51.1052	51.1052	2.8900e-003	0.0000	51.1658
Total	**0.0359**	**0.1794**	**0.5061**	**9.6000e-004**	**0.0615**	**2.9300e-003**	**0.0645**	**0.0165**	**2.6900e-003**	**0.0192**	**0.0000**	**79.8252**	**79.8252**	**3.1200e-003**	**0.0000**	**79.8906**

3.3 Building Construction - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1756	1.4414	0.8997	1.2900e-003		0.1016	0.1016		0.0955	0.0955	0.0000	117.1171	117.1171	0.0294	0.0000	117.7342
Total	**0.1756**	**1.4414**	**0.8997**	**1.2900e-003**		**0.1016**	**0.1016**		**0.0955**	**0.0955**	**0.0000**	**117.1171**	**117.1171**	**0.0294**	**0.0000**	**117.7342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.1480	0.1805	3.1000e-004	8.8600e-003	2.4600e-003	0.0113	2.5300e-003	2.2600e-003	4.7900e-003	0.0000	28.7200	28.7200	2.3000e-004	0.0000	28.7248
Worker	0.0214	0.0313	0.3255	6.5000e-004	0.0527	4.7000e-004	0.0531	0.0140	4.3000e-004	0.0144	0.0000	51.1052	51.1052	2.8900e-003	0.0000	51.1658
Total	**0.0359**	**0.1794**	**0.5061**	**9.6000e-004**	**0.0615**	**2.9300e-003**	**0.0645**	**0.0165**	**2.6900e-003**	**0.0192**	**0.0000**	**79.8252**	**79.8252**	**3.1200e-003**	**0.0000**	**79.8906**

3.3 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4445	3.7201	2.4151	3.5000e-003		0.2567	0.2567		0.2412	0.2412	0.0000	316.0104	316.0104	0.0784	0.0000	317.6563
Total	**0.4445**	**3.7201**	**2.4151**	**3.5000e-003**		**0.2567**	**0.2567**		**0.2412**	**0.2412**	**0.0000**	**316.0104**	**316.0104**	**0.0784**	**0.0000**	**317.6563**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0348	0.3554	0.4563	8.5000e-004	0.0241	5.5400e-003	0.0296	6.8700e-003	5.1000e-003	0.0120	0.0000	77.2230	77.2230	5.6000e-004	0.0000	77.2349
Worker	0.0523	0.0768	0.7993	1.7600e-003	0.1432	1.2200e-003	0.1444	0.0380	1.1200e-003	0.0391	0.0000	134.1407	134.1407	7.2200e-003	0.0000	134.2923
Total	**0.0872**	**0.4323**	**1.2556**	**2.6100e-003**	**0.1673**	**6.7600e-003**	**0.1740**	**0.0449**	**6.2200e-003**	**0.0511**	**0.0000**	**211.3637**	**211.3637**	**7.7800e-003**	**0.0000**	**211.5272**

3.3 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4445	3.7201	2.4151	3.5000e-003		0.2567	0.2567		0.2412	0.2412	0.0000	316.0101	316.0101	0.0784	0.0000	317.6560
Total	**0.4445**	**3.7201**	**2.4151**	**3.5000e-003**		**0.2567**	**0.2567**		**0.2412**	**0.2412**	**0.0000**	**316.0101**	**316.0101**	**0.0784**	**0.0000**	**317.6560**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0348	0.3554	0.4563	8.5000e-004	0.0241	5.5400e-003	0.0296	6.8700e-003	5.1000e-003	0.0120	0.0000	77.2230	77.2230	5.6000e-004	0.0000	77.2349
Worker	0.0523	0.0768	0.7993	1.7600e-003	0.1432	1.2200e-003	0.1444	0.0380	1.1200e-003	0.0391	0.0000	134.1407	134.1407	7.2200e-003	0.0000	134.2923
Total	**0.0872**	**0.4323**	**1.2556**	**2.6100e-003**	**0.1673**	**6.7600e-003**	**0.1740**	**0.0449**	**6.2200e-003**	**0.0511**	**0.0000**	**211.3637**	**211.3637**	**7.7800e-003**	**0.0000**	**211.5272**

3.3 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	1.8880	1.2962	1.9200e-003		0.1274	0.1274		0.1196	0.1196	0.0000	171.2276	171.2276	0.0421	0.0000	172.1125
Total	**0.2218**	**1.8880**	**1.2962**	**1.9200e-003**		**0.1274**	**0.1274**		**0.1196**	**0.1196**	**0.0000**	**171.2276**	**171.2276**	**0.0421**	**0.0000**	**172.1125**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0175	0.1772	0.2369	4.7000e-004	0.0132	2.7100e-003	0.0159	3.7700e-003	2.4900e-003	6.2600e-003	0.0000	41.6249	41.6249	3.0000e-004	0.0000	41.6312
Worker	0.0257	0.0380	0.3951	9.6000e-004	0.0784	6.4000e-004	0.0791	0.0208	5.9000e-004	0.0214	0.0000	70.6732	70.6732	3.6500e-003	0.0000	70.7499
Total	**0.0431**	**0.2152**	**0.6320**	**1.4300e-003**	**0.0916**	**3.3500e-003**	**0.0950**	**0.0246**	**3.0800e-003**	**0.0277**	**0.0000**	**112.2982**	**112.2982**	**3.9500e-003**	**0.0000**	**112.3811**

3.3 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	1.8880	1.2962	1.9200e-003		0.1274	0.1274		0.1196	0.1196	0.0000	171.2274	171.2274	0.0421	0.0000	172.1123
Total	**0.2218**	**1.8880**	**1.2962**	**1.9200e-003**		**0.1274**	**0.1274**		**0.1196**	**0.1196**	**0.0000**	**171.2274**	**171.2274**	**0.0421**	**0.0000**	**172.1123**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0175	0.1772	0.2369	4.7000e-004	0.0132	2.7100e-003	0.0159	3.7700e-003	2.4900e-003	6.2600e-003	0.0000	41.6249	41.6249	3.0000e-004	0.0000	41.6312
Worker	0.0257	0.0380	0.3951	9.6000e-004	0.0784	6.4000e-004	0.0791	0.0208	5.9000e-004	0.0214	0.0000	70.6732	70.6732	3.6500e-003	0.0000	70.7499
Total	**0.0431**	**0.2152**	**0.6320**	**1.4300e-003**	**0.0916**	**3.3500e-003**	**0.0950**	**0.0246**	**3.0800e-003**	**0.0277**	**0.0000**	**112.2982**	**112.2982**	**3.9500e-003**	**0.0000**	**112.3811**

3.4 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1040	1.1062	0.8026	1.2200e-003		0.0620	0.0620		0.0571	0.0571	0.0000	112.7791	112.7791	0.0346	0.0000	113.5048
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1040**	**1.1062**	**0.8026**	**1.2200e-003**		**0.0620**	**0.0620**		**0.0571**	**0.0571**	**0.0000**	**112.7791**	**112.7791**	**0.0346**	**0.0000**	**113.5048**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	4.3500e-003	0.0452	1.1000e-004	8.9700e-003	7.0000e-005	9.0400e-003	2.3800e-003	7.0000e-005	2.4500e-003	0.0000	8.0805	8.0805	4.2000e-004	0.0000	8.0892
Total	**2.9400e-003**	**4.3500e-003**	**0.0452**	**1.1000e-004**	**8.9700e-003**	**7.0000e-005**	**9.0400e-003**	**2.3800e-003**	**7.0000e-005**	**2.4500e-003**	**0.0000**	**8.0805**	**8.0805**	**4.2000e-004**	**0.0000**	**8.0892**

3.4 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1040	1.1062	0.8026	1.2200e-003		0.0620	0.0620		0.0571	0.0571	0.0000	112.7790	112.7790	0.0346	0.0000	113.5047
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1040**	**1.1062**	**0.8026**	**1.2200e-003**		**0.0620**	**0.0620**		**0.0571**	**0.0571**	**0.0000**	**112.7790**	**112.7790**	**0.0346**	**0.0000**	**113.5047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9400e-003	4.3500e-003	0.0452	1.1000e-004	8.9700e-003	7.0000e-005	9.0400e-003	2.3800e-003	7.0000e-005	2.4500e-003	0.0000	8.0805	8.0805	4.2000e-004	0.0000	8.0892
Total	**2.9400e-003**	**4.3500e-003**	**0.0452**	**1.1000e-004**	**8.9700e-003**	**7.0000e-005**	**9.0400e-003**	**2.3800e-003**	**7.0000e-005**	**2.4500e-003**	**0.0000**	**8.0805**	**8.0805**	**4.2000e-004**	**0.0000**	**8.0892**

3.5 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.9499					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461
Total	**1.9680**	**0.1191**	**0.1018**	**1.6000e-004**		**9.4500e-003**	**9.4500e-003**		**9.4500e-003**	**9.4500e-003**	**0.0000**	**13.9152**	**13.9152**	**1.4700e-003**	**0.0000**	**13.9461**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9200e-003	5.7900e-003	0.0602	1.5000e-004	0.0120	1.0000e-004	0.0121	3.1800e-003	9.0000e-005	3.2700e-003	0.0000	10.7740	10.7740	5.6000e-004	0.0000	10.7857
Total	**3.9200e-003**	**5.7900e-003**	**0.0602**	**1.5000e-004**	**0.0120**	**1.0000e-004**	**0.0121**	**3.1800e-003**	**9.0000e-005**	**3.2700e-003**	**0.0000**	**10.7740**	**10.7740**	**5.6000e-004**	**0.0000**	**10.7857**

3.5 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.9499					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461
Total	**1.9680**	**0.1191**	**0.1018**	**1.6000e-004**		**9.4500e-003**	**9.4500e-003**		**9.4500e-003**	**9.4500e-003**	**0.0000**	**13.9152**	**13.9152**	**1.4700e-003**	**0.0000**	**13.9461**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9200e-003	5.7900e-003	0.0602	1.5000e-004	0.0120	1.0000e-004	0.0121	3.1800e-003	9.0000e-005	3.2700e-003	0.0000	10.7740	10.7740	5.6000e-004	0.0000	10.7857
Total	**3.9200e-003**	**5.7900e-003**	**0.0602**	**1.5000e-004**	**0.0120**	**1.0000e-004**	**0.0121**	**3.1800e-003**	**9.0000e-005**	**3.2700e-003**	**0.0000**	**10.7740**	**10.7740**	**5.6000e-004**	**0.0000**	**10.7857**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5269	4.8613	18.1956	0.0494	3.3765	0.0696	3.4461	0.9035	0.0641	0.9677	0.0000	3,701.7005	3,701.7005	0.1394	0.0000	3,704.6272
Unmitigated	1.5269	4.8613	18.1956	0.0494	3.3765	0.0696	3.4461	0.9035	0.0641	0.9677	0.0000	3,701.7005	3,701.7005	0.1394	0.0000	3,704.6272

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	2,637.04	2,637.04	2429.29	8,909,750	8,909,750
Total	2,637.04	2,637.04	2,429.29	8,909,750	8,909,750

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.512137	0.059943	0.180601	0.139123	0.042256	0.006647	0.016115	0.031670	0.001940	0.002502	0.004362	0.000588	0.002117

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	597.0873	597.0873	0.0275	5.6800e-003	599.4240
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	608.7515	608.7515	0.0280	5.7900e-003	611.1338
NaturalGas Mitigated	0.0442	0.3777	0.1607	2.4100e-003		0.0305	0.0305		0.0305	0.0305	0.0000	437.4578	437.4578	8.3800e-003	8.0200e-003	440.1201
NaturalGas Unmitigated	0.0504	0.4310	0.1834	2.7500e-003		0.0349	0.0349		0.0349	0.0349	0.0000	499.1350	499.1350	9.5700e-003	9.1500e-003	502.1727

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	9.35344e+006	0.0504	0.4310	0.1834	2.7500e-003		0.0349	0.0349		0.0349	0.0349	0.0000	499.1350	499.1350	9.5700e-003	9.1500e-003	502.1727
Total		**0.0504**	**0.4310**	**0.1834**	**2.7500e-003**		**0.0349**	**0.0349**		**0.0349**	**0.0349**	**0.0000**	**499.1350**	**499.1350**	**9.5700e-003**	**9.1500e-003**	**502.1727**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	8.19765e+006	0.0442	0.3777	0.1607	2.4100e-003		0.0305	0.0305		0.0305	0.0305	0.0000	437.4578	437.4578	8.3800e-003	8.0200e-003	440.1201
Total		**0.0442**	**0.3777**	**0.1607**	**2.4100e-003**		**0.0305**	**0.0305**		**0.0305**	**0.0305**	**0.0000**	**437.4578**	**437.4578**	**8.3800e-003**	**8.0200e-003**	**440.1201**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	2.12726e+006	608.7515	0.0280	5.7900e-003	611.1338
Total		**608.7515**	**0.0280**	**5.7900e-003**	**611.1338**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	2.0865e+006	597.0873	0.0275	5.6800e-003	599.4240
Total		**597.0873**	**0.0275**	**5.6800e-003**	**599.4240**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.0914	0.0334	2.8771	1.5000e-004		0.0199	0.0199		0.0198	0.0198	0.0000	64.5324	64.5324	5.7700e-003	1.1000e-003	64.9939
Unmitigated	2.9927	0.0564	4.6172	2.9200e-003		0.2802	0.2802		0.2802	0.2802	29.4227	61.2065	90.6292	0.0924	2.0000e-003	93.1880

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1950					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8017					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.9073	0.0230	1.7404	2.7700e-003		0.2645	0.2645		0.2645	0.2645	29.4227	56.5403	85.9630	0.0877	2.0000e-003	88.4247
Landscaping	0.0887	0.0334	2.8768	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6662	4.6662	4.6200e-003	0.0000	4.7633
Total	**2.9927**	**0.0564**	**4.6172**	**2.9200e-003**		**0.2802**	**0.2802**		**0.2802**	**0.2802**	**29.4227**	**61.2065**	**90.6292**	**0.0924**	**2.0000e-003**	**93.1880**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	1.8017					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.0500e-003	0.0000	3.3000e-004	0.0000		4.1800e-003	4.1800e-003		4.1400e-003	4.1400e-003	0.0000	59.8662	59.8662	1.1500e-003	1.1000e-003	60.2305
Landscaping	0.0887	0.0334	2.8768	1.5000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	4.6662	4.6662	4.6200e-003	0.0000	4.7633
Architectural Coating	0.1950					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0914**	**0.0334**	**2.8771**	**1.5000e-004**		**0.0199**	**0.0199**		**0.0198**	**0.0198**	**0.0000**	**64.5324**	**64.5324**	**5.7700e-003**	**1.1000e-003**	**64.9939**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	94.5535	0.4745	0.0120	108.2218
Unmitigated	109.1484	0.5928	0.0149	126.2075

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	18.0477 / 11.3779	109.1484	0.5928	0.0149	126.2075
Total		**109.1484**	**0.5928**	**0.0149**	**126.2075**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	14.4381 / 11.3779	94.5535	0.4745	0.0120	108.2218
Total		**94.5535**	**0.4745**	**0.0120**	**108.2218**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	65.9152	3.8955	0.0000	147.7203
Unmitigated	65.9152	3.8955	0.0000	147.7203

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	324.72	65.9152	3.8955	0.0000	147.7203
Total		**65.9152**	**3.8955**	**0.0000**	**147.7203**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	324.72	65.9152	3.8955	0.0000	147.7203
Total		**65.9152**	**3.8955**	**0.0000**	**147.7203**

9.0 Operational Offroad

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

10.0 Vegetation

APPENDIX 3a

General Biological Resources Report and Habitat Assessment for the Mediterra Project

City of Highland
San Bernardino County, California

Prepared for:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, CA 92405
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Prepared on September, 2014
Revised on January 8, 2015

Prepared by:

Jericho Systems, Inc.
Shay Lawrey, President
18 E. State Street, Ste. 208
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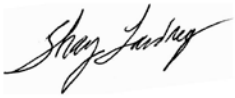
Certification

Jericho Systems, Inc.
18 E. State Street, Ste. 208
Redlands, CA 92373
(909) 915-5900

Contact: Shay Lawrey, President and Ecologist/Regulatory Specialist

Certification: I hereby certify that the statements furnished herein, and in the attached exhibits present data and information required for this Biological Resources Repot to the best of my ability, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief. This report was prepared in accordance with professional requirements and standards. Fieldwork conducted for this assessment was performed by me. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project proponent and that I have no financial interest in the project.



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Shay Lawrey, Ecologist/Regulatory Specialist

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1 Introduction

On behalf of Tom Dodson and Associates, Jericho Systems, Inc. (Jericho) conducted a biological resources and habitat assessment for Tentative Tract Map (TTM) No. 18893, which is a 196.1-acre parcel that is planned for a residential development called the Mediterra Project (proposed project), located in the City of Highland, San Bernardino County, California. The purpose of the biological resources and habitat assessment was to identify the following: potential for sensitive species or sensitive habitat within the overall legal parcel boundary lines, not just the within specific project development footprint; need for focused surveys; and need for require regulatory permits.

The proposed project will include development of approximately 277 residential lots, improvements to sewer infrastructure, on-site and off-site road improvements, and an extensive trail network. The proposed project would initially consist of mass grading of the site to create large development pads at one time, with fine grading, installation of roads and utilities, and building construction occurring sequentially. Equipment expected to be utilized on-site during rough grading of the site would include dozers, loader, track loader, scrapers, graders, backhoes, and water trucks.

The Assessor's Parcel Numbers (APNs) included within TTM No. 18893 are: 0297-021-26, 0297-021-18, 0297-051-16, 0297-061-04, 0297-061-05, 0297-061-06, 0297-061-07, 0297-061-09, 0297-061-13, 0297-061-20, 0297-061-25, 0297-061-26, 0297-061-29, and 0297-201-05.

1.1 Location

The survey area considered the entire site which is approximately 196 acres located in the eastern portion of the City of Highland, north of Greenspot Road, and west of Santa Paula Street (Figure 1). The site is depicted on the U.S. Geological Survey (USGS) Redlands and Yucaipa 7.5' Topographic Maps. TTM No. 18893 is a subdivision of a portion of the west ½ of the southeast ¼ of Section 3, Township 1 South, Range 3 West, San Bernardino Base and Meridian, in the County of San Bernardino, State of California (Figure 2).

1.2 Setting

The project area is within the Southern California Mountains and Valleys Ecological Section (Subsection M262Bg San Gorgonio Mountains) of California, which includes mountains, hills and valleys of the Transverse Ranges and the Peninsular Ranges that are near the Pacific Ocean, but not bordering it. Much of the section is close enough to the Pacific Ocean for the climate to be modified moderately marine influence. This subsection comprises the lower and warmer parts of the San Bernardino Mountains, which are between the southern branch of the San Andreas Fault on the south-southwest and the Mojave Desert on the north. It extends from the Cajon Pass eastward to near the Pipes Canyon fault. It includes mountains between the Mission Creek fault and the Banning fault on the south. The climate is hot to temperate and subhumid. Marine effects on climate are moderate on the south-southwest side and slight on the north and east sides of the mountains.

Elevations within the proposed project area range from approximately 1,660 to 2,080 feet above mean sea level. The terrain consists of steep foothills and boulder-littered floodplain, with rocky outcrops sloping downward from the east to the west. The area under consideration is

surrounded by rugged foothill topography and alluvial fan. The local area climate is semi-arid, with an average annual temperature of 67°F and a range from 25-110°F. The rainy season begins in November and continues through March, with the quantity and frequency of rain varying from year to year. The average annual rainfall is approximately 18.1 inches. The general vicinity consists of open space, vacant land, orchards, and a mixed suburban and rural residential community.

1.3 Site Conditions

The surrounding land use consists of agricultural (citrus groves), residential development, utilities infrastructure, and undeveloped open space. The area adjacent the northern boundary of the site consists entirely of San Bernardino National Forest open space. Land to the east of the site consists of San Bernardino National Forest, citrus groves, and open space. To the south of the site lies the Santa Ana River, open space, citrus groves, utility infrastructure (East Valley Water District Facility), and water conservation recharge basins. West of the proposed project site, land use consists of residential development (north of Greenspot Road) and open space (south of Greenspot road).

The habitat types within the survey area primarily consist of post-fire coastal sage scrub (CSS) [monotypic *Encilia farinosa*], active citrus groves, disturbed Riversidean Alluvial Fan Sage Scrub (RAFSS), chamise chaparral and southern willow scrub. The CSS (montypic *Encilia farinosa)* occurs along the northern hillside areas. The central portion of the project site that will be developed consists of orange groves and disturbed ground. An approximate 2.5 acre patch of RAFSS occurs, immediately adjacent to the north of Greenspot Road near the southern boundary of the Project site. Immediately adjacent to the south of Greenspot Road, within the southwest corner of the Project site is an approximately 9 acre patch of chamise chaparral. The southern willow scrub is found along an unnamed drainage that crosses the east side of the survey area (Figure 3).

2 Methods

2.1 Literature review

Prior to performing the surveys, available databases and documentation relevant to the project site was reviewed for documented occurrences of sensitive species in the area. The U.S. Fish and Wildlife Service (USFWS) threatened and endangered species occurrence data overlay, as well as the most recent versions of the California Natural Diversity Database (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data on the Redlands and Yucaipa USGS 7.5-minute series quadrangles. These databases contain records of reported occurrences of state and federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the subject property. The literature review included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

1. *The Status and Known Distribution of the San Bernardino Kangaroo Rat (Dipodomys merriami parvus): Field surveys conducted between 1987 and 1996. McKernan 1997.*

2. *U.S. Fish and Wildlife Service, 1998c. Endangered and Threatened Wildlife and Plants; Final Rule to List the San Bernardino Kangaroo Rat as Endangered, Vol. 63, No. 185, pp. 51005 - 51017.*

Other available technical information on the biological resources of the area was also reviewed including previous trapping surveys and recent findings.

2.2 Site Review

Jericho biologist Daniel Smith and Shay Lawrey conducted biological resource and habitat assessments on July 29, August 14, and 20, 2014. The surveys included general coverage of the site and surrounding areas and were focused on the following objectives: (1) recording of dominant vegetation communities; (2) floristic plant surveys; (3) general wildlife surveys; and habitat assessment for sensitive species. Wildlife species were detected during field surveys by sight, calls, tracks, scat, or other sign. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area.

The primary focus of the general biological surveys was to identify potential habitat for special status wildlife within the subject 196.1-acre property. In addition to the general biological resources assessment of the site, habitat assessments were conducted for several sensitive species for which potentially suitable habitat exists on-site and/or within the vicinity of the site. The suitability of habitat on-site was assessed for these species, taking into consideration the different habitat requirements and any Primary Constituent Elements (PCEs) defined for these species. It is acknowledged that some wildlife species with a nocturnal pattern of activity or otherwise difficult to detect may have not been identified by the survey. No trapping or focused surveys for special-status species was conducted. Scientific nomenclature and common names for vertebrate species referred to in this report follow Collins (1997) and Fisher (2001) for amphibians and reptiles, Jones, et al., (1992) for mammals and American Ornithologists' Union (AOU) Check-list (2006) for birds.

3 Results

3.1 Literature review

According to the CNDDB, CNPSEI, and other relevant literature and databases, approximately 54 sensitive species and eight sensitive habitats have been documented to occur in the Redlands and Yucaipa USGS 7.5-minute series quadrangles. This list of sensitive species and habitats includes any State and/or federally listed threatened or endangered species, California Department of Fish and Wildlife (CDFW) designated Species of Special Concern (SSC), and otherwise Special Animals. “Special Animals” is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of “species at risk” or “special status species.” The CDFW considers the taxa on this list to be those of greatest conservation need.

Based on the literature review and personal observations made in the immediate vicinity, two of the sensitive species and two sensitive habitats are documented/or expected to occur within the survey area (subject property) and 22 sensitive species have a moderate to high potential to occur within the subject property. The sensitive habitats documented and/or observed on-site include RAFSS and Southern Willow Scrub. As per the CNDDB, the sensitive species documented on-site include:, California glossy snake (*Arizona elegans occidentalis*), and western spadefoot (*Spea hammondii*).

Of the approximately 54 species identified in the Redlands and Yucaipa quadrangles, 12 (five plant species and seven animal species) are State and/or federally listed as threatened or endangered species. Table 1 lists the federally-listed species documented in the Redlands and Yucaipa quadrangles and provides a project impact affects determination. The following federal and/or State-listed species and designated critical habitats have been documented within five miles of the proposed project site.

- San Bernardino kangaroo rat (*Dipodomys merriami parvus*);
- San Bernardino kangaroo rat Critical Habitat;
- coastal California gnatcatcher (*Polioptila californica californica*);
- least Bell's vireo (*Vireo bellii pusillus*);
- southwestern willow flycatcher (*Empidonax traillii extimus*);
- Santa Ana River woolly-star (*Eriastrum densifolium* var *santorum*);
- slender-horned spineflower (*Dodecahema leptoceras*); and
- Santa Ana sucker (*Catostomus santaanae*) Critical Habitat

An analysis of the likelihood for occurrence of all sensitive species is provided in Table 2. This analysis takes into account species range as well as documentation within the vicinity of the project area.

3.2 Site Review

3.2.1 General Observations

The subject property is located within the foothills of the southern slopes of the San Bernardino Mountains and the Santa Ana River floodplain, approximately 1.5 miles west (downstream) of the Seven Oaks Dam and partially within the San Bernardino National Forest. The undeveloped foothills within and adjacent the northern portion of the site consist of disturbed or post-fire CSS (monotypic *E. farinosa*), while the undeveloped areas adjacent to Greenspot Road, along the southern boundary of the Project site, consist of mature RAFSS (north side of Greenspot) and Chamise Chaparral (south side of Greenspot).

An unnamed drainage feature, which is tributary to the Santa Ana River, flows across the north east quarter of the site and had flowing water at the time of survey. Southern willow scrub habitat is found within this drainage feature, consisting of several large California sycamore (*Platanus racemosa*) and Fremont cottonwood (*Populus fremontii*) trees.

Much of the southern and middle portion of the subject property (approx. 50 acres) consists of citrus groves. In addition to the citrus groves, disturbances include two existing residences located along the northern edges of the citrus groves, dirt roads, littering, dumping, shooting, and numerous piles of materials and farm equipment associated with the citrus growing.

3.2.2 Soils

NRCS soil surveys show much of the northern portion of the site consists of soils characterized as Trigo family-Lithic Xerorthents, warm complex, 50 to 75 percent slopes (DnG) and Soboba-Hanford families association, 2 to 15 percent slopes (AbD). DnG is an excessively drained, coarse to gravelly sandy loam, comprised of residuum weathered from granodiorite. AbD is an

excessively drained, very cobbly loamy sand, comprised of alluvium. Soils within the southern portion of the site are characterized as Soboba stony loamy sand, 2 to 9 percent slopes (SpC) Hanford coarse sandy loam, 2 to 9 percent slopes (HaC). SpC is an excessively drained, very stony sand, comprised of alluvium derived from granite. HaC is a well-drained, sandy to fine sandy loam, comprised of alluvium derived from granite. This soil type is considered prime farmland if irrigated and has allowed for the successful citrus growing in the area.

3.2.3 Vegetation

The CSS habitat found on the steep hills in the northern portion of the site has experienced some type of historical disturbance (most likely hot fires put out by bulldozers), resulting in a nearly monotypic vegetative cover of brittlebush (*Encelia farinose*). Within the RAFSS and Chamise chaparral, found along the southern boundary of the subject property, there are several native plant species including coastal sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), deerweed (*Lotus scoparius*), hairy yerba santa (*Eriodictyon trichocalyx*), common ragweed (*Ambrosia artemisiifolia*), horseweed (*Conyza canadensis*), jimson weed (*Datura wrightii*), telegraph weed (*Heterotheca grandiflora*) sugar sumac (*Rhus ovata*), and chaparral yucca (*Hesperoyucca whipplei*). Numerous non-native and invasive species are also found throughout the site including short pod mustard (*Hirschfeldia incana*), saltcedar (*Tamarix ramosissima*), tree tobacco (*Nicotiana glauca*), ripgut grass (*Bromus diandrus*), pampas grass (*Cortaderia* sp.), and Russian thistle (*Salsola tragus*). A complete list of plant species observed during survey is provided in Appendix A.

3.2.4 Wildlife

Birds were the most observed wildlife group during survey. Common wildlife species observed or otherwise detected on or in the vicinity of the site during the reconnaissance-level survey included California towhee (*Melozone crissalis*), common raven (*Corvus corax*), Anna's hummingbird (*Calypte anna*), red-tailed hawk (*Buteo jamaicensis*), house finch (*Haemorhous mexicanus*), bushtit (*Psaltriparus minimus*), greater roadrunner (*Geococcyx californianus*), California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), side-blotched lizard (*Uta stansburiana elegans*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), and southern Pacific rattlesnake (*Crotalus oreganus helleri*), Wildlife detections or signs included those for amphibians, reptiles, birds, and mammals. A complete list of wildlife species observed or otherwise detected during survey is provided in Appendix B.

3.2.5 Sensitive Habitats

<u>Riversidean Alluvial Fan Sage Scrub</u>

The southernmost portion of the subject property contains habitat classified as Riversidean Alluvial Fan Sage Scrub (RAFSS), Holland community code 32720). RAFSS is a rare and sensitive plant community that is adapted to the harsh conditions of flooding. It grows on sandy, rocky alluvium deposited by streams that experience infrequent episodes of flooding. Because alluvial fan sage scrub is characterized by its diversity, it can also be described as an intermediate between chaparral and sage scrub habitats, in that all three vegetation communities share similar floral components. However, the distinguishing factor is that alluvial fan sage scrub undergoes periodic scouring from frequent flooding events, creating three seral stages; pioneer, intermediate, and mature. The RAFSS habitat found within the subject property

is mature and has been impacted greatly by invasive non-native grasses, as a direct result of regional development and altered flood regimes due to the construction of the nearby Seven Oaks Dam.

The proposed development envelope or area of land disturbance avoids the RAFSS habitat area located on the subject property.

Southern Willow Scrub

The unnamed drainage feature supports a minimal amount of riparian scrub that most closely matches the Mixed Willow Series described by Sawyer and Keeler-Wolf (1995) and Southern Willow Scrub described by Holland (1986), consisting of black willow (*Salix gooddingii*), narrow-leafed willow (*Salix exigua*), mule fat (*Baccharis salicifolia*), and Fremont cottonwood. The southern willow scrub within the unnamed drainage found on the subject parcel is of marginal quality with a high percentage of non-native weedy species (i.e., greater than 30 percent of the species composition) and shows evidence of prior disturbance. The plants found here are small (relative to their usual heights) and mixed with non-native weedy species.

The proposed development envelope or area of land disturbance avoids the unnamed drainage feature and associated southern willow scrub habitat located on the subject property.

3.2.6 Sensitive Plants

Of the 18 sensitive plant species documented within the Redlands and Yucaipa quadrangles, six have a moderate to high potential to occur within the southern boundary of the subject property adjacent to Greenspot Road within the RAFSS and Chamise Chaparral habitats. These species are described below.

Santa Ana River woolly-star

Federally listed as endangered in 1987, the Santa Ana River woolly-star is a shrubby perennial plant that blooms from June to August, produces bright blue flowers, and grows up to 3.3 feet tall. It is found in alluvial scrub plant communities along the Santa Ana River and Lytle and Cajon Creek flood plains from the base of the San Bernardino Mountains in San Bernardino County southwest along the Santa Ana River through Riverside County into the Santa Ana Canyon of northeastern Orange County. It requires periodic flooding. Associated perennial plants include California buckwheat, California croton (*Croton californicus*), yerba santa, and scale-broom (*Lepidospartum squamatum*). This species is readily identifiable throughout the year.

The nearest documented Santa Ana woolly-star occurrence is less than one mile south of the project site, on the southeast terraces of the Santa Ana River. There are no documented occurrences of this species within or adjacent to the subject property. Ms. Lawrey and Mr. Smith surveyed for this species and none were found. The habitats in which the Santa Ana woolly-star could occur are of marginal quality. As stated previously, land disturbing impacts to the RAFSS will be avoided. The intense invasion of non-native grass within the Chamise chaparral basically precludes Santa Ana woolly-star from occurring here. No further investigation relative to this species is warranted or required.

Slender horned spineflower

Listed as endangered by the USFWS in 1987, the Slender-horned spineflower is also associated with alluvial fans, floodplains, stream terraces, washes and associated benches. However, unlike the Santa Ana River woolly-star, it grows in on the high benches flanking the more active floodplain. It prefers areas containing soils high in silt and low in nutrients and organic matter, and located in silt filled shallow depressions of relatively flat surfaces near scattered, river-rounded cobble-sized rocks (Allen, 1996; Wood and Wells 1996).

The nearest documented historic occurrence for this species is approximately 0.8 miles south of the proposed project within high quality RAFSS habitat on the northwest terraces of the Santa Ana River and was documented in 1992. There are no documented slender-horned spineflower occurrences of within or adjacent to the subject property. Ms. Lawrey and Mr. Smith surveyed, in a general sense, for this species and none were observed. They found the RAFSS and Chamise chaparral habitat to be either too disturbed or affected by non-native grasses to support this species. No further investigation relative to this species is warranted or required.

Plummer's mariposa lily (*Calochortus plummerae*)

This is a CNPS list 1.B2 species which occurs at elevations of 300 to 5,300 feet in Coastal Scrub, Chaparral, Valley and Foothill Grassland, Cismontane Woodland and Lower Montane Coniferous Forest in on rocky and sandy sites, usually of granitic or alluvial material. Plummer's mariposa-lily is most detectable after fire or other disturbance that removes above-ground vegetation.

The nearest documented occurrence for this species is approximately one mile southwest of the site and suitable habitat does occur on-site. There are no documented occurrences of this species within or adjacent to the project site. This species is readily identifiable. Ms. Lawrey and Mr. Smith surveyed for this species and none were found. No further investigation relative to this species is warranted or required.

Parry's spineflower (*Chorizanthe parryi* var. *parryi*)

This species is a CNPS list 1B.1. This species typically occurs within the alluvial chaparral and scrub of the San Gabriel, San Bernardino and San Jacinto Mountains, at elevations from 300 to 4,300 feet.

The nearest documented occurrence for this species is within one mile southwest of the project site. Ms. Lawrey and Mr. Smith surveyed for this species and none were found. They found the RAFSS and Chamise chaparral habitat to be either too disturbed or affected by non-native grasses to support this species. No further investigation relative to this species is warranted or required.

White-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*)

This species is a CNPS 1B.2. This species typically occurs in Mojavean desert scrub, pinyon-juniper woodland, and coastal scrub (alluvial fans) in sandy or gravelly areas, at elevations from 980 to 3,940 feet. The project site is within the range for this species.

The nearest documented occurrence for this species is approximately 3.45 miles southwest of

the project site. The montypic CSS on site is of very low quality for this species. There is no documented occurrence of white-bracted spineflower on site. Although this species was not specifically surveyed for, none were found during the floristic surveys and none are expected to occur.

Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)

This species was a CNPS 1B.2 listed entity when it was considered variety of Virginia pepper-grass (*Lepidium virginicum*). The recent Jepson manual treatment places it, along with three other varieties, in *L*.v. ssp *menziesii*. Under this treatment, Robinson's pepper-grass (it has retained the common name) has a much greater distribution and would not be a rare species.

No *Lepidium* spp. were found on site. The nearest documented occurrence (1987) is approximately 0.4 mile south of the site.

3.2.7 Sensitive Wildlife

According to the CNDDB, CNPSEI, and other relevant literature and databases, four federally-listed threatened or endangered wildlife species are documented within five miles of the project site. Additionally, there are several other sensitive wildlife species that are particularly important in this region, which are either documented to occur on the proposed project site or have a high likelihood of occurring on the site. These sensitive wildlife species are described below.

San Bernardino Kangaroo Rat

The San Bernardino Kangaroo Rat (SBKR) is one of several kangaroo rat species in its range. The Dulzura (*Dipodomys simulans*), the Pacific kangaroo rat (*D. agilis*) and the Stephens kangaroo rat (*D. stephensi*) occur in areas occupied by the SBKR, but these other species have a wider habitat range. The habitat of the SBKR is described as being confined to primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes. Burrows are dug in loose soil, usually near or beneath shrubs. The SBKR is confined to inland valley scrub communities, and more particularly, to scrub communities occurring along rivers, streams and drainage. The past habitat losses for SBKR and potential future losses prompted the emergency listing of the SBKR as an endangered species. The southern portion of the site does have some habitat that is considered suitable for SBKR for the following reasons:

- The site is located within the historic range of SBKR;
- The site is located partially within designated critical habitat for SBKR;
- The site is located within close proximity (approximately 400 – 500 feet west of the site); of where SBKR have been found in the last 10 years;
- The soil series consists predominantly of sand and loamy sand;
- There is alluvial sage scrub and associated vegetation, such as RAFSS with a moderately open canopy;
- A river and floodplain bench/terrace subject to dynamic geomorphological and hydrological processes typical of fluvial systems occurs in the area and;
- Upland areas proximal to the floodplains with suitable habitat occurs nearby

Least Bell's Vireo

The least bell's vireo (LBVI) nesting habitat typically consists of well-developed overstory, understory, and low densities of aquatic and herbaceous cover. The understory frequently contains dense sub-shrub or shrub thickets. These thickets are often dominated by plants such as narrow-leaf willow, mulefat, young individuals of other willow species such as arroyo willow or black willow, and one or more herbaceous species. The habitat found onsite is not consistent with that which is typically occupied by this species and would not be considered suitable for LBVI. Although there are a few larger trees and shrubs within the project area, there is not the well-developed overstory that this species typically occurs in. There is suitable habitat within 2 miles to the east of the project, as well as 4 miles to the west and LBVI are documented at these areas in low densities. Given that more suitable habitat exists within a few miles of the site and that LBVI are documented in these other areas, it is unlikely that this species would occur within the project area.

Southwestern Willow Flycatcher

The Southwestern Willow Flycatcher (SWWF) breeds in dense riparian habitats along rivers, streams, and other wetlands that provide dense lower and mid-story vegetation approximately 13 feet aboveground. Plant species closely associated with the flycatcher include willows (*Salix* spp.), boxelder (*Acer negungo*), and seepwillow (*Baccharis* spp.), with an overstory of cottonwood (62 FR 39129). The nearest suitable habitat for this species is approximately one mile east of the project site in Morton Creek and this species is documented there. There is no suitable SWWF habitat within the project area.

California Gnatcatcher

The California gnatcatcher (CAGN) is a resident (non-migratory) small songbird which typically nests and forages in coastal sage scrub vegetation in southern California year-round. CAGN occur in dynamic and successional sage scrub habitats and non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats. The CAGN was federally listed as Threatened in 1993 and critical habitat for this species was designated by the USFWS in 2000 and revised in 2007. The PCEs identified by the USFWS for CAGN consist of the following: (1) Dynamic and successional sage scrub habitats: Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, RAFSS, southern coastal bluff scrub, and coastal sage-chaparral scrub in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal and foraging; and (2) Non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats as described for PCE 1 above that provide space for dispersal, foraging, and nesting. Suitable habitat does exist within the project area and CAGN have been documented within close proximity to the site (approximately 0.7 mile west of the site).

Burrowing owl (*Athene cunicularia*)

The burrowing owl (BUOW) is a small, long-legged, ground-dwelling bird species, well-adapted to open, relatively flat expanses. In California, preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils (Haug et al. 1993). Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, BUOW may occur in some agricultural areas, ruderal grassy fields, vacant

lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity (Gervais et al 2008). Unique amongst North American raptors, the BUOW requires underground burrows or other cavities for nesting during the breeding season and for roosting and cover, year round. Burrows used by the owls are usually dug by other species termed host burrowers. In California, California ground squirrel and round-tailed ground squirrel (*Citellus tereticaudus*) burrows are frequently used by BUOW but they may use dens or holes dug by other fossorial species. Habitat loss, fragmentation, and alteration of the ecosystem have contributed to burrowing owl declines. BUOW are protected under the Migratory Bird Treaty Act and are considered by CDFW as a SSC.

Habitat on-site would at best, be considered marginal for this species. No burrowing owl individuals or signs were observed during the survey. No suitable burrows were observed during the assessment survey, although suitable burrow surrogates (California ground squirrel) were observed during survey. BUOW are known to occur in agricultural areas, and suitable foraging habitat exists on-site and within the surrounding areas. No BUOW or sign have been observed within the proposed project vicinity however, and BUOW have not historically (within the last 3 years) been identified on or adjacent to the site. The nearest recorded BUOW occurrence to the site is approximately 5.6 miles southwest of the site at the Norton Air Force Base and within City Creek along the south side of 3rd Street, west of Palm Avenue.

<u>Western spadefoot</u>

The western spadefoot is a moderate-sized greenish, brown, cream, or gray toad that has a glossy black spade, shaped like a wedge or teardrop, present on each hind foot. The western spadefoot is considered by CDFW as a SSC. These animals are nocturnal and almost completely terrestrial, entering water only to breed. This species is endemic to California and northern Baja California, ranging from near Redding south throughout the Great Valley and its associated foothills, through the South Coast Ranges into coastal southern California south of the Transverse mountains and west of the Peninsular mountains, into northwest Baja California (Jennings and Hayes 1994). This species prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains from sea level to 4,500 feet. The western spadefoot is able to inhabit hot dry environments by burrowing underground (> 1 m below the surface) using the hardened spades on its hind feet. They are rarely seen, spending most of their life buried underground in earth-filled burrows, and are active for only a short period each year, typically between October and May, immediately following heavy rainfall (Nafis 2013). Western spadefoots breed in temporary rain pools and require standing water for a minimum of 30 days to complete metamorphosis.

In southern California, more than 80% of the previously occupied habitat for this species has been developed or converted to incompatible uses and this species was once thought to be extirpated from San Bernardino County (Jennings and Hayes 1994). However, in recent years it western spadefoots have been documented in several areas along the foothills of the San Bernardino Mountains from northern San Bernardino to Mentone. Much of the western spadefoot breeding habitat probably now consists of man-made structures such as agricultural drainages, roadside ditches, and flood control facilities.

Suitable habitat for this species exists within the southern half of the subject parcel, the CNDDB indicates presence of this species on site, and Mr. Smith and Ms. Lawrey observed this species immediately adjacent to the southern boundary of the subject property in 2013 and 2014. The

subject parcel is within one of the few areas in the region where this species has been documented and Mr. Smith observed western spadefoots breeding in rain pools immediately south and southeast of the subject property in the water conservation basins and access roads in early 2014.

California glossy snake

The California glossy snake is a moderately-sized snake (26-70 in.) that has smooth, glossy scales, with a faded or bleached-out appearance, a tan or light brown ground color with dark brown blotches with dark edges on the back and sides and a pale, unmarked underside. California glossy snake are nocturnal and very sensitive to artificial light (Perry & Fisher, 2006). This species burrows and will spend the daytime hiding underground. It ranges from the eastern part of the San Francisco Bay Area south to northwestern Baja California, occurring in arid scrub, rocky washes, grasslands, chaparral (Nafis 2013). This species typically inhabits sandy bottom habitats with little light pollution (R. Fisher, pers. comm.).

The California glossy snake is one of the most critically sensitive species in southern California and has experienced severe and ongoing declines (> 80% reduced), leading to extirpations throughout large parts of its range (Case & Fisher, 2001; Wells, M., 1998). Loss of habitat due to ongoing development has contributed to declines in this species, however the most significant threat to this species is probably light pollution (Perry & Fisher, 2006). The California glossy snake is included in the latest version of the CDFW Amphibians and Reptile Species of Special Concern list, which is currently in the final editing stages. It is expected that this species should be adopted and included in the Special Animals list as a SSC by the end of 2014 (L. Patterson CDFW, pers. comm.).

The upper Santa Ana River and its tributaries contain habitat suitable for this species and this species has recently (2013-14) been documented in several locations along the Santa Ana River and Lytle Creek. Suitable habitat for California glossy snake exists within the southern half of the subject property, the CNDDB indicates presence of this species on the property, and Mr. Smith and Ms. Lawrey observed this species immediately adjacent to the southern boundary of the subject property and within the southern corner of the subject property in 2013. The subject property is within one of the few areas in the region where this species has been documented and in early 2014, Mr. Smith observed them on Greenspot Road along the subject property and on dirt access roads adjacent to the subject property.

3.2.8 USFWS Designated Critical Habitat

SBKR Critical Habitat

Approximately 11.7 acres of the subject property is within designated critical habitat for SBKR (Figure 4). Aside from conserving and protecting fish, wildlife and plants and their habitats through the enforcement of Federal wildlife laws, the USFWS is also required to designate critical habitat for species protected under the Endangered Species Act. Critical habitat is supposed to include the areas essential for these species' conservation. It also provides an additional layer of protection when activities are undertaken or permitted by the federal government within the designated habitat area.

The USFWS listed the SBKR as endangered on September 24, 1998 and set aside 33,295 acres of critical habitat for the SBKR in 2002, the USFWS then revised that decision in 2008

after a lawsuit and cut the designation down to 7,779 acres in Riverside and San Bernardino counties. On January 10, 2011 a federal court struck down the 2008 designation. The ruling concluded that the USFWS improperly relied on “core habitat” to define critical habitat for the kangaroo rat rather than actually specifying the physical and biological features essential for the kangaroo rat’s conservation, as the law requires. The ruling reinstated the 2002 designation. The 2002 critical habitat rule for SBKR defined four (4) PCEs that are essential to the conservation of SBKR. These PCEs are as follows: (1) Soil series consisting predominantly of sand, loamy sand, sandy loam, or loam; (2) Alluvial sage scrub and associated vegetation, such as coastal sage scrub and chamise chaparral, with a moderately open canopy; (3) River, creek, stream, and wash channels; alluvial fans; floodplains; floodplain benches and terraces; and historic braided channels that are subject to dynamic geomorphological and hydrological processes typical of fluvial systems within the historical range of the San Bernardino kangaroo rat; and (4) Upland areas proximal to floodplains with suitable habitat.

The southern portion of the subject property is located partially within the Santa Ana River floodplain in the eastern San Bernardino Valley and falls within the Santa Ana River critical habitat Unit (Unit 1). Unit 1 encompasses approximately 8,935 ac, and includes the Santa Ana River and portions of City, Plunge, and Mill creeks. This unit contains upland refugia and tributaries that are occupied by the species, active hydrological channels, floodplain terraces, and areas of habitat immediately adjacent to floodplain terraces.

Santa Ana Sucker (SASU) Critical Habitat

The subject property is within 0.55 mile of a section of the Santa Ana River that is within designated SASU critical habitat, however the project is completely outside of the wash and is separated from the wash by a man made levee. No part of the proposed development envelope or land disturbance area is within or adjacent SASU critical habitat and no impacts to critical habitat for this species are proposed or will result.

3.2.9 Jurisdictional Waters

The proposed project site contains one unnamed hydrological feature with a definable channel, bed and bank, ordinary high water mark, and nexus to traditional navigable waters. The unnamed drainage feature flows generally north to south through the eastern quarter of the site. The proposed development envelope completely avoids encroaching into this feature. If plans change and any alteration to, or connection into to the canal is proposed permits will be required because it is subject to Section 404 of the Clean Water Act or Section 1603 of the California Fish and Game code.

4 Relevant Regulatory Agencies

4.1 U.S. Army Corps of Engineers

The Corps regulates discharges of dredged or fill material into waters of the United States. Waters of the United States include wetlands and non-wetland bodies of water that meet specific criteria. The Corps’ regulatory jurisdiction pursuant to Section 404 of the Federal CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations. One of the mechanisms adopted by

Congress to achieve restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters is a prohibition on the discharge of any pollutants, including dredged or fill material, into “navigable waters” except in compliance with other specified sections of the Act.

4.2 Regional Water Quality Control Board

The RWQCB’s regulatory jurisdiction is pursuant to Section 401 of the Federal CWA. The RWQCB typically regulates discharges of dredged or fill material into *Waters of the United States*, however they also have regulatory authority over waste discharges into Waters of the State, which may be isolated, under the Porter-Cologne Water Quality Control Act issued by the State Water Resources Board. In the absence of a nexus with the Corps, the Regional Board requires the submittal of a Waste Discharge Requirement (WDR) application, which must include a copy of the project Stormwater Pollution Prevention Plan (SWPPP) and a copy of the project Water Quality Management Plan (WQMP), otherwise called a Standard Urban Stormwater Management Plan (SUSMP). The Regional Board’s role is to ensure that disturbances in the stream channel do not cause water quality degradation.

4.3 California Department of Fish and Wildlife (formerly Fish and Game)

Unlike the Corps, CDFW regulates not only the discharge of dredged or fill material, but all activities that alter streams and lakes and their associated habitats. The CDFW, through provisions of the California Fish and Game Code (Sections 1601-1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. The CDFW typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFW jurisdiction. CDFW regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFW.

Provisions within the California Fish and Game Code protect all native birds of prey and their nests (FGC §3503.5), and all non-game birds (other than those not listed as Fully Protected) that occur naturally in the State (§38oo). The handful of species, such as the California condor, that are designated by the State as “fully protected” received this rare designation through special legislation. There is no mechanism allowed for CDFW to issue take authorization for a fully protected species. Species of Special Concern is an informal designation used by CDFW for some declining wildlife species that are not proposed for listing as threatened or endangered, such as the burrowing owl. If a project proposes impacts to burrowing owl, then a Memorandum of Understanding issued by the CDFW is required to address and mitigate the proposed impacts.

4.4 U.S. Fish and Wildlife Service

The USFWS, in coordination with the CDFW, State Fish and Game Code §3503.5 and §3800, administers the Migratory Bird Treaty Act (MBTA), which provides protection for nesting birds that are both residents and migrants, whether or not they are considered sensitive by resource agencies. The MBTA prohibits take of nearly all native birds. "Take" in this law has been construed by the courts much more narrowly than under the enacted ESA. Under the MBTA, "take" means only to kill, harm, or destroy individuals or eggs, or cause failure of a nesting effort. Permits are available through USFWS, but are generally only given for emergency repairs where potential loss of human life or safety is regulations are applied selectively by public

agencies as a practical matter, as it would be impossible to pursue every action threatening any bird or nest. The most common situations in which MBTA is applied are: (1) as an additional regulatory requirement in projects which hold the potential for substantial environmental degradation; (2) as an additional tool when prosecuting willful violation of other biological resource regulations such as the ESA or hunting regulations; (3) to provide protection of colonially nesting species, such as herons, terns, and swallows; and (4) to provide protection of nesting birds of prey.

5 Conclusions and Recommendations

According to the results of field survey, two (2) sensitive habitats occur on the subject property: RAFSS and Southern Willow Scrub. The subject property encompasses 196.1 acres in the eastern portion of the City of Highland, San Bernardino County, California. The development envelope, or land disturbing footprint, associated with the proposed project primarily includes the central portion of the subject property, with less than a 10 acre disturbance area located south of Greenspot Road. According to the development plans, the RAFSS habitat and unnamed drainage feature with associated southern willow scrub habitat will be avoided. No development or land disturbing activities are proposed in these areas.

Although the federally-listed endangered LBVI and SWWF have been documented within a few miles of the subject property, no suitable habitat exists on site for these two species. The minimal amount of riparian vegetation found within the unnamed drainage is of marginal quality and is insufficient to support either of these species. Further, this area will be avoided. No potential impacts to LBVI or SWWF can be identified and focused surveys for either of these two species are not recommended.

As for BUOW, no individuals or sign have been observed within the vicinity of the subject property, nor have BUOW been historically (within the last 3 years) identified on or adjacent to the site. Based on information presented above, BUOW are considered absent from the proposed project area and there is no risk of the proposed project resulting in a “taking” of this species. No focused surveys for this species are recommended, however, as a matter of typical prudent procedures, a preconstruction survey for this species is recommended to verify that no BUOW have moved into the project area prior to the commencement of any proposed project activities.

The State- and federally-listed threatened CAGN is documented to occur close to the subject property. The primary constituent elements (PCEs) for this species (RAFSS and coastal sage habitats with proximal non-sage scrub habitats) are present within the property and surrounding areas. Since there is a potential for direct and indirect impacts to this species, such as habitat removal/alteration, construction-related disturbances, increased predation by domestic pets, and other potential ongoing human disturbances associated with a residential development of this size, focused CAGN surveys are recommended.

The federally-listed endangered SBKR is documented to occur within close proximity of the subject property. The PCEs for this species are present in the southern portion of the site, within the RAFSS habitat. The soils are friable, vegetation is appropriate and a number of burrows of appropriate size and shape were encountered during survey. Again, the near vicinity has been surveyed to protocol level for SBKR on several occasions and there is compelling evidence showing that SBKR occur at trace levels, within close proximity to the site.

Additionally, a portion of the site is within USFWS designated SBKR critical habitat. The proposed project will directly impact critical habitat for this species and could potentially result in direct and indirect impacts to this species including, direct take, habitat removal/alteration, construction-related disturbances, increased light pollution, predation by domestic pets, increased vehicular traffic, and other potential ongoing human disturbances. Focused SBKR surveys are warranted and recommended.

The western spadefoot is a SSC and the California glossy snake will likely be designated as a SSC and should be considered as such. Both species have been documented and/or observed within and/or adjacent to the subject property. The immediate surrounding vicinity is one of the few areas in the region where western spadefoot and California glossy snake are still known to occur. Direct and indirect impacts to these species likely to result from the proposed project include, direct take, habitat removal/alteration, increased light pollution, predation by domestic pets, increased vehicular traffic, and other potential ongoing human disturbances. Neither of these species are federally or state listed as threatened or endangered. Therefore, no federal or state “Take” permits would be required for impacts to these species, if present, and presence of these species would not be considered a constraint to development. However, impacts to these species could be considered significant by a California Environmental Quality Act (CEQA) lead agency, such as the CDFW if they are present within the limits of land disturbance, and if the size and status of the population warrant a finding of significance under CEQA. Mitigation for significant impacts may include avoidance, relocation with monitoring, or purchase of offsite habitat containing this species to complement existing open space areas. Upon final design of the improvements for the area of the project on the south side of Greenspot Road and prior to the start of the grading operation surveys should be conducted following rain events during their breeding season (generally January to June) and after late summer rainfall to determine their presence or absence within the development envelope or footprint.

Approximately 11.7 acres of the subject property is located within the Santa Ana River critical habitat Unit (Unit 1). This SBKR critical habitat unit abuts the south side of Greenspot Road. The portion of the subject property that is within SBKR critical habitat is in the southwest of the site, on the south side of Greenspot Road. The total impact area to SBKR critical habitat is not known at this time.

Vegetation suitable for nesting birds exists throughout the proposed project site. As discussed, most birds are protected by the MBTA. In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season (generally January/February to August/September), and conducting a worker awareness training. Nesting bird surveys should be conducted to any construction activities taking place during the nesting season to avoid potentially taking any birds or active nests. However, if all work cannot be conducted outside of nesting season, a project-specific Nesting Bird Management Plan can be prepared to determine suitable buffers.

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TABLES

Table 1
Federally-listed as Threatened, Endangered, Proposed, or Candidate Species
Documented Within the Redlands and Yucaipa, USGS 7.5-minute Quadrangles,
San Bernardino County, California

Common Name	*Scientific Name*	Status	Found Locally	Found in Project Area	Determination of Project Affects
Plants					
Marsh sandwort	*Arenaria paludicola*	FE	No	No	No Affect
Nevin's barberry	*Berberis nevinii*	FE	No	No	No Affect
Salt marsh bird's-beak	*Chloropyron maritimum* ssp. *maritimum*	FE	No	No	No Affect
Slender-horned spineflower	*Dodecahema leptoceras*	FE	Yes	No	No Affect.
Santa Ana River woolly-star	*Eriastrum densifolium* ssp. *sanctorum*	FE	Yes	No	No Affect
Mammals					
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE	Yes	Unknown; focused surveys needed.	Potentially affected if found to be present during focused surveys.
Stephens' kangaroo rat	*Dipodomys stephensi*	FE	No	No	No Affect
Birds					
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC	No	No	No Affect
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE	Yes	No	No Affect
Coastal California gnatcatcher	*Polioptila californica californica*	FT	Yes	Unknown; focused surveys needed.	Potentially affected if found to be present during focused surveys.
Least Bell's vireo	*Vireo bellii pusillus*	FE	Yes	No	No Affect
Amphibians					
Southern mountain yellow-legged frog	*Rana muscosa*	FE	No	No	No Affect

Table 2
Sensitive Species Documented within the Redlands and Yucaipa, USGS 7.5-minute Quadrangles

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Accipiter cooperii	Cooper's hawk	None/ None	G5; S3	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	This species has been observed within close proximity to the project site and the citrus groves on-site provide some suitable foraging. Suitable nesting habitat does not exist on the project site. Occurrence potential for this species is **high**.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None/ None	G5T2T4; S2S3	Resident in southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass & forb patches.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Anniella pulchra pulchra	silvery legless lizard	None/ None	G3G4T3T4Q; S3; CDFW: SSC	Shows a preference for areas of leaf litter and loose soil along washes, beach sand dunes, open scrub and woodland, and sandy benches along alluvial fans.	This species has been recently documented adjacent the project site and suitable habitat exists within the project site. Occurrence potential for this species **high**.
Antrozous pallidus	pallid bat	None/ None	G5; S3; CDFW: SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Occurrence potential for this species within the project site is **low**, due to the close proximity to human activity.
Arenaria paludicola	marsh sandwort	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Marshes and swamps. Growing up through dense mats of typha, juncus, scirpus, etc. In freshwater marsh. 10-170m.	The project site is outside the elevation range for this species. Occurrence potential for this species is **low**.
Arizona elegans occidentalis	California glossy snake	None/ None	Currently none. CDFW: SSC (pending)	Inhabits arid scrub, rocky washes, grasslands, chaparral from the San Francisco Bay Area south to northwestern Baja California. Restricted to sandy-loam and loamy-sand areas where there is little light pollution.	This species is **present** on the project site.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Aspidoscelis hyperythra	orangethroat whiptail	None/ None	G5; S2; CDFW: SSC	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes & other sandy areas with patches of brush & rocks. Perennial plants necessary for its major food-termites	The project site is near the northernmost extent of the range for this species and approximately 3.5 miles north of the nearest documented occurrence. Suitable habitat for this does exist within the project site. Occurrence potential for this species is **moderate.**
Aspidoscelis tigris stejnegeri	coastal whiptail	None/ None	G5T3T4; S2S3	Found in deserts & semiarid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	This species has been recently documented near the project site and suitable habitat exists within the project site. Occurrence potential for this species **high**.
Athene cunicularia	burrowing owl	None/ None	G4; S2; CDFW: SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Very little suitable habitat exists within the project site for this species and the nearest documented occurrence is approximately 5.6 miles west of the project site. Occurrence potential for this species is **low**.
Berberis nevinii	Nevin's barberry	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, n-facing slopes or in low grade sandy washes. 290-1575m.	Slopes within the project site are primarily south-facing. Due to the lack of suitable habitat within the project site, occurrence potential for this species is **low**.
Calochortus plummerae	Plummer's mariposa-lily	None/ None	G3; S3; CNPS: 1B.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 90-1610m.	Suitable habitat exists within the project site and this species has been documented within 1.3 miles of the site, in the Santa Ana River floodplain. Occurrence potential for this species is **moderate**.
Canyon Live Oak Ravine Forest	Canyon Live Oak Ravine Forest	None/ None	G3; S3.3		This habitat does not exist within the project site.
Carolella busckana	Busck's gallmoth	None/ None	G1G3; SH		Sufficient information to determine occurrence probability for this species is not available.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Caulanthus simulans	Payson's jewel-flower	None/ None	G3; S3.2; CNPS: 4.2	Chaparral, coastal scrub. Frequently in burned areas, or in disturbed sites such as streambeds; also on rocky, steep slopes. 90-2200m.	Suitable habitat exists within the project site for this species, however the nearest documented occurrence for this species (1972) is approximately 9.5 miles southwest of the site and the identity of this occurrence is disputed. Occurrence potential for this species is **low**.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/ None	G3G4T2; S2.1; CNPS: 1B.1	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 0-480m.	The project site is outside the elevation range for this species. Occurrence potential for this species is **low**.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/ None	G5T3; S2S3; CDFW: SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. In western San Diego co. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	This species has been recently documented within close proximity to the project site and suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Endangered/ Endangered	G4?T2; S2.1CNPS: 1B.2	Coastal salt marsh, coastal dunes. Limited to the higher zones of the salt marsh habitat. 0-30m.	The project site is outside the elevation range for this species and suitable habitat does not exist within the project site. Occurrence potential for this species is **low**.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/ None	G3T2; S2; CNPS: 1B.1	Coastal scrub, chaparral. Dry slopes and flats; sometimes at interface of 2 veg types, such as chap and oak woodland; dry, sandy soils. 40-1705m.	This species has been documented within the vicinity of the project site and some suitable habitat does exist within the project site. Occurrence potential for this species is **moderate**.
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	None/ None	G4T2; S2; CNPS: 1B.2	Mojavean desert scrub, pinyon-juniper woodland, coastal scrub (alluvial fans). Sandy or gravelly places. 300-1200m.	Suitable habitat exists within the project site. Occurrence potential for this species is **moderate**.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Candidate/ Endangered	G5T3Q; S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None/ None	G5T4T5; SH; CNPS: 2.2	Marshes and swamps (freshwater). Freshwater marsh. 15-280 m.	The project site is outside the elevation range for this species and suitable habitat does not exist within the project site. Occurrence potential for this species is **low**.
Dendroica petechia brewsteri	yellow warbler	None/ None	G5T3?; S2; CDFW: SSC	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, & alders for nesting & foraging. Also nests in montane shrubbery in open conifer forests.	Some marginally suitable habitat for this species exists within the drainages on-site. Occurrence potential for this species is **moderate**.
Diadophis punctatus modestus	San Bernardino ringneck snake	None/ None	G5T2T3; S2?	Occupies a variety of habitats including Riparian Scrub, woodlands, chaparral, sage scrub (although less likely in the xeric scrubs), and grasslands.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered/ None	G5T1; S1; CDFW: SSC	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	Suitable habitat for this species exists within the alluvial fan sections of the site, particularly south of Greenspot Road, and a portion of the site is within designated critical habitat for this species. This species has been documented within close proximity to the site. Occurrence potential for this species is **high**.
Dipodomys stephensi	Stephens' kangaroo rat	Endangered/ Threatened	G2; S2	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass & filaree. Will burrow into firm soil.	Some suitable habitat for this exists within the project site, however the nearest documented occurrence for this species (1988) is approximately 9.5 miles southwest of the site. Occurrence potential for this species is **low**.
Dodecahema leptoceras	slender-horned spineflower	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Chaparral, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; assoc. include *Encelia*, *Dalea*, *Lepidospartum*, etc. 200-760m.	Some marginally suitable habitat for this species exists within the project site. Occurrence potential for this species is **moderate**.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Elanus leucurus	white-tailed kite	None/ None	G5; S3; CDFW: FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Some habitat suitable for foraging exists within the project site, however, suitable nesting habitat does not exist on the project site. Occurrence potential for this species is **moderate**.
Empidonax traillii extimus	southwestern willow flycatcher	Endangered/ Endangered	G5T1T2; S1	Riparian woodlands in southern California.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.
Eremophila alpestris actia	California horned lark	None/ None	G5T3Q; S3	Coastal regions, chiefly from Sonoma co. To San Diego co. Also main part of San Joaquin valley & east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species within the project site is **low**.
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Endangered/ Endangered	G4T1; S1; CNPS: 1B.1	Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits. 150-610m.	Some marginally suitable habitat for this species exists within the project site. Occurrence potential for this species within the project site is **moderate**.
Eumops perotis californicus	western mastiff bat	None/ None	G5T4; S3?; CDFW: SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral etc. Roosts in crevices in cliff faces, high buildings, trees & tunnels.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Icteria virens	yellow-breasted chat	None/ None	G5; S3; CDFW: SSC	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Some marginally suitable habitat for this species exists within the drainages on-site. Occurrence potential for this species is **moderate**.
Imperata brevifolia	California satintail	None/ None	G2; S2.1; CNPS: 2.1	Coastal scrub, chaparral, riparian scrub, Mojavean scrub, meadows and seeps (alkali). Mesic sites, alkali seeps, riparian areas. 0-500m.	The project site is slightly outside the elevation range for this species and the only source of information for this occurrence is a 1891 collection. Occurrence potential for this species is **low**.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Lampropeltis zonata parvirubra	California mountain kingsnake (San Bernardino population)	None/ None	G4G5; S2?; CDFW: SSC	Bigcone spruce & chaparral at lower elev. Black oak, incense cedar, Jeffrey pine & ponderosa pine at higher elevations. Well-lit canyons with rocky outcrops or rocky talus.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species within the project site is **low**.
Lanius ludovicianus	loggerhead shrike	None/ None	G4; S4; CDFW: SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, & riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	This species has been recently documented within close proximity to the project site and suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Lasiurus xanthinus	western yellow bat	None/ None	G5; S3; CDFW: SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	Very little suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/ None	G5T2?; S2.2; CNPS: 1B.2	Chaparral, coastal scrub. Dry soils, shrubland. 1-945m.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Lichanura trivirgata roseofusca	coastal rosy boa	None/ None	G4G5; S3S4	Rocky outcrop areas within chaparral and sage scrub. Prefers moderate to dense vegetation & rocky cover, habitats with a mix of brushy cover & rocky soil such as coastal canyons & hillsides, desert canyons, washes & mountains.	This species has been recently documented near the project site and suitable habitat exists within the project site. Occurrence potential for this species **high**.
Malacothamnus parishii	Parish's bush-mallow	None/ None	GHQ; SH; CNPS: 1A	Chaparral, coastal sage scrub. In a wash. One site known: 485m.	Only documented occurrence for this species is from 1895. Occurrence potential is **low**.
Monardella macrantha ssp. *hallii*	Hall's monardella	None/ None	G5T3; S3; CNPS: 1B.3	Broadleaved upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley & foothill grassland. Dry slopes and ridges in openings within the above communities. 695-2195m.	The project site is outside the elevation range for this species and suitable habitat does not exist within the project site. Occurrence potential for this species is **low**.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Neotoma lepida intermedia	San Diego desert woodrat	None/ None	G5T3?; S3?; CDFW: SSC	Coastal scrub of southern California from San Diego county to San Luis Obispo county. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops & rocky cliffs & slopes.	This species has been recently documented within close proximity to the project site and suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Nyctinomops femorosaccus	pocketed free-tailed bat	None/ None	G4; S2S3; CDFW: SSC	Variety of arid areas in southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian. Rocky areas with high cliffs.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None/ None	G5T1T2; S1S2; CDFW: SSC	Lower elevation grasslands & coastal sage communities in and around the Los Angeles basin. Open ground with fine sandy soils. May not dig extensive burrows, hiding under weeds & dead leaves instead.	Suitable habitat for this species exists within the project site, however, the nearest documented occurrence for this species is approximately 5 miles southwest of the project site. Occurrence potential for this species is **low**.
Phrynosoma blainvillii	Blainville's horned lizard	None/ None	G4G5; S3S4; CDFW: SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, & abundant supply of ants & other insects.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Polioptila californica californica	coastal California gnatcatcher	Threatened/ None	G3T2; S2; CDFW: SSC	Obligate, permanent resident of coastal sage scrub below 2500 feet in southern California. Low, coastal sage scrub in arid washes, on mesas & slopes. Not all areas classified as coastal sage scrub are occupied.	Suitable habitat exists within the project site and this species has been documented within 0.7 mile of the project site. Occurrence potential for this species is **high**.
Rana muscosa	southern mountain yellow-legged frog	Endangered/ Unknown Code	G1; S1; CDFW: SSC	Federal listing refers to populations in the San Gabriel, San Jacinto & San Bernardino mountains only. Always encountered within a few feet of water. Tadpoles may require 2 - 4 years to complete their aquatic development.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/ None	G5T1; S1; CDFW: SSC	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles river system. Requires permanent flowing streams with summer water temps of 17-20 c. Usually inhabits shallow cobble and gravel riffle	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.
Ribes divaricatum var. *parishii*	Parish's gooseberry	None/ None	G4TH; SH; CNPS: 1A	Riparian woodland. Salix swales in riparian habitats. 65-100m.	The project site is outside the elevation range for this species. Occurrence potential for this species within the project site is **low**.
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	None/ None	G1; S1.1		This habitat is **present** within the project site.
Salvadora hexalepis virgultea	coast patch-nosed snake	None/ None	G5T3; S2S3; CDFW: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Requires small mammal burrows for refuge and overwintering sites.	Suitable habitat exists within the project site. Occurrence potential for this species is **high**.
Sidalcea hickmanii ssp. *parishii*	Parish's checkerbloom	None/ None	G3T1; S1.2; CNPS: 1B.2	Chaparral, lower montane coniferous forest. Disturbed burned or cleared areas on dry, rocky slopes, in fuel breaks & fire roads along the mountain summits. 1000-2135m.	The project site is outside the elevation range for this species. Occurrence potential for this species is **low**.
Southern Coast Live Oak Riparian Forest	Southern Coast Live Oak Riparian Forest	None/ None	G4; S4		This habitat does not exist within the project site.
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	None/ None	G3; S3.2		This habitat does not exist within the project site.
Southern Riparian Forest	Southern Riparian Forest	None/ None	G4; S4		This habitat does not exist within the project site.
Southern Riparian Scrub	Southern Riparian Scrub	None/ None	G3; S3.2		This habitat does not exist within the project site.
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	None/ None	G4; S4		This habitat does not exist within the project site.
Southern Willow Scrub	Southern Willow Scrub	None/ None	G3; S2.1		This habitat is **present** within the project site.

Scientific Name	Common Name	Status Federal/ State	Other Listings	Habitat	Occurrence potential
Spea hammondii	western spadefoot	None/ None	G3; S3; CDFW: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools lasting > 30 days are necessary for metamorphosis.	This species is **present** on the project site.
Streptanthus campestris	southern jewel-flower	None/ None	G2; S2.3; CNPS: 1B.3	Chaparral, lower montane coniferous forest, pinyon-juniper woodland. Open, rocky areas. 600-2790m.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species is **low**.
Taxidea taxus	American badger	None/ None	G5; S4; CDFW: SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	The only documented occurrence for this species (1908) is approximately 10 miles southwest of the project site. Due to the ongoing human disturbances within this area, it is unlikely that this species occurs here. Occurrence potential for this species is **low**.
Thamnophis hammondii	two-striped garter snake	None/ None	G3; S2; CDFW: SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Only marginally suitable habitat for this species exists within the drainages on-site and the nearest documented occurrence for this species is approximately 1.15 miles west of the project site. Occurrence potential for this species is **low**.
Vireo bellii pusillus	least Bell's vireo	Endangered/ Endangered	G5T2; S2	Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	No suitable habitat for this species exists within the project site or surrounding area. Occurrence potential for this species within the project site is **low**.

Coding and Terms

E= Endangered	T = Threatened	SSC= Species of Special Concern	FP= Fully Protected
R= Rare	C= Candidate	PE= Proposed Endangered	N/A= Not Applicable

Federal Species of Concern: "taxa for which the U.S. Fish and Wildlife Service has information that indicates proposing to list the taxa as endangered or threatened is possibly appropriate, but for which substantial data on the biological vulnerability and threats are not currently known or on file to support the immediate preparation of rules." (Arnold). All of these species have a limited range. In fact, some species are limited to the San Bernardino Mountains area, however, they are locally common.

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 3502.5 of the California Fish and Game code: “It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird.”

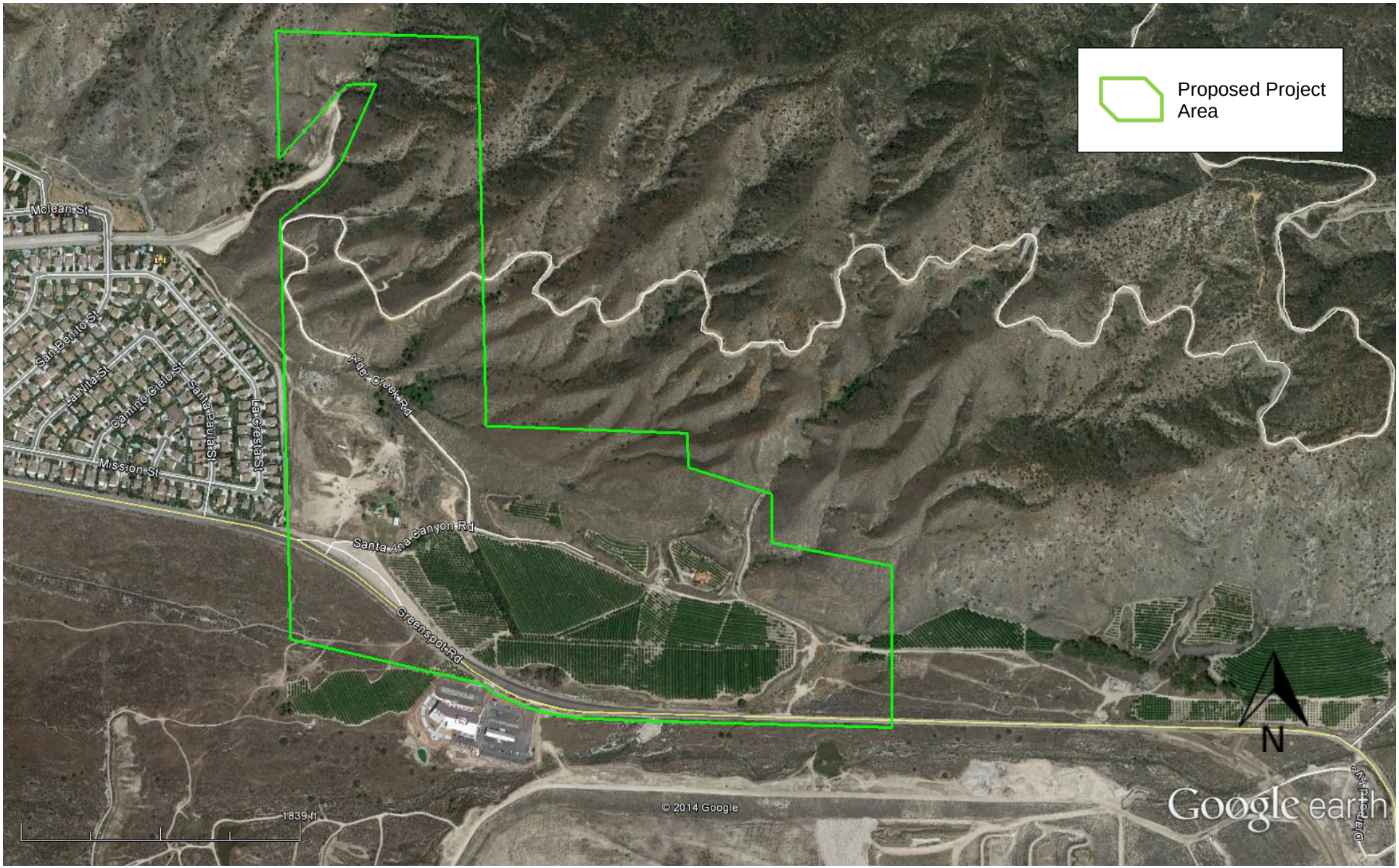
State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles. Please note that most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

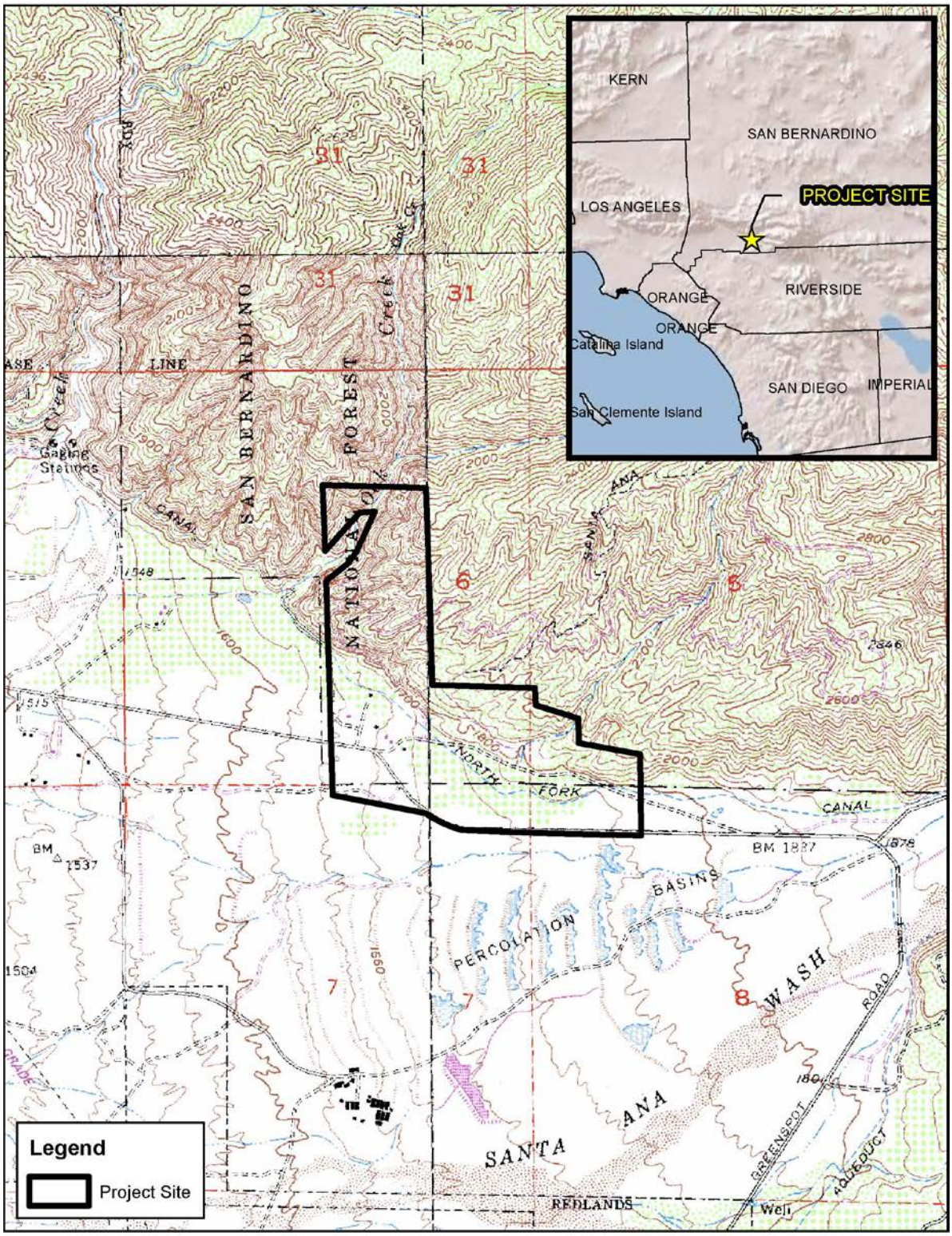
State Plant Rankings:

S1 - less than 6 element occurrences, or less than 1,000 individuals, or less than 2,000 acres
S2 - 6 to 20 element occurrences, or between 1,000 and 3,000 individuals, or between 2,000 and 10,000 acres
S3 - 21 to 100 element occurrences, or between 3,000 and 10,000 individuals, or between 10,000 and 50,000 acres
S4 - No Threat Rank
S5 - No Threat Rank
SH - all sites in California are historical
.1 - very threatened
.2 - threatened
.3 - no current threats known

FIGURES

Figure 1. Aerial Photograph of Proposed Project Area

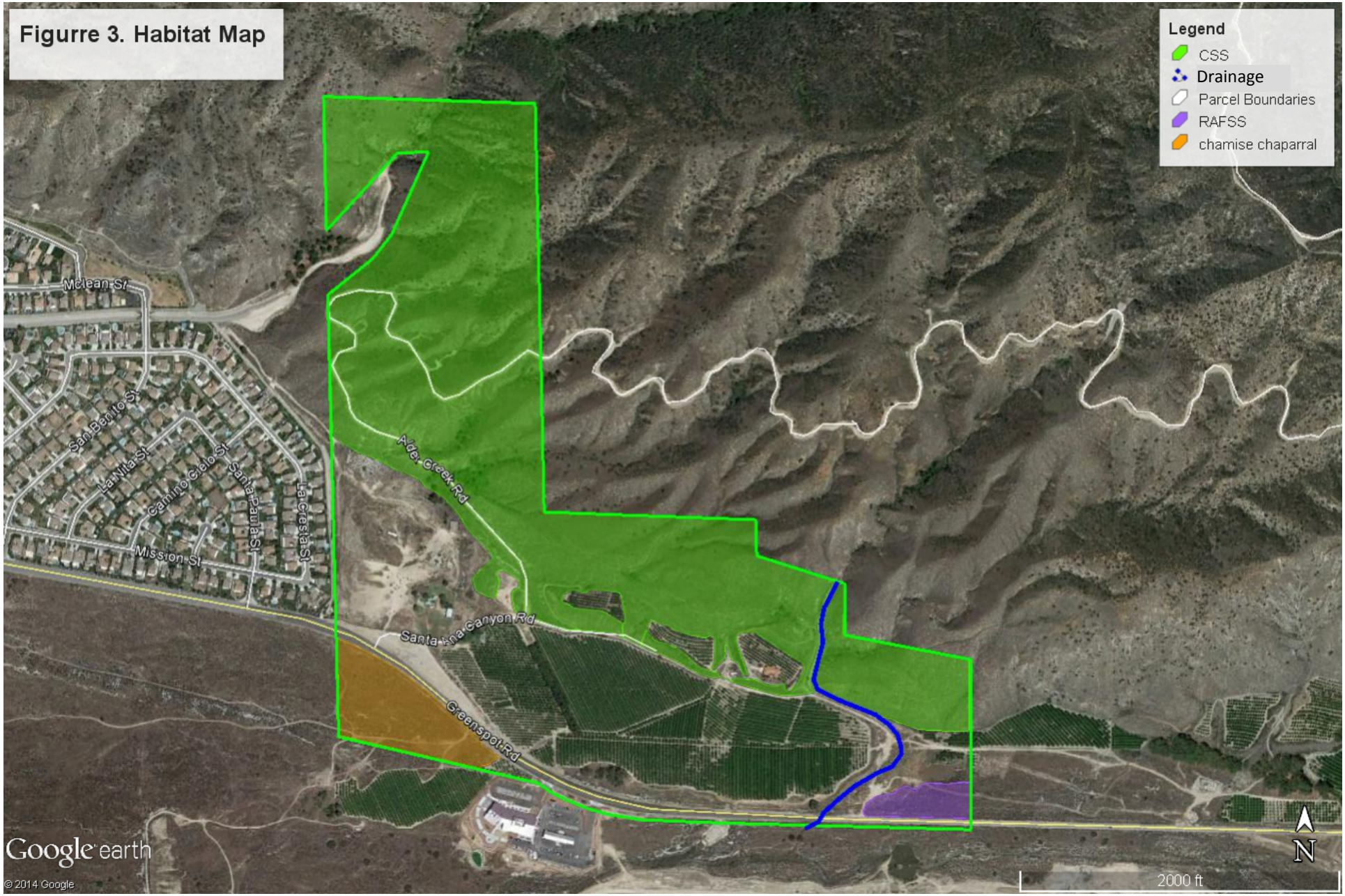


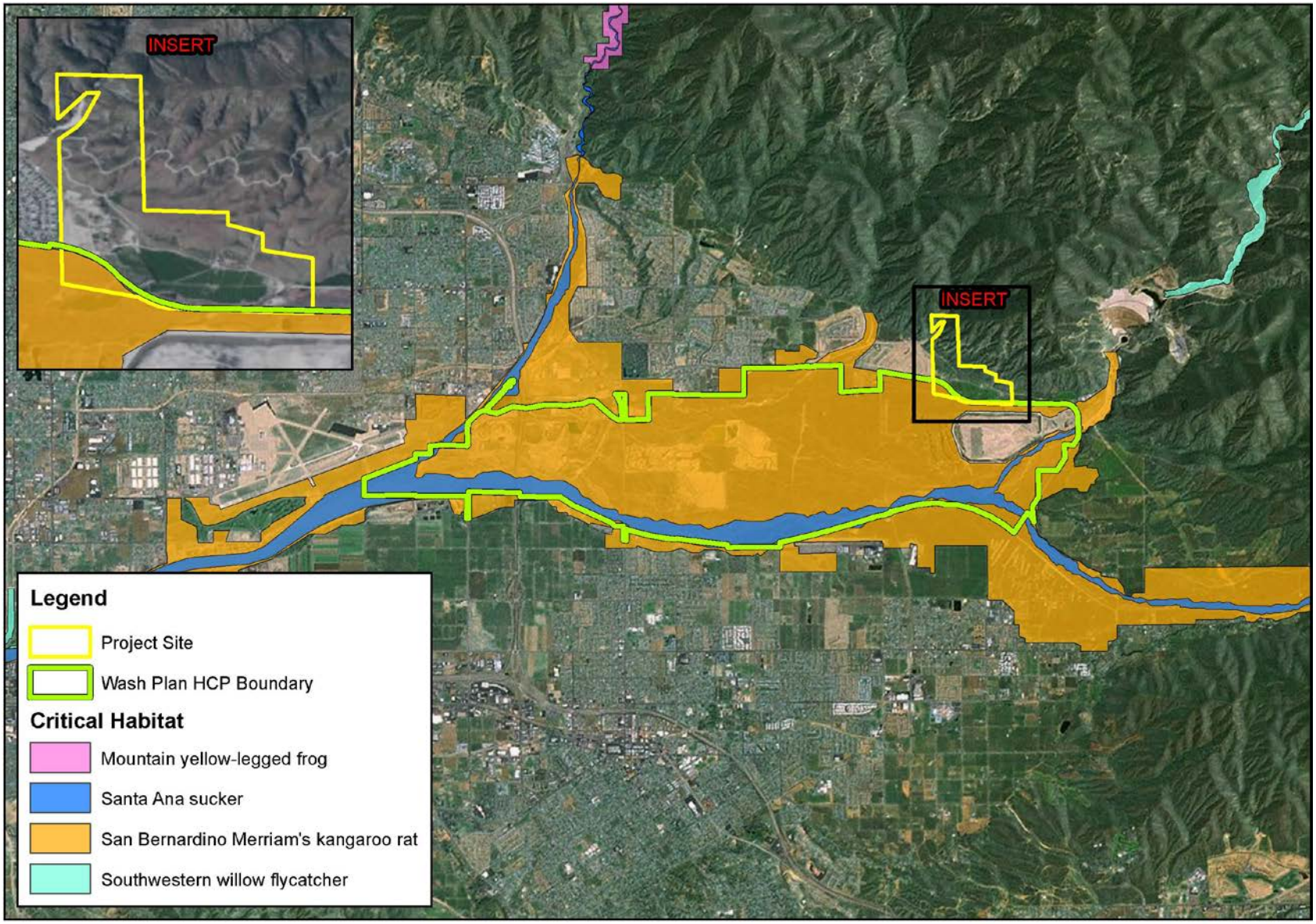


0 500 1,000 2,000 Feet

Site Vicinity

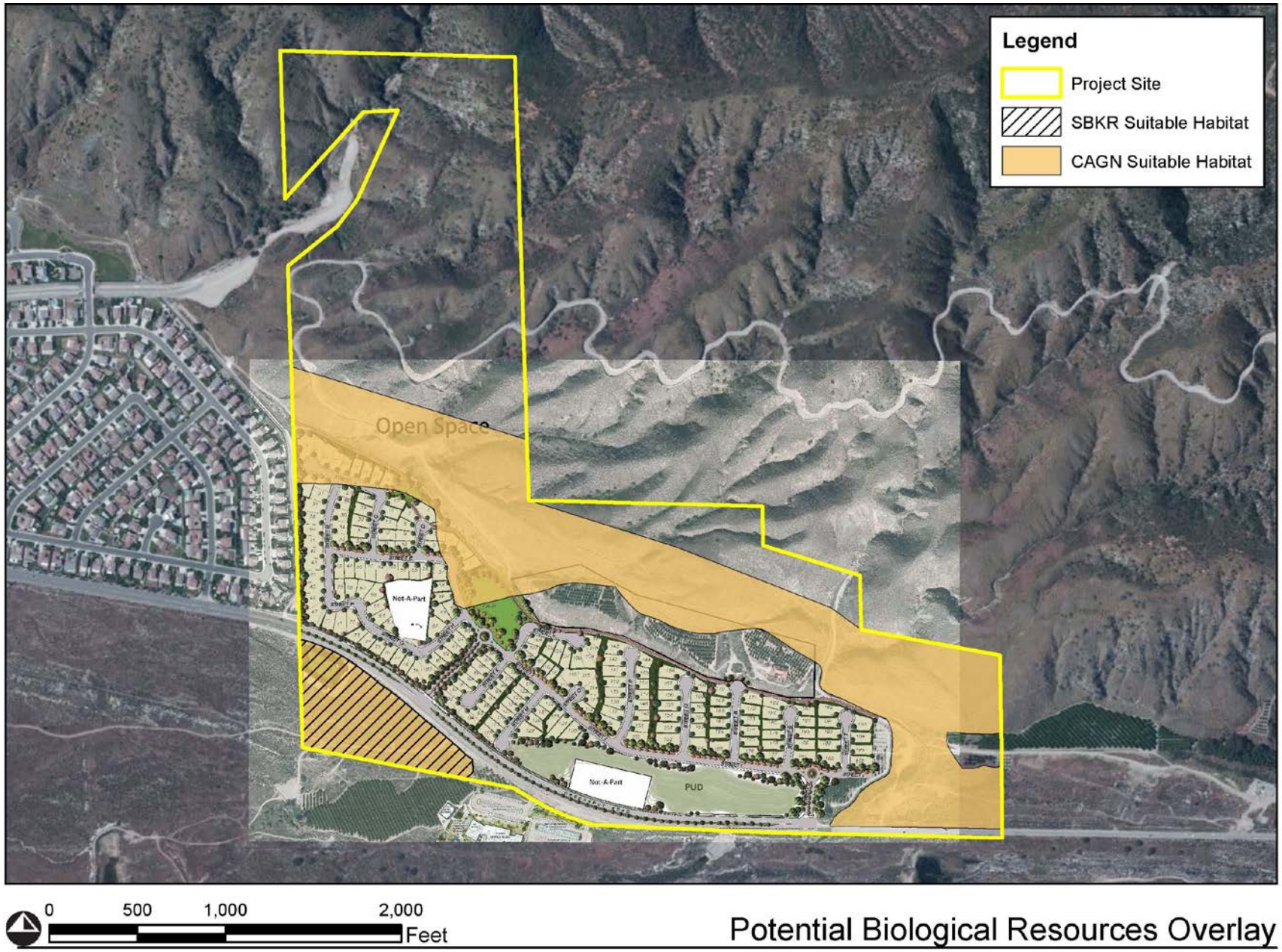
Figure 2


Figurre 3. Habitat Map
Legend
CSS
Drainage
Parcel Boundaries
RAFSS
chamise chaparral
Mclean St
San Benito St
La Nita St
Camino Cielo St
Santa Paula St
La Cresta St
Mission St
Alder Creek Rd
Santa Ana Canyon Rd
Greenspot Rd
Google earth
© 2014 Google
2000 ft
N



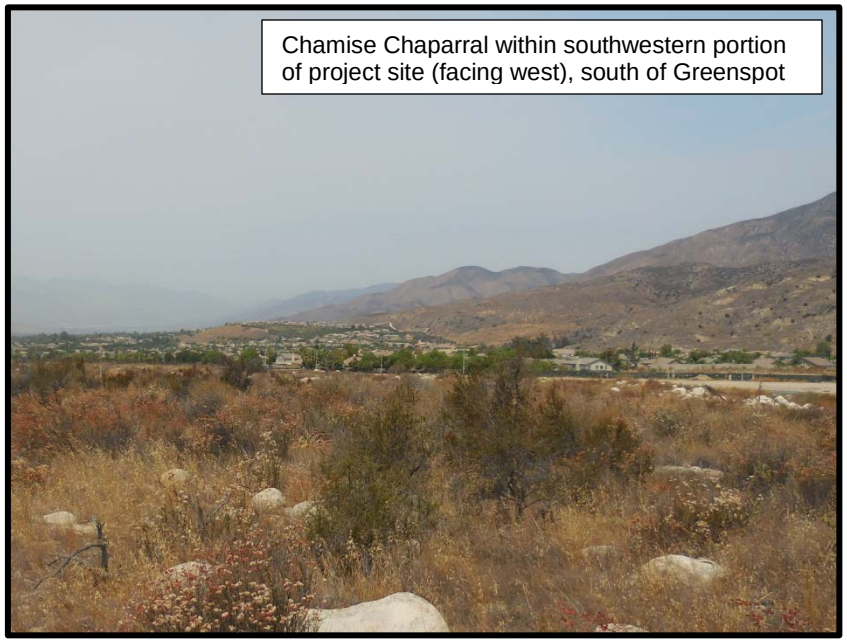
Critical Habitat and Wash Plan HCP Boundary

Figure 4



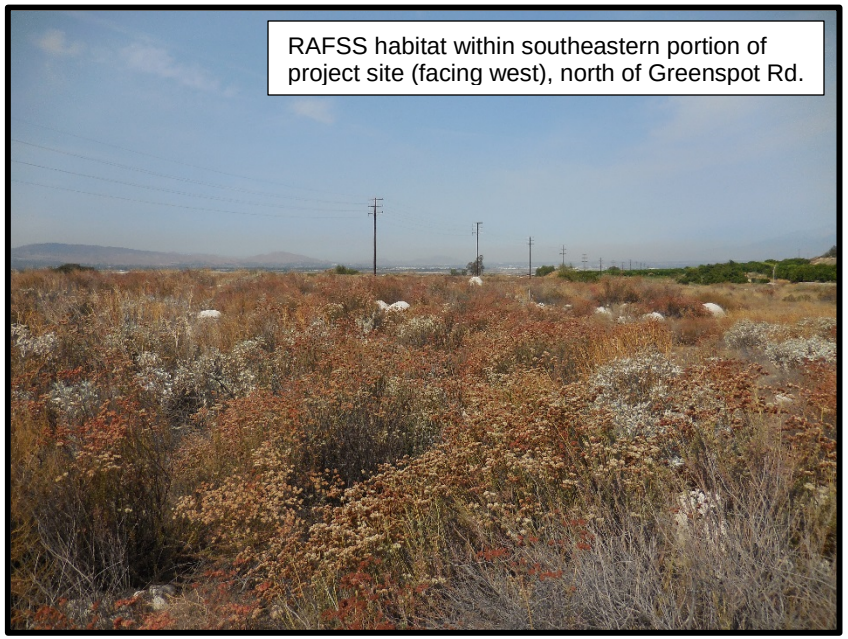
Potential Biological Resources Overlay

SITE PHOTOGRAPHS

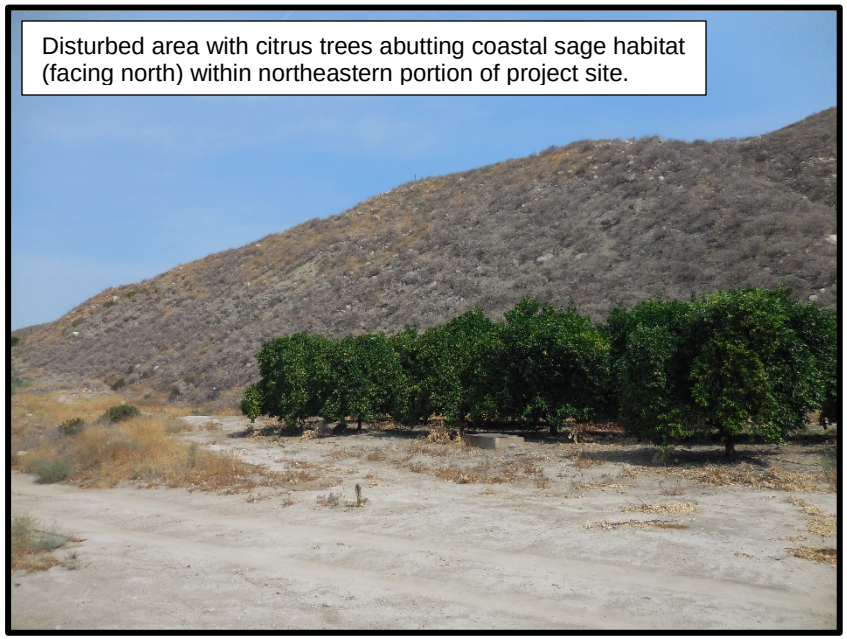


Chamise Chaparral within southwestern portion of project site (facing west), south of Greenspot

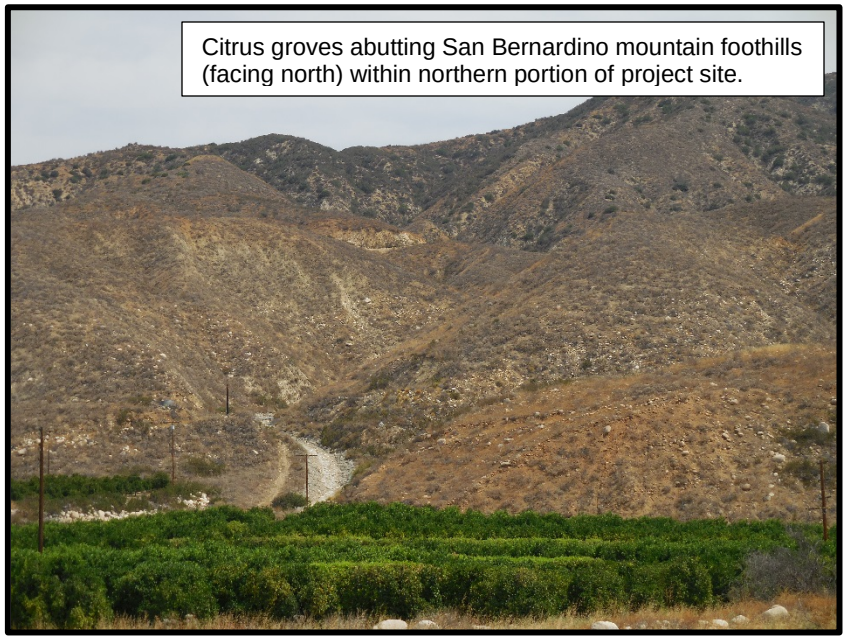
Area adjacent citrus groves (facing west) within eastern portion of project site.



RAFSS habitat within southeastern portion of project site (facing west), north of Greenspot Rd.

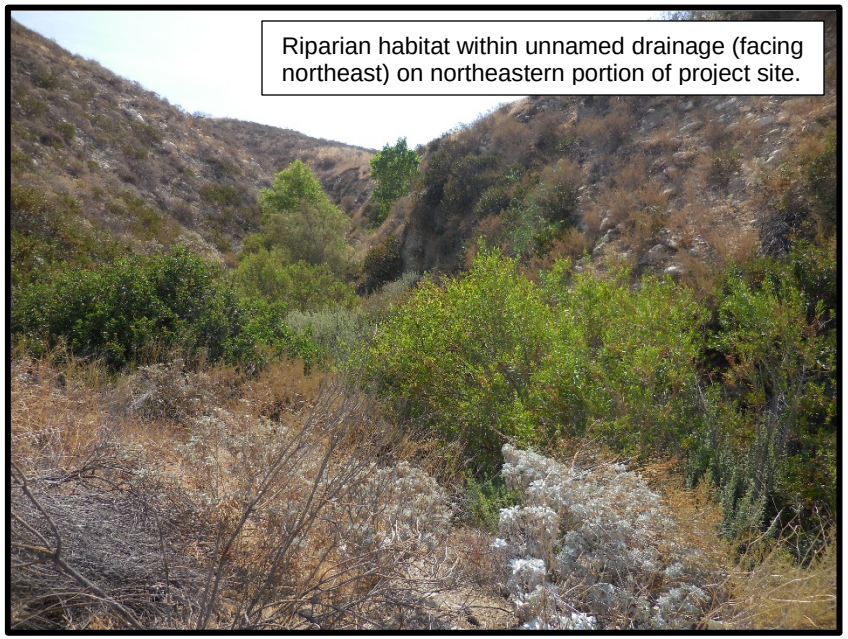


Disturbed area with citrus trees abutting coastal sage habitat (facing north) within northeastern portion of project site.

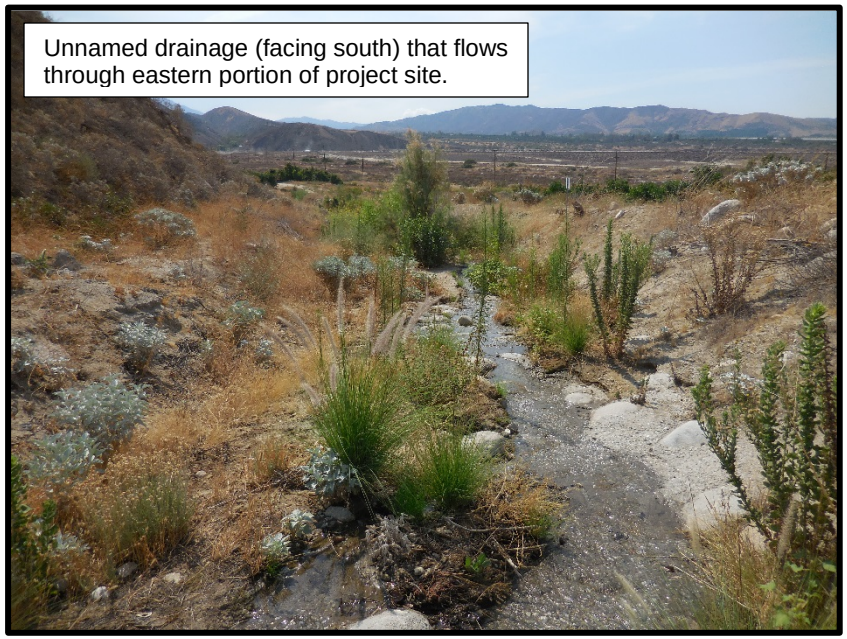


Citrus groves abutting San Bernardino mountain foothills (facing north) within northern portion of project site.

San Bernardino Mountain foothills within northern portion of project site (facing south) from Alder Creek Rd.



Riparian habitat within unnamed drainage (facing northeast) on northeastern portion of project site.



Unnamed drainage (facing south) that flows through eastern portion of project site.

APPENDICES

Appendix A. Plant Species Observed

Scientific Name	Common Name
Agave americana	American century plant
Amsinckia menziesii	common fiddleneck
Artemisia californica	coastal sagebrush
Artemisia dracunculus	tarragon
Astragalus gambelianus	Gambel's dwarf milkvetch
Atriplex suberecta	peregrine saltbush
Avena barbata	slender wild oat
Avena fatua	common wild oat
Baccharis salicifolia	mule-fat
Bebbia juncea	sweetbush
Brickellia californica	California brickellbush
Bromus carinatus	California brome
Bromus diandrus	Ripgut grass
Bromus madritensis ssp*. rubens*	Foxtail chess
Calyptridium monandrum	Common pussypaws
Capsella bursa-pastoris	shepherd's purse
Centaurea melitensis	Maltese star-thistle
Chaenactis glabriuscula var. *glabriuscula*	yellow pincushion
Chenopodium murale	nettleleaf goosefoot
Corethrogyne filaginifolia	common sandaster
Croton californicus	California croton
Croton sagiterus	Doveweed
Cryptantha intermedia	clearwater cryptantha
Cucurbita foetidissima	Missouri gourd
Cylindropuntia californica	California cholla
Datura wrightii	jimsonweed
Elymus glaucus ssp. *glaucus*	Blue wildrye
Encelia farinosa	brittlebush
Erigeron canadensis	Erigeron canadensis
Eriodictycon trichocalyx var. *trichocalyx*	hairy yerba santa
Eriogonum elongatum var. *elongatum*	longstem buckwheat
Eriogonum fasciculatum	California buckwheat
Eriogonum gracile var. *gracile*	Slender woolly buckwheat
Erodium botrys	longbeak strok's bill
Erodium cicutarium	red-stemmed filaree
Erodium moschatum	white-stemmed filaree
Galium aparine	common bedstraw
Gnaphalium	cudweed
Gnaphalium californicum	California everlasting
Hazardia squarrosa	sawtooth goldenbush
Heseroyucca whipplei	Our Lord's candle
Heterotheca grandiflora	telegraphweed
Hirschfeldia incana	shortpod mustard
Lamarckia aurea	Goldentop
Lepidospartum squamatum	California broomsage
Lotus scoparius var. *scoparius*	Coastal deerweed
Malva parviflora	Cheeseweed
Melica imperfecta	Small-flowered melic
Nicotiana glauca	Tree tocabbo

Platanus racemosa	California sycamore
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Quercus berberidifolia	California scrub oak
Rhus ovata	sugar sumac
Ricinus communis	Castor bean
Salix exigua	narrow-leaved willow
Salix gooddingii	Gooding's black willow
Salsola tragus	prickley Russian thistle
Salvia apiana	white sage
Salvia mellifera	Black sage
Schinus molle	Peruvian peppertree
Schismus barbatus	Mediterranean grass
Solanum douglassii	Douglas' nightshade
Toxicodendron diversilobum	Pacific poison oak
Tribulus terrestris	puncturevine
Vulpia myuros	Rattail fescue

Appendix B. Wildlife Species Observed

Scientific Name	Common Name
Class Aves	**Birds**
Buteo jamaicensis	Red-tailed hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Carduelis psaltria	Lesser goldfinch
Carpodacus maxicanus	House finch
Charadrius valisineria	Killdeer
Chondestes grammacus	Lark sparrow
Chordeiles minor	Common nighthawk
Corvus corax	Commonraven
Falco sparverius	American kestrel
Geococcyx californianus	Greater roadrunner
Guiraca caerulea	Blue grossbeak
Icterus cucullatus	Hooded oriole
Lanius ludovicianus	Loggerhead shrike
Melospiza melodia	Song sparrow
Melozone crissalis	California towhee
Mimulus polyglottos	Northern mockingbird
Myiarchus cinerascens	Ash-throated flycatcher
Passer domesticus	House sparrow
Phainopepla nitens	Phainopepla
Pipilo maculatus	Spotted towhee
Psaltriparus minimus	Bushtit
Regulus calendula	Ruby-crowned kinglet
Salpinctes obsoletus	Rock wren
Sayornis nigricans	Black phoebe
Sialia mexicana	Western bluebird
Tyranus verticalis	Western kingbird
Toxostoma redivivum	California thrasher
Zenaida macroura	Mourning dove
Class Mammalia	**Mammals**
Canis latrans	coyote
Spermophilus beecheyi	California ground squirrel
Sylvilagus audubonii	Desert cottontail
Class Reptilia	**Reptiles**
Aspidocelis tigris stegnegeri	Coastal whiptail
Crotalus oreganus helleri	Southern Pacific rattlesnake
Sceloporus occidentalis longipes	Great Basin fence lizard
Uta stansburiana elegans	Western side-blotched lizard

APPENDIX 3b

November 30, 2014

Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

RE: 45-DAY REPORT PRESENCE/ABSENCE SBKR SURVEY
MEDITERRA RESIDENTIAL DEVLOPMENT PROJECT
CITY OF HIGHLAND, SAN BERNARDINO COUNTY, CALIFORNIA

Dear Stacey Love,

This letter report contains the findings of my November 2014 San Bernardino kangaroo rat (*Dipodomys merriami parvus* [SBKR]) presence/absence survey for the Mediterra Residential Development Project in the City of Highland, San Bernardino County, California. Following a biological resources assessment of the site, it was determined potentially suitable for federally-listed as endangered SBKR exists on site within an approximate 9 acre area on the southwest corner of the 196-acre property. Since this particular 9 acre area is slated for development of a detention basin and cannot be completely avoided, focused surveys in this area were required. Shay Lawrey conducted the survey between November 10 – November 15, 2014. **No SBKR** were trapped during the survey and the negative finding indicates that SBKR are absent from the study area.

Methods

Ms. Lawrey has over a decade of experience with SBKR and is a biologist permitted (USFWS permit number TE 094308-3) by the USFWS to trap and handle SBKR. Ms. Lawrey initiated the survey on the evening of Monday, November 10, 2014 and ended the survey on the morning of Saturday, November 15, 2014. The SBKR study site encompassed an approximately 9-acre area, which is the only area within the 196-acre property that has habitat potentially suitable for SBKR. A total of 100 traps, 12-inch Sherman live traps were set within approximately 10 meters apart. Each trap was baited with a mixture of rolled oats and millet placed at the back of the traps. The traps were set at dusk each night and inspected once at midnight and pre-dawn (4:30) each morning. All animals were identified and released unharmed at the point of capture. Daily notes included weather conditions such as temperature, wind speed, cloud cover, precipitation and moon phase. Site characteristics such as soils, topography, the condition of the plant communities, and evidence of human use of the site were also noted.

Species Background

The SBKR is one of several kangaroo rat species within its range. The Dulzura kangaroo rat (*D. simulans*), the Pacific kangaroo rat (*D. agilis*), and the Stephen's kangaroo rat (*D. stephensi*) occur in areas occupied by the SBKR, but these other species have a wider habitat range. The habitat of the SBKR is described as being confined to inland valley scrub communities, and more particularly, to scrub communities occurring along rivers, streams, and drainage. Most of these drainages have been historically altered as a result of flood control efforts and the resulting increased use of river resources including mining, off-road vehicle use, and road and housing development. The increased use of river floodplain resources has resulted in a reduction in both the amount and quality of habitat suitable for the SBKR. The past habitat losses and potential future losses prompted the emergency listing of the SBKR as an endangered species (U.S. Fish and Wildlife Service, 1998a). The site is located within USFWS designated Critical Habitat.

Results

The SBKR study site is generally located in the City of Highland in San Bernardino County, California and is depicted on the Redlands U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map within Sections 6 and 7, Township 1 South, Range 2 West of the San Bernardino Base and Meridian (Figure 1). The study site is situated adjacent the south side of Greenspot Road, approximately 600 feet east of Santa Paula Street and 600 feet west of the East Valley Water District Facility entrance (Figure 2). The site consists of suitable habitat for SBKR and is within the boundary of the Santa Ana River Unit (Unit 1) of USFWS designated critical habitat for this species.

The local area climate is semi-arid, with an average annual temperature of 67°F and a range from 25-110°F. The rainy season begins in November and continues through March, with the quantity and frequency of rain varying from year to year. The average annual rainfall is approximately 18.1 inches. Overnight low temperatures during the survey ranged from 53 to 57 degrees Fahrenheit. No rain fell, nor was it in the forecast, but there was a cloud cover during survey ranging from 100-30 percent (Table 1).

Table 1. Survey dates of trap night, weather conditions, and moon phases

Survey Dates	% Cloud Cover	Wind (BFT)	Overnight Low Temp (°F)	Precipitation	Moon Phase
11/10	100	0	57	0	Waning gibbous
11/11	100	0	56	0	Waning gibbous
11/12	100	2	54	0	Waning gibbous
11/13	50	2	56	0	Waning gibbous
11/14	30	2	53	0	Last quarter

The study site is located on the upland slope of the northwest side of the Santa Ana Wash. Soils in this area are dominated by Soboba Stony Loamy Sand. This series is characteristically excessively

drained soil formed in alluvium from predominantly granitic rock sources and is usually found in alluvial fans and flood plains. It primarily consists of very cobbly loamy sand.

Habitat within the study site and surrounding area consists of mature Riversidean alluvial fan sage scrub. Native plant species common within the SBKR study site include chamise (*Adenostoma fasciculatum*), coastal sagebrush (*Artemisia californica*), California cholla (*Cylindropuntia californica*), brittlebush (*Encelia farinose*), California buckwheat (*Eriogonum fasciculatum*), hairy yerba santa (*Eriodictyon trichocalyx*), and chaparral yucca (*Hesperoyucca whipplei*). The site and surrounding areas are undergoing severe invasive species colonization pressure. The primary contributors to this pressure include alien grasses (*Bromus* spp.), Maltese star thistle (*Centaurea melitensis*), and short pod mustard (*Hirschfeldia incana*). Human-related site disturbances include unpaved roads and nighttime lighting emanating at high lumens from the newly constructed water district headquarter building.

There was a virtual lack of small mammal sign on site, which was surprising since moderate levels of small mammal sign had been observed and corroborated by previous surveys conducted in 2013, 2009 and 2007 for other projects in adjacent areas. During this survey the overall trapping success was exceptionally poor. Out of 500 trapnights total, the survey resulted in 2 trapnight captures of a deer mouse (*Peromyscus maniculatus*). Potential contributing factors to the lack of small mammals on site may include non-native grasses, night lighting nearby, great-horned owls, and possibly rodenticide being used in the immediate vicinity.

No SBKR were trapped during the survey and the negative finding indicates that SBKR are absent from the study site within the Mediterra Project. Please do not hesitate to contact at 909-915-5900 should you have any questions or require further information.

Sincerely,

Shay Lawrey, President
Ecologist/Regulatory Specialist
USFWS permit number TE 094308-3

Attachment 1 – Literature Reviewed
Attachment 2 – Figures
- Figure 1 – Topographic Map of SBKR Study Area
- Figure 2 – Aerial Photograph of Study Site

Attachment 3 – Photographs

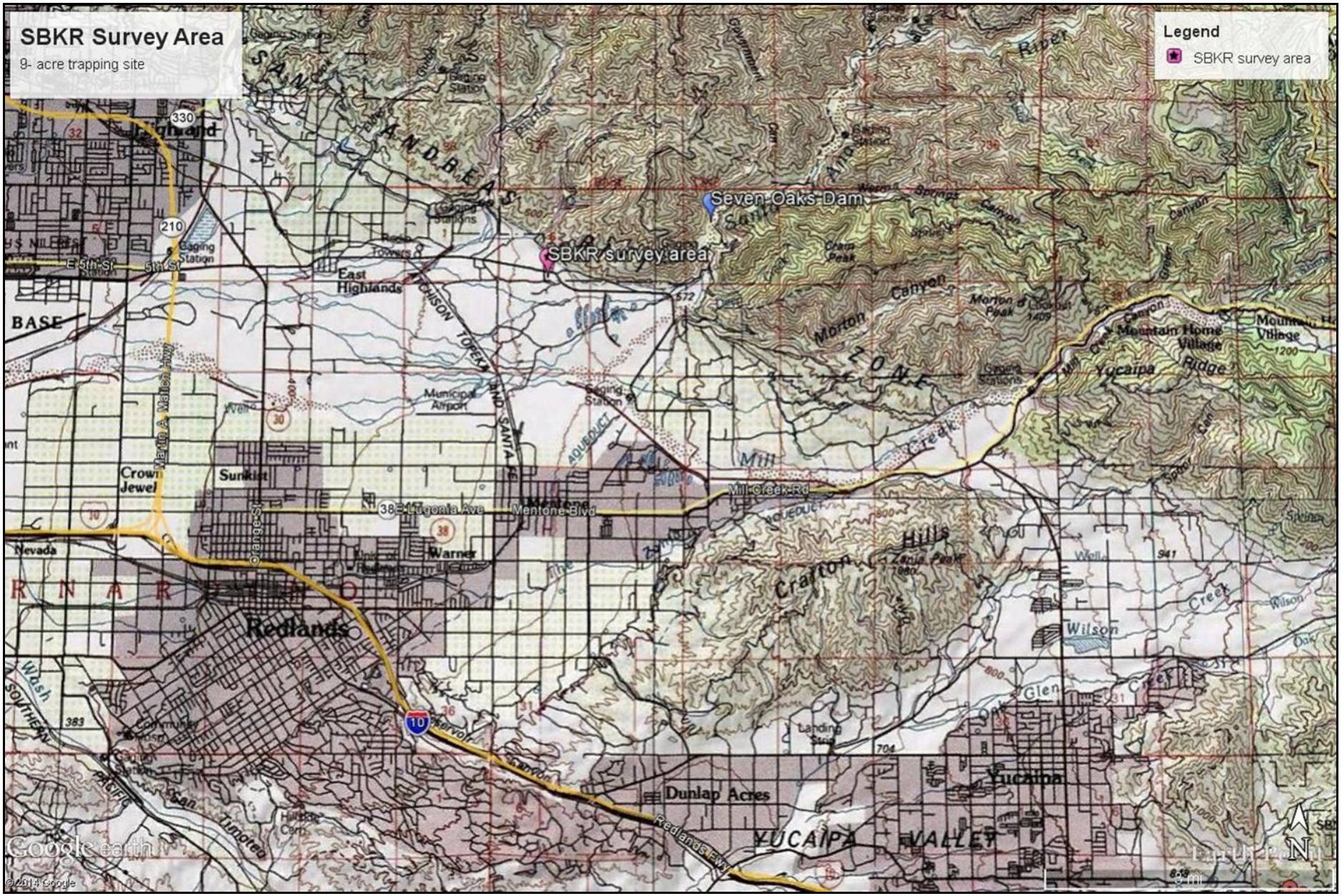
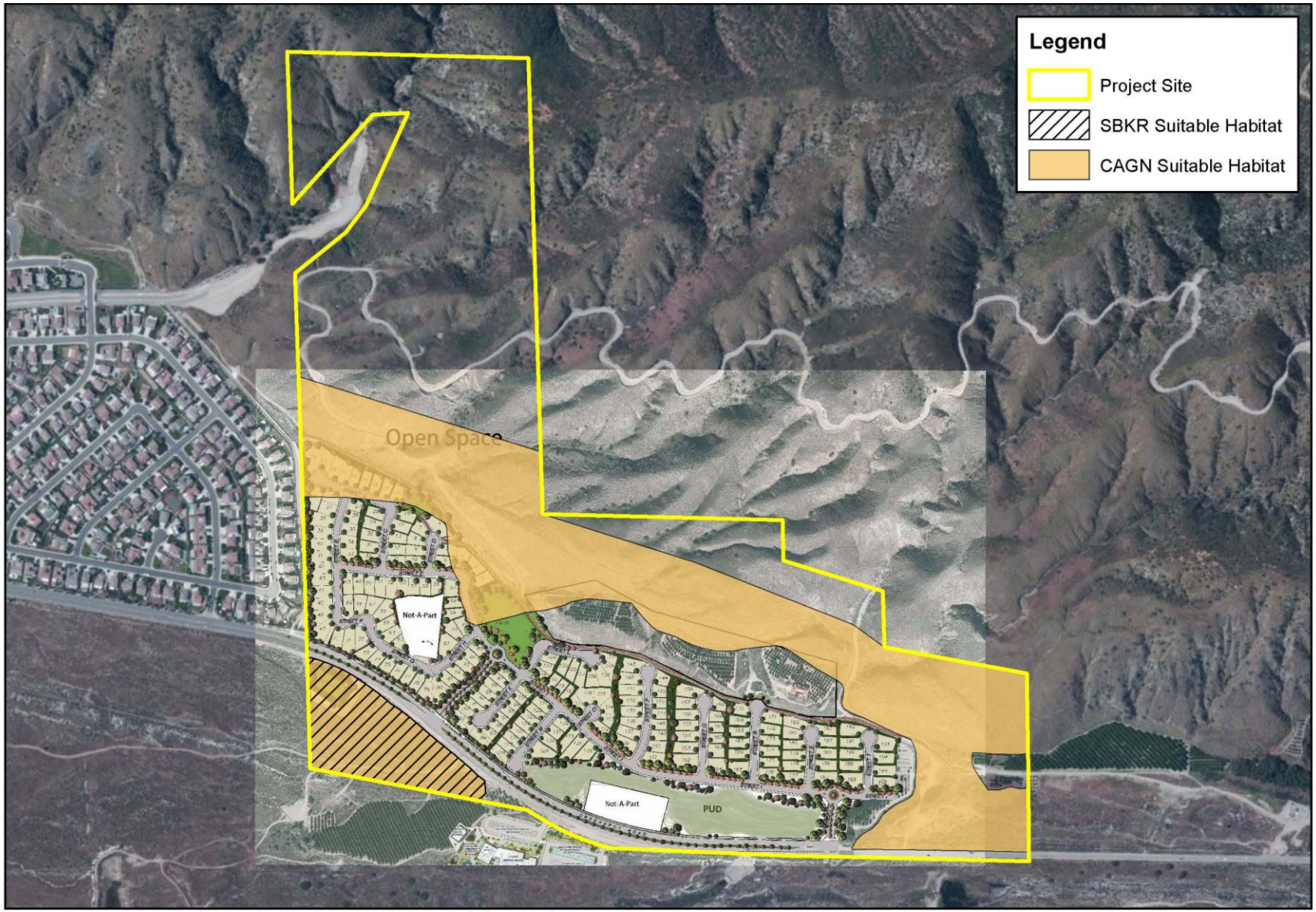


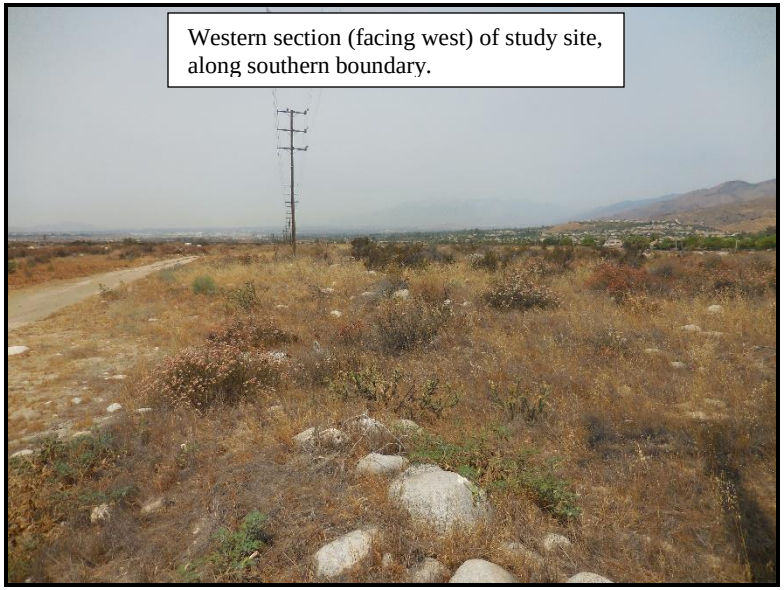
Figure 1. Topographic Map of SBKR Study Area

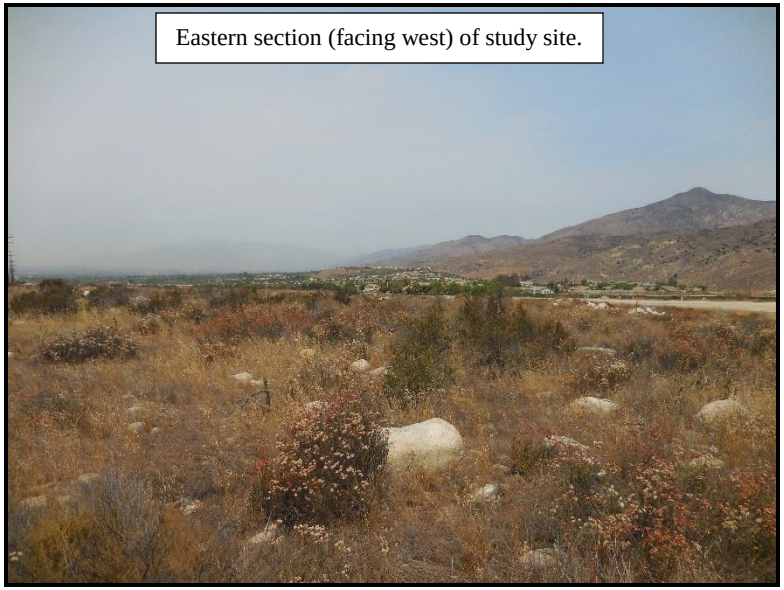
Figure 2. Aerial Photograph of Study Site

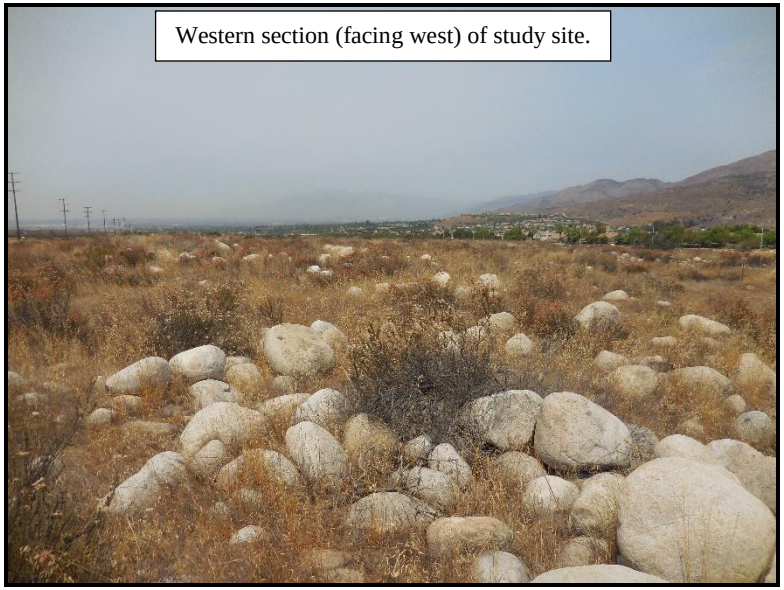


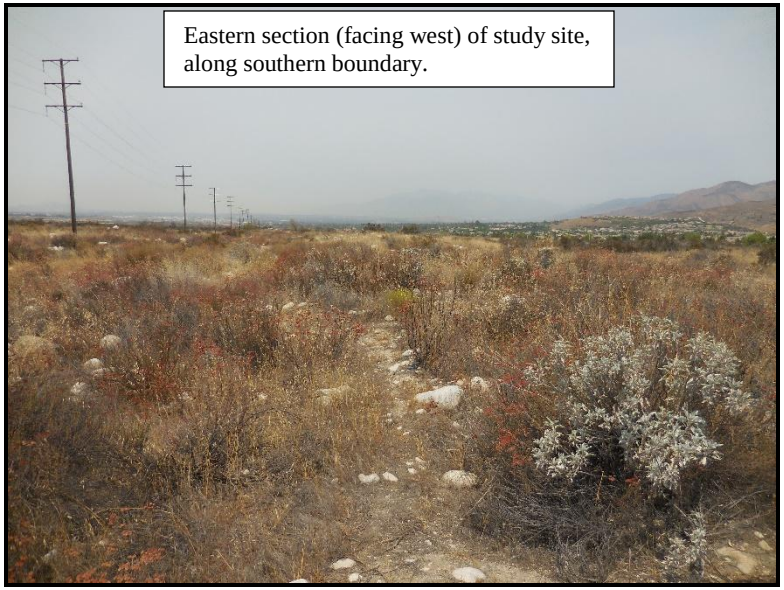
0 500 1,000 2,000 Feet

Potential Biological Resources Overlay









Site Photographs

APPENDIX 4

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

TENTATIVE TRACT MAP NO. 18893

City of Highland
San Bernardino County, California

For Submittal to:

Community Development Department
City of Highland
27215 Base Line
Highland, CA 92346

Prepared for:

Tom Dodson and Associates
2150 N. Arrowhead Avenue
San Bernardino, CA 92405

Prepared by:

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

January 21, 2015
CRM TECH Contract No. 2835

Title: Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 18893, City of Highland, San Bernardino County, California

Author(s): Bai "Tom" Tang, Principal Investigator
Deirdre Encarnación, Archaeologist/Report Writer
Terri Jacquemain, Historian/Architectural Historian
Daniel Ballester, Archaeologist/Field Director

Consulting Firm: CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: January 21, 2015

For Submittal to: Community Development Department
City of Highland
27215 Base Line
Highland, CA 92346
(909) 864-6861

Prepared for: Tom Dodson and Associates
2150 N. Arrowhead Avenue
San Bernardino, CA 92405
(909) 882-3612

USGS Quadrangle: Yucaipa and Redlands, Calif., 7.5' quadrangles (Sections 5-8, T1S R2W, San Bernardino Baseline and Meridian)

Project Size: Approximately 85 acres

Keywords: Eastern San Bernardino Valley; Phase I historical/archaeological resources survey; Site 36-005978 (historic-period farmstead and irrigation system), Site 36-006544 (North Fork Canal), 36-006848 (Cram and van Leuven Ditch), and 36-008094 (Santa Ana Canyon Road); no "historical resources" affected

EXECUTIVE SUMMARY

Between July 2014 and January 2015, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources study on approximately 85 acres of agricultural land in the southeastern portion of the City of Highland, San Bernardino County, California. The subject property of the study, Tentative Tract Map No. 18893, is located at the intersection of Greenspot Road and Alder Creek Road, in Sections 5-8 of T1S R2W, San Bernardino Baseline and Meridian. The study is part of the environmental review process for the proposed subdivision of the property for residential development. The City of Highland, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the City of Highland with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

The results of the records search indicate that Site 36-005978, consisting of a historic-period structural foundation, a segment of irrigation ditch, and a refuse scatter in a citrus grove, was previously recorded within the project boundaries, while three linear features dating to the mid- and late 19th century, namely the North Fork Canal (36-006544), the Cram and van Leuven Ditch (36-006848), and the Santa Ana Canyon Road (36-008094), were recorded as lying partially across the project area. With the exception of 36-006848, these sites were re-located at their reported locations, and the site boundary for 36-005978 was significantly expanded to include additional irrigation features, a barn, and a single-family residence. No other potential "historical resources" were encountered within the project area.

Among the three sites that remain in existence in the project area, 36-006544 appears to meet CEQA's definition of a "historical resource" due to the significance role it once played in the early agricultural growth of the Highland area. However, the physical components of the canal in the project area, now an abandoned underground conduit under a concrete cover and several feet of soil, are of much later vintage than the period of significance for the site, namely the late 19th century. As such, they do not contribute to the significance of the site, and thus the potential impact of the proposed project on these features would not constitute "a substantial adverse change in the significance of a historical resource." The other two sites, 36-005978 and 36-008094, do not appear to qualify as "historical resources" under CEQA provisions.

Based on these findings, and pursuant to PRC §21084.1, CRM TECH recommends to the City of Highland a conclusion of *No Impact* regarding cultural resources. No further cultural resources investigation is recommended for the project unless development plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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INTRODUCTION

Between July 2014 and January 2015, at the request of Tom Dodson and Associates, CRM TECH performed a cultural resources study on approximately 85 acres of agricultural land in the southeastern portion of the City of Highland, San Bernardino County, California (Fig. 1). The subject property of the study, Tentative Tract Map No. 18893, is located at the intersection of Greenspot Road and Alder Creek Road, in Sections 5-8 of T1S R2W, San Bernardino Baseline and Meridian (Fig. 2).

The study is part of the environmental review process for the proposed subdivision of the property for residential development. The City of Highland, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any "historical resources," as defined by CEQA, that may exist in or around the project area.

In order to identify such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey of the entire project area. The following report is a complete account of the methods, results, and final conclusion of the study.

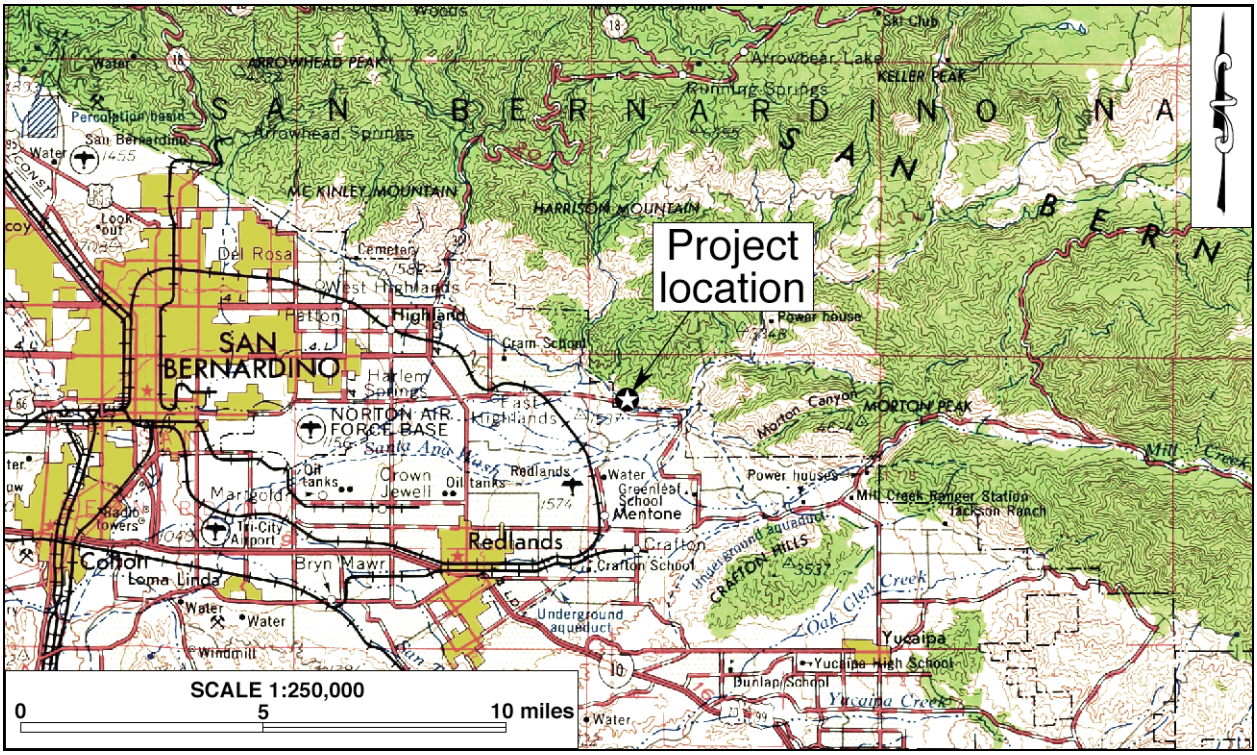

Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 1:250,000 quadrangle [USGS 1969])

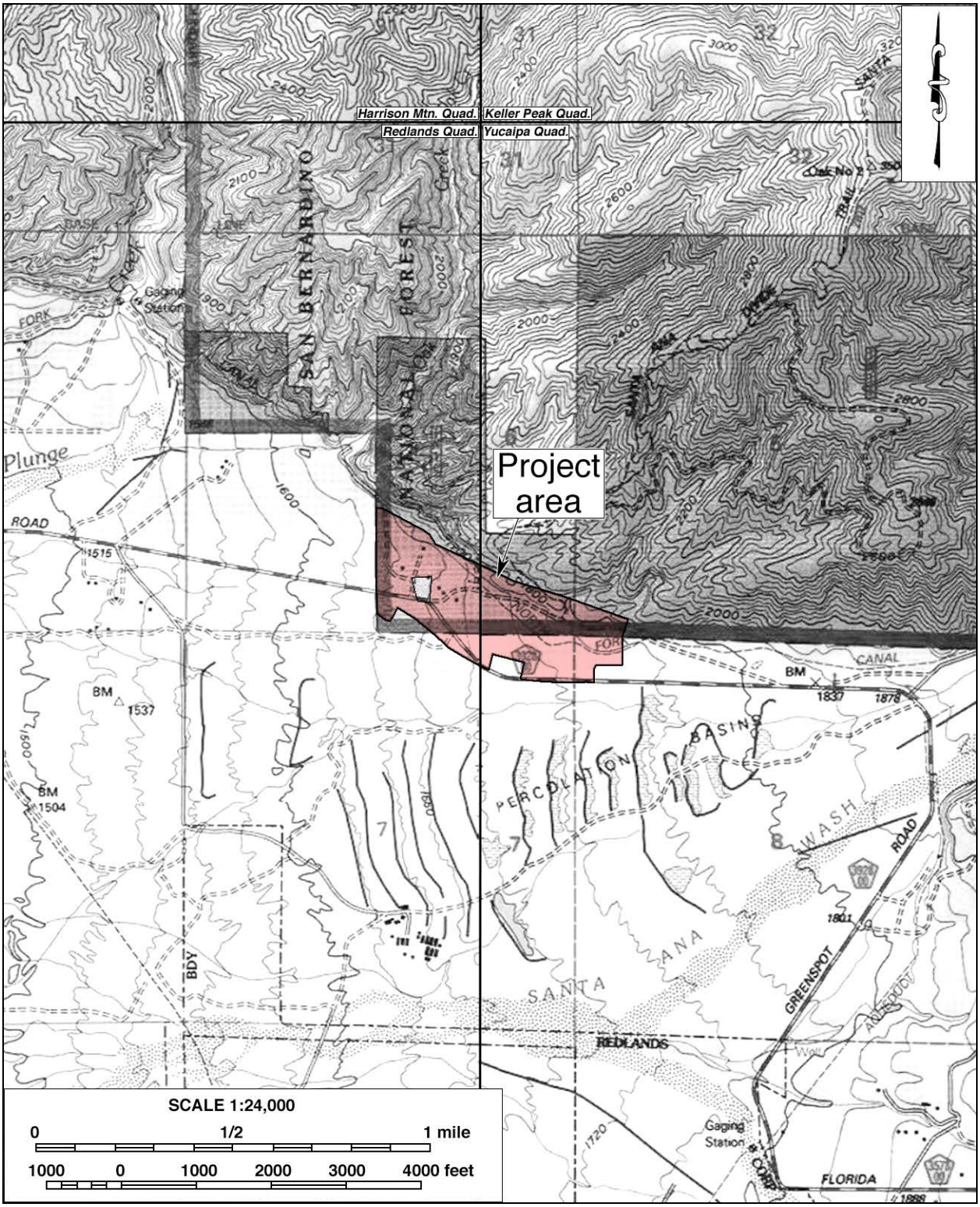

Figure 2. Project area. (Based on USGS Harrison Mtn., Keller Peak, Redlands, and Yucaipa, Calif., 1:24,000 quadrangles [USGS 1988; 1996a-1996c])

SETTING

CURRENT NATURAL SETTING

The City of Highland is situated in the eastern end of the San Bernardino Valley, a broad inland valley defined by the San Gabriel and San Bernardino Mountain Ranges on the north and a series of low rocky hills on the south. The natural environment of the region is characterized by its temperate Mediterranean climate, with the average maximum temperature in July reaching the 90s (Fahrenheit) and the average minimum temperature in January hovering around 35º. Rainfall is typically less than 20 inches annually.

The project area is located north of the Santa Ana River and southwest of the Seven Oaks Dam, mostly occupied by citrus groves (Fig. 3). The terrain in the project area is relatively level with the exception of rolling foothills along the northern edge, and elevations range approximately from 1,630 feet to 1,830 feet above mean sea level. The foothills are associated with the San Bernardino Mountains, and the alluvial fan extending south from the mountains contains unconsolidated coarse material, including small to large boulders. Several dirt roads traverse throughout the area, utilized mainly by agricultural workers and recreational vehicle users.

Except for the citrus crops, the vegetation communities in the vicinity consist of coastal sage scrub transitioning into chaparral. Coastal sage community vegetation observed includes sage brush, poison oak, coast live oak, California buckwheat, manzanita, and monkey flower. Chaparral vegetation observed includes scrub oaks, black sage, junipers, yucca, bush poppy, chemise, and chias. Introduced landscaping plants, domestic trees, and grasses were found around buildings and structural remains extant on the property.

CULTURAL SETTING

Prehistoric Context

It is widely acknowledged that human occupation in what is now the State of California began 8,000-12,000 years ago. In order to understand Native American cultures before European contact, archaeologists have devised chronological frameworks that endeavor to correlate the observable

Figure 3. Typical landscapes in the project area. *Left*: citrus grove; *right*: undeveloped land. (Photographs taken on September 18-19, 2014)

technological and cultural changes in the archaeological record to distinct periods. Unfortunately, none of these chronological frameworks has been widely accepted, and none has been developed specifically for the so-called Inland Empire region of southern California, the nearest ones being for the Colorado Desert and Peninsular Ranges area (Warren 1984) and for the Mojave Desert (Warren and Crabtree 1986).

The development of an overall chronological framework for the region is hindered by the lack of distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace 1955; 1978; Warren 1968; Chartkoff and Chartkoff 1984; Moratto 1984). Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region under this chronology consists of the following four periods:

- Early Hunting Stage (ca. 10000-6000 B.C.), which was characterized by human reliance on big game animals, as evidenced by large, archaic-style projectile points and the relative lack of plant-processing artifacts;
- Millingstone Horizon (ca. 6000 B.C.-1000 A.D.), when plant foods and small game animals came to the forefront of subsistence strategies, and from which a large number of millingstones, especially heavily used, deep-basin metates, were left;
- Late Prehistoric Period (ca. 1000-1500 A.D.), during which a more complex social organization, a more diversified subsistence base—as evidenced by smaller projectile points, expedient milling stones and, later, pottery—and regional cultures and tribal territories began to develop;
- Protohistoric Period (ca. 1500-1700s A.D.), which ushered in long-distance contact with Europeans and led to the historic period.

Ethnohistoric Context

The Highland area is a part of the homeland of the Serrano Indians, whose traditional territory is centered at the San Bernardino Mountains, but also includes portions of the San Bernardino Valley and the southern rim of the Mojave Desert. The name “Serrano” was derived from a Spanish term meaning “mountaineer” or “highlander.” The basic written sources on Serrano culture are Kroeber (1925), Strong (1929), and Bean and Smith (1978). The following ethnographic discussion of the Serrano people is based on these sources.

Prior to European contact, the Serrano were primarily hunter-gatherers and occasionally fishers, and settled mostly where flowing water emerged from the mountains. They were loosely organized into exogamous clans, which were led by hereditary heads, and the clans in turn were affiliated with one of two exogamous moieties. The exact nature, structure, function, and number of the clans are not known, except that each clan was the largest autonomous political and landholding unit, the core of which was the patrilineage. There was no pan-tribal political union among the clans.

Although contact with Europeans may have occurred as early as 1771 or 1772, Spanish influence on Serrano lifeways was negligible until the 1810s, when a mission *asistencia* was established on the

southern edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serranos were removed to the nearby missions. At present, most Serrano descendants are found on the San Manuel and the Morongo Indian Reservations, where they participate in ceremonial and political affairs with other Native American groups on an inter-reservation basis.

Historic Context

The San Bernardino Valley, along with the rest of Alta California, was claimed by Spain in the late 18th century, and the first European explorers traveled through the area as early as 1772, three years after the beginning of Spanish colonization. For nearly four decades afterwards, however, the arid inland valley received little attention from the European colonizers, who concentrated their efforts along the Pacific coast. Following the establishment of Mission San Gabriel in 1771, the San Bernardino Valley became a part of the vast land holdings of that mission. The name "San Bernardino" was bestowed on the region at least by 1819, when the *asistencia* and an associated mission rancho, both bearing that name, were established in the eastern end of the valley.

After gaining independence from Spain in 1821, the Mexican authorities began in 1834 the process of secularization to dismantle the mission system in Alta California. During the next 12 years, former mission ranchos throughout Alta California were surrendered to the Mexican government, and subsequently divided and granted to various prominent citizens of the province. In 1842, the former mission rancho of San Bernardino was granted to members of a prominent Los Angeles family, the Lugos. After the American annexation of Alta California in 1848, the Lugos sold the entire land grant in 1851 to a group of Mormon settlers, who promptly founded the town of San Bernardino, one of the first non-Indian settlements in what is known today as the Inland Empire.

A few miles to the northeast of San Bernardino, the present-day Highland area received the earliest Euroamerican settlers at least by the mid-1850s. The name "Highland" was adopted by the settlers in 1883, when the area had a large enough population to warrant the establishment of a school district, and the town of Highland was laid out in 1891. During much of the 20th century, Highland remained a small rural settlement best known for citrus cultivation. In recent decades, however, like many other former rural towns in southern California, Highland has experienced rapid growth as a bedroom community, culminating in its incorporation in 1987.[1]

RESEARCH METHODS

RECORDS SEARCH

On August 8, 2014, CRM TECH archaeologist Nina Gallardo (see App. 1 for qualifications) conducted the historical/archaeological resources records search at the Archaeological Information Center (AIC) at the San Bernardino County Museum, Redlands. During the records search, Gallardo examined maps and records on file at the AIC for previously identified cultural resources in or near the project area, and existing cultural resources reports pertaining to the vicinity. Previously

[1] For further information, see Schuiling (1984).

identified historical/archaeological resources include properties designated as California Historical Landmarks, Points of Historical Interest, or San Bernardino County Historical Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

HISTORICAL RESEARCH

Historical background research on the project area was conducted by CRM TECH historians/ architectural historians Bai "Tom" Tang and Terri Jacquemain (see App. 1 for qualifications) on the basis of the following sources:

- Published literature in local and regional history;
- Historic maps of the project vicinity, including the U.S. General Land Office's (GLO) land survey plat maps dated 1858-1882 and the U.S. Geological Survey's (USGS) topographic maps dated 1901-1954, available at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley;
- Historic aerial photographs of the project vicinity dated 1938-2005, available at http://www.historicaerials.com;
- Land patent records of the U.S. Bureau of Land Management, available at http://www.glorecords.blm.gov/;
- Real property assessment records of the County of San Bernardino, on file at the San Bernardino County Historical Archive;
- Oral historical interviews with the current property owners.

NATIVE AMERICAN PARTICIPATION

On August 7, 2014, CRM TECH submitted a written request to the State of California's Native American Heritage Commission for a records search in the commission's sacred lands file. Following the Native American Heritage Commission's recommendations, CRM TECH further contacted seven tribal representatives in the region in writing on August 19 to solicit local Native American input regarding any potential cultural resources concerns over the proposed project. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On September 18-19, 2014, CRM TECH field director Daniel Ballester and project archaeologists John G. Goodman, II, and Shane Wetherbee (see App. 1 for qualifications) carried out the intensive-level, on-foot field survey of the project area. During the survey, the field team walked a series of parallel transects spaced 15 meters (approx. 50 feet) apart. The survey transects were oriented in various directions according to the terrain, and areas where regular transects were impracticable, such as near existing buildings and pockets of dense vegetation, the field team remained as close to the original courses of the transect system as possible.

In this way, the ground surface in the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic periods (i.e., 45 years ago or older). All granitic boulders on the property were inspected for possible signs of prehistoric human use, such as grinding slicks. Ground visibility in the project area ranged from poor (0%) to good (80%) at the time of the survey, depending upon the density of the vegetation.

When historical/archaeological features were discovered during the survey, their locations were marked with survey flags. Upon completion of the survey, the features were re-visited and photographed. Further field recordation, including feature descriptions, a location map with UTM coordinates, and scaled sketch maps, were completed to document the exact locations and physical characteristics of the features. The field maps and written descriptions were then compiled into a standard site record form and submitted to the AIC for inclusion in the California Historical Resources Information System.

In conjunction with the archaeological field survey, on January 12, 2015, Terri Jacquemain performed a field inspection of the existing buildings in the project area and completed field recording procedures on those that appeared to be more than 45 years old. In order to facilitate the proper recordation and evaluation of the historic-period buildings, Jacquemain made detailed notations and preliminary photo-documentation of their structural and architectural characteristics and current conditions. Jacquemain's field observations formed the basis of the building descriptions and integrity assessment presented below.

RESULTS AND FINDINGS

PREVIOUS CULTURAL RESOURCES STUDIES IN THE VICINITY

According to AIC records, roughly half of the project area was included in the scopes of three previous cultural resources studies completed in 1987-1993 (Nos. 1061755, 1061783, and 1062868 in Fig. 4). As a result of these and other similar studies in the vicinity, Site 36-005978, consisting of a historic-period structural foundation, a segment of irrigation ditch, and a refuse scatter in a citrus grove, was previously recorded within the project boundaries, while three linear features dating to the mid- and late 19th century, namely the North Fork Canal (36-006544), the Cram and van Leuven Ditch (36-006848), and the Santa Ana Canyon Road (36-008094), were recorded as lying partially across the project area (see App. 3). The reported locations of these four sites were re-visited during the field survey, and the findings are discussed below.

Outside the project area but within a one-mile radius, AIC records show at least 14 other previous cultural resources studies covering various tracts of land and linear features, including adjacent properties to the west, south, and east (Fig. 4). Records search indicate that 31 additional historical/ archaeological sites, including four "pending" sites, have been identified within the one-mile scope of the records search (see Table 1). All of these sites consisted primarily of historic-period features or artifacts, although one of them also contained some prehistoric–i.e., Native American–pottery sherds. None of these 32 sites was located in the immediate vicinity of the project area, and thus none of them requires further consideration during this study.

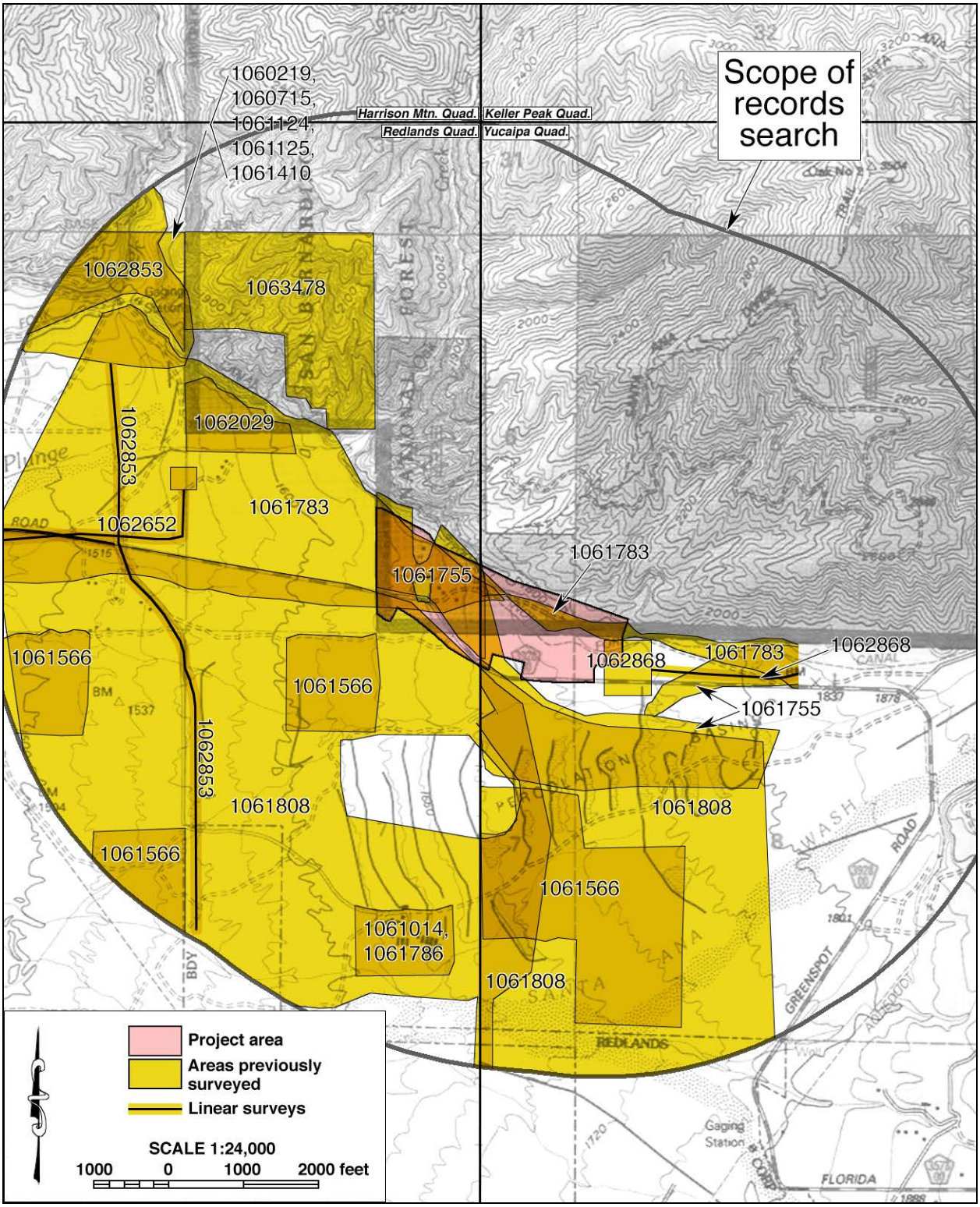

Figure 4. Previous cultural resources studies in the vicinity of the project area, listed by AIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search		
Site No.	**Recorded by/Date**	**Description**
36-005526	Various 1985-1981	Agricultural complex
36-005972	Hampson 1987	Irrigation line control equipment
36-005974	Hampson 1987	Small can scatter
36-005978*	Hampson 1987	Structural remains with irrigation ditch and refuse scatter
36-005980	Hampson 1987	Irrigation features
36-005986	Hampson 1987	Cobble-and-concrete canal
36-005987	Hampson 1987	Can scatter
36-006006	D'Altroy 1980; Hampson 1987	Remnants of work camp
36-006060	Hampson 1987	Refuse scatters
36-006061	Hampson 1987	Can scatter, possible landfill deposit
36-006062	Hampson 1987	Refuse scatter
36-006064	Various1987-1999	Large refuse scatter
36-006070	Hampson 1987	Refuse scatter
36-006071	Hampson 1987	Lumber fragments and platform
36-006544*	Various 1986-1993	North Fork Canal
36-006848*	Various 1992-2006	Cram and van Leuven Ditch
36-007215	McKenna 1992	Road, orchards, and irrigation features
36-008094*	Kay and Erickson 2005	Santa Ana Canyon Road
36-008546	Various 1996-2009	Segments of the Redlands/Bear Valley Canal
36-010184	McDougall 1999	Refuse scatter
36-010684	Horne 2002	Remains of Cone Camp
36-013549	Elliot 1986; Offerman 2007	Redlands Canal
36-013573	Offerman 2007; Bray 2009	Refuse scatter
36-013582	Offerman 2007; Bray 2009	Refuse scatter
36-013751	Vadala 2006	Refuse scatter with prehistoric ceramic sherds
36-013982	Elliott 1986	Mentone Land Company Citrus Colony
36-016987	Various 1985-2003	Greenspot Road bridge
36-023402	ESA 2009	Refuse scatter
36-023403	ESA 2009	Wood and metal scatter
36-23404	ESA 2009	Canal and overpass
36-060194	Hampson 1987	License plate, bowl, and plate
P1063-57-H**	N/A	Plunge Creek diversions
P1064-39-H**	N/A	Refuse scatter
PSBR-28-H**	N/A	South fork of the Santa Ana Ditch
PSBR-31-H**	N/A	Plunge Creek 1883 diversion

* Recorded within or partially within the current project boundaries.
** "Pending" site

HISTORICAL OVERVIEW

Historical sources indicate that development activities had occurred in the project vicinity at least by 1858, with the construction of the Cram and van Leuven Ditch (Site 36-006848). Prior to that, no notable man-made features were observed in or near the project area in the 1850s (GLO 1858a [Fig. 5]). Originally dug by well-known early settlers Lewis Cram and Frederick van Leuven, the Cram and van Leuven Ditch was the first irrigation system with its intake at the mouth of Santa Ana Canyon, as all earlier irrigation works in the area had their intakes on the lower reaches of the river (Anonymous n.d.). Receiving its water from a higher elevation and conveying it across denser soils, the Cram and van Leuven Ditch proved to be more efficient (*ibid*.).

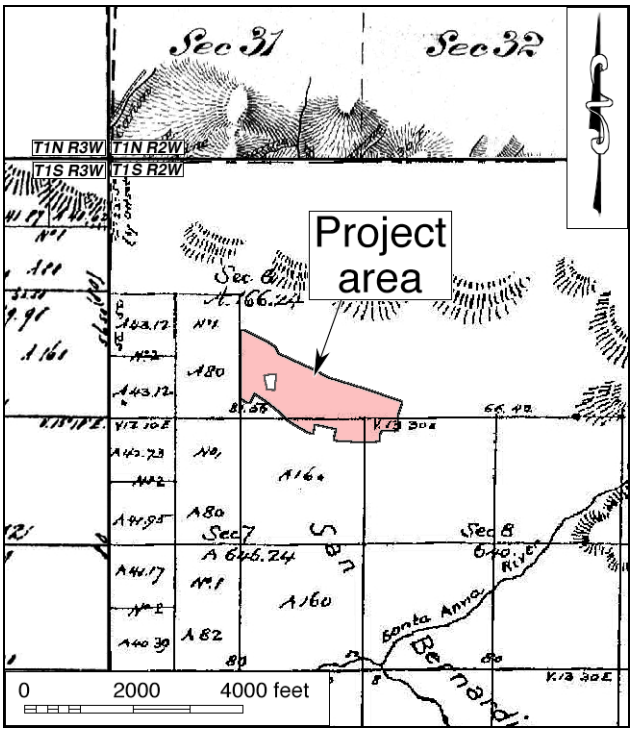

Figure 5. The project area and vicinity in 1853-1882. (Source: GLO 1858a; 1858b; 1878; 1882)

After a flood in 1862 left many of downstream ditches useless, shareholders of one of those irrigation enterprises, known as the North Fork Ditch, petitioned the owners of the Cram and van Leuven Ditch for permission to enlarge and lengthen the latter ditch to carry the North Fork share of Santa Ana River water to its original destination (Beattie 1951:6). This improved ditch, known as the North Fork/Cram and van Leuven Ditch, was often referred to as the second North Fork Ditch (Scott 1977:16).

Until the early 1880s, shareholders of the North Fork/Cram and van Leuven Ditch were limited to irrigating relatively low-quality land on the edge of the Santa Ana River (Anonymous n.d.). In 1881, in a water right settlement with the North Fork/Cram and van Leuven interests, E. G. Judson and Frank E. Brown, founders of the Redlands colony, offered to build a new "highline ditch" along the base of the San Bernardino Mountains, which would maximize the potential acreage of land irrigated by North Fork/Cram and van Leuven water (Scott 1977:17). The construction of the new North Fork Canal (Site 36-006544) was completed in 1882. The North Fork/Cram and van Leuven Ditch and the new North Fork Canal, the third irrigation line to bear the North Fork name, both traversed the project area in a generally southeast-northwest direction (Parmley and Finkle 1890).

The North Fork Canal was one of the larger irrigation works that reflected a new era in the settlement and development of the San Bernardino Valley, where capital-intensive projects dominated much of the growth during the land boom of the 1880s (Anonymous n.d.). It allowed water to be carried onto the "benchlands" where oranges, a high-value crop, could be grown (*ibid*.). To help prevent seepage, the canal was paved from "the heading to about half a mile east of Plunge Creek" (Scott 1977:18). In later years, the open canal was turned into an underground conduit under a concrete cover and several feet of soil, and it remained in service until recent years, when the East Valley Water District abandoned the original alignment of the canal and built a new pipeline at a still higher elevation to convey irrigation water to its customers.

Presumably, the second North Fork Ditch, along the 1858 Cram and van Leuven Ditch alignment, was abandoned after the completion of the new North Fork Canal. In March 1925, shareholders of the Cram and van Leuven Ditch moved to merge completely with the North Fork Company (Beattie 1951:29). At that time, all Cram and van Leuven stocks were transferred to the North Fork Company in exchange for North Fork certificates representing the right to use an amount of water equivalent in value (*ibid*.). After that, the Cram and van Leuven Ditch ceased to exist as a separate irrigation enterprise.

An 1890 map reveals that a third irrigation canal, known as the Aplin Ditch, also crossed the project area at that time (Parmley and Finkle 1890). This ditch presumably conveyed water to the nearby Aplin Ranch. A thorough review of existing literature compiled by leading authorities on the subject of irrigation practices in the eastern San Bernardino Valley yielded no information regarding the Aplin Ditch (e.g., Hall 1888; Lippincott 1902; Beattie 1951; Scott 1977), nor is it shown in any other historic maps.

According to U.S. land patent records, the portion of the project area in Section 6 of T1S R2W was part of a 160-acre parcel that Gustav Bohn purchased from the U.S. government in 1891, while the portion in Section 8 was included in another 160-acre parcel that the U.S. government granted to William R. Levick through a homestead claim (BLM n.d.). The portions in Sections 5 and 7, in the meantime, were included in a railroad land grant awarded to the Southern Pacific Company in 1894 (*ibid.*).

In 1898-1899, at least three buildings were noted along the southern edge of the project area, two of them evidently within the project boundary, both located in Section 7 (Fig. 6). Also present in the project area at that time was a winding road, presumably the Santa Ana Canyon Road (Site 36-008094). Also known as the Bear Valley and Redlands Toll Road, the wagon road was built through the Santa Ana Canyon in 1896-1897 by developer Gus Knight, rancher Hiram Clark, and others to connect their budding settlement near the Bear Valley reservoir (Big Bear Lake) to the San Bernardino Valley (Robinson 1989:181).

By 1939, the segment of the Santa Ana Canyon Road across the project location had been superseded by present-day Greenspot Road, and the buildings along the southern project boundary were no longer present (Fig. 7). Instead, a small cluster of buildings had sprung up in the western portion of the project area (Fig. 7). Through the 1950s, no other buildings were observed within the project boundaries (Fig. 8), as the bulk of the property was evidently used for citrus cultivation, the leading economic pursuit in the Highland area at the time.

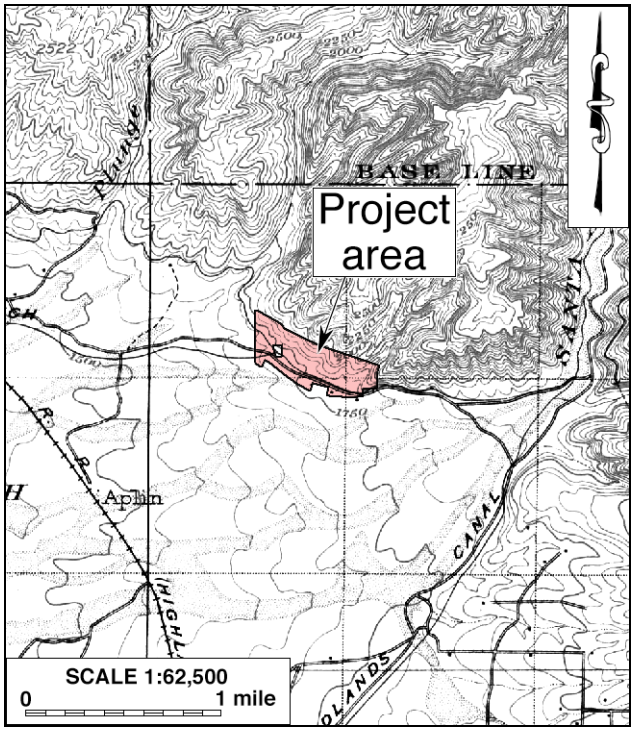

Figure 6. The project area and vicinity in 1898-1899. (Source: USGS 1901)

POTENTIAL "HISTORICAL RESOURCES" IN THE PROJECT AREA

During the field survey, three of the four known sites within or partially within the project area, namely 36-005978, 36-006544, and 36-008094, were re-located at their reported locations. The fourth site, 36-006848, could not be found in or near the project area. As a result of the survey, additional features were recorded as parts of Site 36-005978,

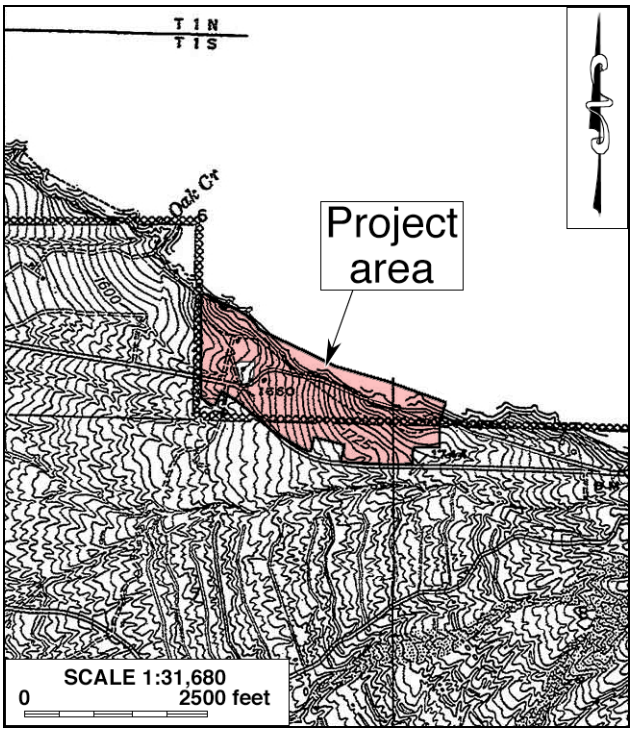

Figure 7. The project area and vicinity in 1939. (Source: USGS 1943)

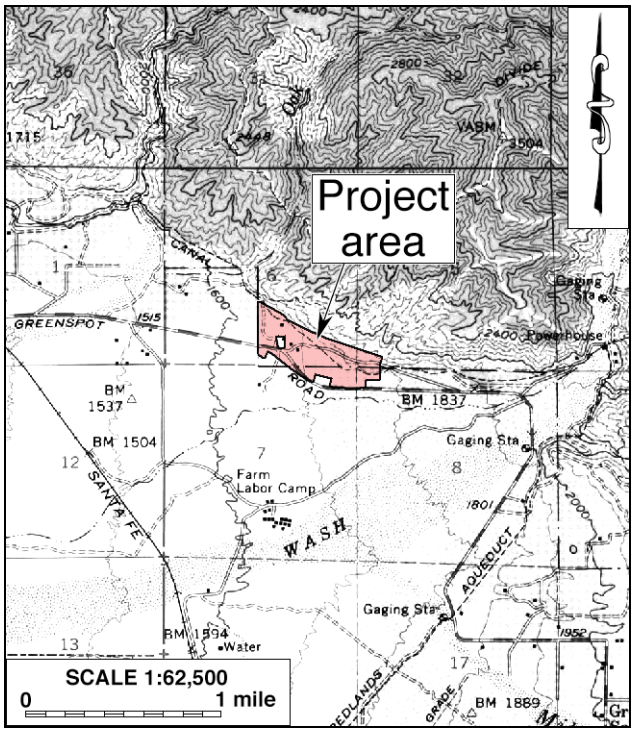

Figure 8. The project area and vicinity in 1952. (Source: USGS 1954)

significantly expanding the site boundary. These four sites are discussed in further detail below. No other buildings, structures, objects, sites, features, or artifact deposits more than 45 years of age were encountered in the project area.

Site 36-005978

Site 36-005978 was originally recorded in 1987 as a historic-period cobble-and-mortar foundation with a refuse scatter, an approximately 35-meter segment of irrigation ditch, and a cluster of non-native plants, all set within a citrus grove (Hampson 1987). During the field survey, these features were re-located and found to be in generally unaltered condition, although portions of the ditch could not be found. In addition, other irrigation features, a pre-1938 single-family residence, and a barn that are also associated with the citrus-growing enterprise were also recorded to the site (Figs. 9, 10).

The additional irrigation features include five stone-and-mortar canal segments totaling approximately 3,355 feet in length and measuring 12”x16” in width and depth, along with three 7’x5’ weir boxes (Fig. 10). These features are located mostly in the eastern portion of the expanded site (Fig. 9). Like the previously recorded segment, parts of the canal have been buried over time and are no longer discernable on the surface, as the entire irrigation system has been abandoned in favor of a modern drip system.

The one-story residence at 31019 Greenspot Road (Assessor’s Parcel No. 0297-021-18) is a wood-framed building whose L-shaped main mass is surmounted by a medium-pitched cross-gable roof sheathed with gray composition shingles and ending in medium eaves with weathered fascia boards

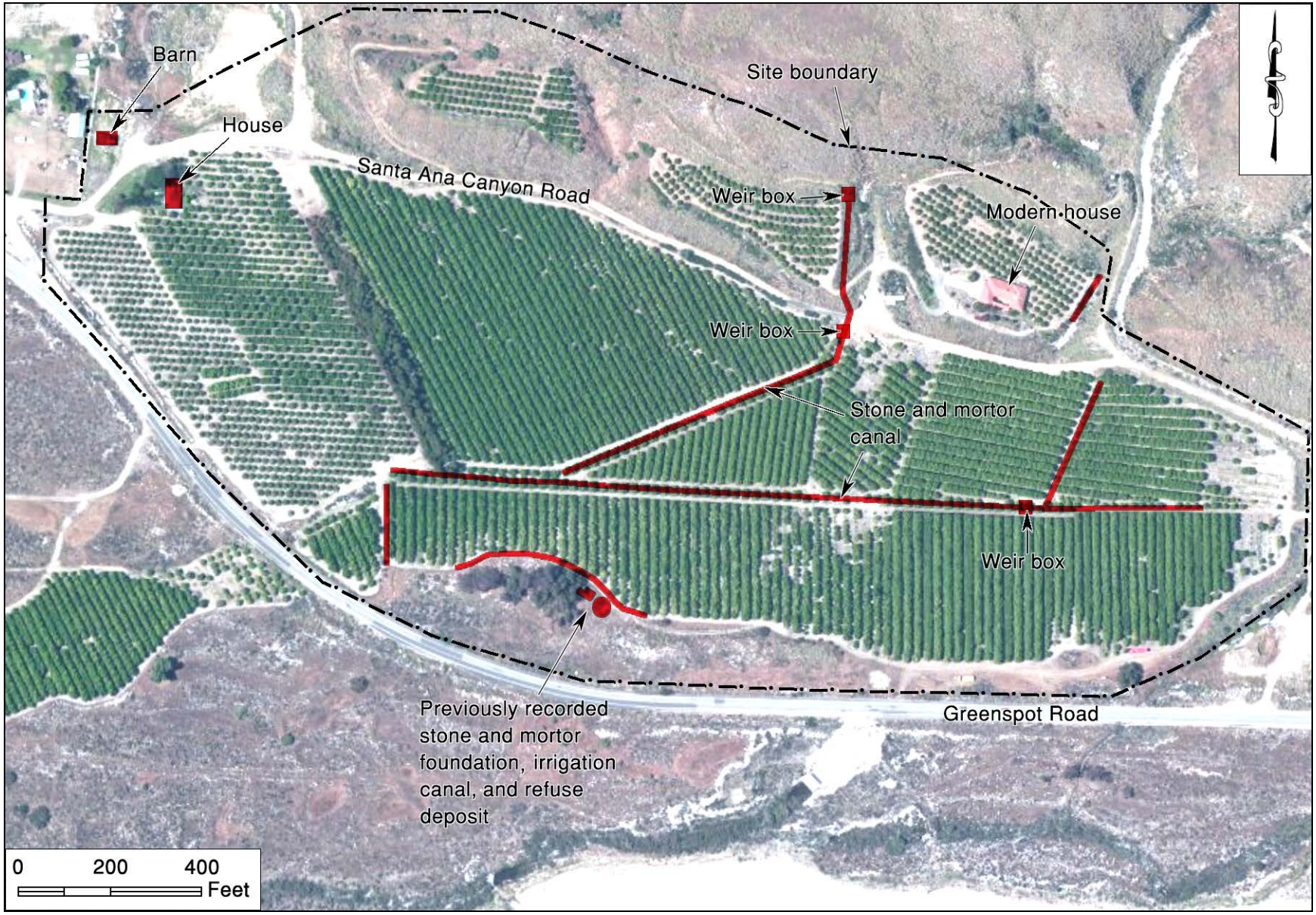

Figure 9. Updated sketch map of Site 36-005978.

Figure 10. Features at Site 36-005978. *1*: single-family residence, view to the southeast; *2*: north façade of the residence; *3*: addition to the south façade of the residence, view to the east; *4*: rear view of the residence, to the west; *5*: south façade of the barn; *6*: north façade of the barn; *7*: weir box; *8*; irrigation flume. (Photographs taken on September 18-19, 2014, and January 12, 2015)

(Fig. 10). The exterior walls of the main mass are mostly clad in gray stucco. The building has been expanded by five apparent additions, including a stucco-clad room addition to the south half of the west-facing front façade, a storage shed attached to the south side of the main mass, and a concrete addition at the northeast corner in the rear, which is staggered between two other additions.

All of the additions are about room-sized, and all sport shed roofs, some with metal coping. Besides stucco and concrete, other wall cladding materials include a mix of horizontal wood siding, vertical board and batten, and untreated plywood panels, all found on the various additions. In some areas wood siding has been placed over older siding of similar types, and the overlap can be seen where the outer siding has deteriorated on the lower portion of the building. The residence appears to rest mostly on a concrete slab foundation.

The roof of the main mass extends at a lower pitch over the interior of the L-shaped ground plan to shelter a large, concrete-paved patio. This simple entry porch is supported by two thin, square wood posts anchored in the floor. The main entrance, facing the patio to the west, is filled with a glazed wood door and accompanied by a concrete stoop. A smaller concrete patio on the northern side is sheltered by a low-pitched shed roof, which is also supported by two square wood posts sunk in the concrete.

Windows of the house feature an organic mix of various types and materials, with fixed, double-hung, casement, and sliding sashes observed in no particular arrangement, some wood-framed and others aluminum-framed. Several of the window openings are windowless, boarded over, or secured only with chicken wire, and two of the windows in the primary façade are partially blocked with swamp coolers. Two vertical-rectangular windows on the rear façade of the main mass sport small pent roofs supported by wood brackets, although one of them is no longer attached but leaning against the wall instead.

The residence is currently occupied, and is in livable but decrepit condition. It is somewhat secluded on the northwestern edge of the citrus grove, accompanied by landscaping plants and domestic trees on the west side, including a tall eucalyptus, yuccas, mulberries, citrus trees, and cacti. The surrounding area is rural character, with new suburban development encroaching from the west.

Located to the northwest of the residence, the barn is saltbox-shaped wood-frame building clad with corrugated metal panels, standing two stories high on the east side and sloping to one story on the west side (Fig. 10). It has partially collapsed, with most of the roofing panels missing, leaving the rafters exposed. Some of the panels on the rear, or north, façade are also missing. A doorless entrance is set off-centered on the south side, while two sliding metal doors are found in the westernmost portions of both the south and the north façades. A similar door is placed high on the east portion of the south-facing façade, apparently to provide access to the now-collapsed upper level.

Archival records indicate that in the early 1900s Site 36-005978 was part of an 88-acre parcel belonging to R.E. and Hattie Cram (County Assessor 1917-1922). R.E. Cram was kin to Lewis Cram, who along with Frederick van Leuven developed the circa 1858 Cram and van Leuven Ditch,

the first irrigation work with its intake at the mouth of Santa Ana Canyon. R.E. and Hattie Cram's property was assessed at $100 for improvements and $700 for "trees and vines" in 1925, around the time when they deeded the property to the East Highland Orange Company (County Assessor 1923-1928).

The East Highland Orange Company was founded in 1893 by Illinois native James S. Edwards (Beattie 2004). Around 1881, he set out for California at the advice of his doctor after contracting tuberculosis. After living in Riverside with former Illinois neighbors for less than a year, Edwards bought ten acres in Redlands with $500 borrowed from his father, Benjamin. He studied horticulture and soon expanded his holdings, with partner Wilbur Chamblin, into the East Highland area, at the time more commonly called “Cramville” (*ibid.*).

Known as a risk-taker and for his determination, Edwards became one of the most successful citrus developers in the area north of the Santa Ana River, and was also prominent in water and banking affairs in the area (Beattie 2004). Only nine years after his arrival in the state, Edwards was able to build Edward's Mansion, one of the best known Victorian mansions surviving in the area, which has been relocated near the San Bernardino County Museum and preserved as part of an event venue. Edwards died in 1933, but the East Highland Orange Company remained owner of the parcel containing Site 36-005978 through at least 1951 (Beattie 2004; County Assessor 1929-1951).

Historic maps and aerials photographs indicate that no buildings stood on the property at the turn of the 20th century, but by 1938 the residence, or at least the original portion of it, and the barn were both in place (NETR Online 1938). A third building shown next to the barn in aerial photographs from that year has since been removed. The barn was in use as late as 1980, when it housed a horse (Arnott 2015), and the residence is currently occupied by a caretaker.

Site 36-006544

Site 36-006544 represents the 1882-vintage North Fork Canal, a segment of which traverses the southeastern portion of the project area in a southeast-northwest direction (Parmley and Finkle 1890), through a citrus grove. The segment within the project area measures approximately 1,400 feet in length. As mentioned above, the canal at this location has undergone significant alterations since the 1880s. It now lies underground beneath a concrete cover and several feet of soil, with only a few weir boxes visible in the grove, and portions of the conduit have been destroyed since its abandonment in favor of the new pipeline (Bahri 2015). The history of the North Fork Canal is discussed above under “Historical Overview.”

Site 36-006848

As with Site 36-006544, the historical background of Site 36-006848, the 1858 Cram and van Leuven Ditch, is also presented above. This early irrigation line once traversed the southeastern portion of the project area in close proximity to the North Fork Canal (Parmley and Finkle 1890), but was probably abandoned once its function was assumed by the newer canal. During the field survey, no physical remains could be found of the Cram and van Leuven Ditch. Site 36-006848, therefore, exists only on paper at this location.

Site 36-008094

Figure 11. Santa Ana Canyon Road/Adler Creek Road in the project area, which was previously identified as the 1890s Santa Ana Canyon Road, probably erroneously. (View to the east; photograph taken on September 18, 2014)

Site 36-008094 was recorded in 2005 as the former course of the Santa Ana Canyon Road, which was built in 1896-1897 by settlers in the Big Bear Lake area, as mentioned above. The 2005 site record identified a dirt road running generally east-west across the project area, now bearing the name Santa Ana Canyon Road or Adler Creek Road, as the alignment of the 1890s wagon road (Kay and Erickson 2005). However, historic maps suggest that the wagon road ran a course that was much closer to that of present-day Greenspot Road (Fig. 6), and as such was likely replaced by it. Therefore, the identification of today's Santa Ana Canyon Road/Adler Creek Road as the historic Santa Ana Canyon Road is highly questionable. During the field survey, it was noted that Santa Ana Canyon Road/Adler Creek Road is a nondescript dirt road with a cobblestone retaining wall along its southern edge, and demonstrates no distinctively historical characteristics (Fig. 11).

NATIVE AMERICAN INPUT

In response to CRM TECH's inquiry, the Native American Heritage Commission reports in a letter dated August 12, 2014, that the sacred lands record search identified no Native American cultural resources within the project area, but recommends that local Native American groups be consulted for further information. For that purpose, the commission provided a list of potential contacts in the region (see App. 2).

Upon receiving the commission's reply, CRM TECH initiated consultation with all seven individuals on the referral list and the organizations they represent (see App. 2). To date, only one of the seven tribal representatives has responded. In an e-mail dated August 21, Daniel McCarthy, Director of Cultural Resources Management for the San Manuel Band of Mission Indians, states that the tribe is not aware of any Native American cultural resources within the project area, but requests a copy of any documentation generated for tribal review if such resources are found (see App. 2).

MANAGEMENT CONSIDERATIONS

Based on the research results discussed above, the following sections present CRM TECH's conclusion on whether any of the archaeological resources encountered within the project area meets the official definitions of a "historical resource," as provided in the California Public Resources Code, in particular CEQA.

DEFINITION OF "HISTORICAL RESOURCES" UNDER CEQA

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state

that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

DISCUSSION

Site 36-005978

As recorded during this study, Site 36-005978 consists of a single-family residence and a partially collapsed barn, both evidently dating to the 1930s or before, along with a structural foundation, a refuse scatter, and the remnants of an extensive irrigation system, all within the setting of a citrus grove that occupies most of the project area. The property was once owned by R.E. and Hattie Cram, members of an early pioneer family in the Highland area, and by the firm of James S. Edwards, a prominent local developer. However, the present study has uncovered no evidence that R.E. and Hattie Cram attained a recognizable level of historic significance in their own right. Meanwhile, as a part of his extensive land holdings in the Highland area, the site does not demonstrate a particularly close association with the life and career of James S. Edwards.

Throughout the course of this study, no historic events of recognized significance were identified in association with the features of the site. The residence, a vernacular building of plain appearance and simple, organic design, does not stand out as an important example of any architectural style, type, period, region, or method of construction, nor is it known to represent the work of a prominent architect, designer, or builder. The other features of the site are essential ubiquitous on rural, citrus-growing land throughout southern California, and none of them exhibits the potential for any

important archaeological data or special merit in design, construction, and engineering. Based on these considerations, Site 36-005978 does not appear eligible for listing in the California Register of Historical Resources, and does not meet the definition of a "historical resource."

Site 36-006544

As a major component in the Highland area's early irrigation infrastructure, the North Fork Canal played an important role in local agricultural growth during the late 19th and early 20th centuries. In addition, its construction in 1882 was part of a much broader shift in the growth pattern of the San Bernardino Valley and the entire southern California, where capital-intensive projects dominated the settlement and development process during the land boom of the 1880s. Consequently, past studies have determined that the North Fork Canal constitutes a significant archaeological site that may be eligible for listing in the National Register of Historic Places, although its level of significance may have been reduced by its compromised historic integrity (McKenna 1993; Donaldson 2005).

Since the criteria for the National Register are essentially identical to those for the California Register, the North Fork Canal in its entirety appears to qualify as a "historical resource," as defined above. However, the physical components of the canal in the project area, now an abandoned underground conduit under a concrete cover and several feet of soil, are of much later vintage than the period of significance for the site, namely the late 19th century. As such, they do not contribute to the significance of Site 36-006544, which is largely symbolic in nature. The potential impact of the proposed project on these features, therefore, would not constitute "a substantial adverse change in the significance of a historical resource" (PRC §21084.1).

Site 36-006848

The Cram and van Leuven Ditch, which traversed the project area until the 1880s, was one of the earliest irrigation works to be constructed during the formative years of the present-day San Bernardino-Highland area. It is well documented that the original construction of the ditch in 1858 represented the settlement and land development activities by two well-known pioneer settler families in the eastern San Bernardino Valley. Coupled with its early construction date, the ditch's close association with the Cram and van Leuven families has earned it a notable symbolic status in local history.

Unfortunately, after being abandoned for well over 100 years, no surface manifestation of the ditch remains in the project area today, and it is unlikely that any recognizable subsurface remnant still exists at this location, as later development has drastically altered the landscape over the past century, probably obliterating all traces of this early, unlined earthen canal. In short, the Cram and van Leuven Ditch is no longer in existence in the project area, and requires no further study for CEQA-compliance purposes.

Site 36-008094

As recorded in 2005, Site 36-008094 consists of a dirt road known as Santa Ana Canyon Road or Adler Creek Road, which was identified as the successor to a 1890s wagon road also known as Santa

Ana Canyon Road (Kay and Erickson 2005). However, historic maps consulted during this study suggest that that identification appears to be erroneous, and that the original wagon road was probably superseded by Greenspot Road and is thus no longer extant. In any event, Santa Ana Canyon Road/Adler Creek Road today is a nondescript dirt road similar in appearance to any other dirt road in use. While it in itself is known to date at least to 1939 (USGS 1943), the road demonstrates no distinctive characteristics to relate to the historic period, nor any tangible potential for significance in the absence of an established historical background. As such, it does not appear eligible for listing in the California Register, and does not qualify as a "historical resource" under CEQA provisions.

CONCLUSION AND RECOMMENDATIONS

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

In summary of the research results discussed above, three historic-period sites are known to be present within or partially within the project area. Among these, Site 36-006544 appears to meet CEQA's definition of a "historical resource," but the proposed project will not adversely affect its significance. The other two sites, 36-005978 and 36-008094, do not appear to qualify as "historical resources" under CEQA provisions. No other potential "historical resources" were encountered during the course of this study. A fourth site previously recorded as lying partially across the project area, 36-006848, is no longer in existence at this location.

Based on these findings, CRM TECH presents the following recommendations to the City of Highland:

- The proposed project will not cause a substantial adverse change to any known historical resources.
- No further cultural resources investigation is necessary for the proposed project unless development plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

REFERENCES

Anonymous

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Arnott, Ron (current property owner)

2015 Personal communication. Interviewed in person on January 12.

Bahri, Camille (current property owner)

2015 Personal communication. Interviewed via telephone and e-mail on January 10-21.

Bean, Lowell John, and Charles R. Smith

1978 Serrano. In Robert F. Heizer (ed.): *Handbook of North American Indians*, Vol. 8: *California*; pp. 570-574. Smithsonian Institution, Washington, D.C.

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1951 *Origin and Early Development of Water Rights in the East San Bernardino Valley*. San Bernardino Valley Water Conservation District Bulletin No. 4. Redlands, California.

Beattie, Kay

2004 James S. Edwards and the East Highlands Orange Company. *Highland Community News* September 4. Http://www.highlandnews.net/entertainment/article_92c09f13-71bd-54ca-8eed-71743bebd194.html.

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1984 *The Archaeology of California*. Stanford University Press, Stanford, California.

County Assessor (San Bernardino)

1917-1922 Real property tax assessment records, Book 4b, Map 26. On file, San Bernardino County Historical Archive, San Bernardino.

1923-1928 Real property tax assessment records, Book 21, Map 26. On file, San Bernardino County Historical Archive, San Bernardino.

1929-1934 Real property tax assessment records, Book 42b, Map 31. On file, San Bernardino County Historical Archive, San Bernardino.

1935-1939 Real property tax assessment records, Book 85b, Map 31. On file, San Bernardino County Historical Archive, San Bernardino.

1940-1945 Real property tax assessment records, Book 118, Map 37. On file, San Bernardino County Historical Archive, San Bernardino.

1946-1951 Real property tax assessment records, Book 55, Map 37. On file, San Bernardino County Historical Archive, San Bernardino.

Donaldson, Milford Wayne (California State Historic Preservation Office)

2005 Letter of concurrence addressed to Allesandro Amaglio, Environmental Officer of the Federal Emergency Management Administration; August 17. Appendix C to Supplemental Environmental Assessment to the Programmatic Environmental Assessment (PEA) for Typical Recurring Actions Resulting from Flood, Earthquake, Fire, Rain, and Wind Disasters in California as Proposed by the Federal Emergency Management Agency, North Fork Channel Replacement Project, FEMA-DR-1498-CA, HMGP #1498-32-30. On file, East Valley Water District, Highland, California.

GLO (General Land Office, U.S. Department of the Interior)
1858a Plat Map: Township No. 1 South Range No. 2 West, San Bernardino Meridian; surveyed in 1853-1857.
1858b Plat Map: Township No. 1 South Range No. 3 West, San Bernardino Meridian; surveyed in 1853-1857.
1878 Plat Map: Township No. 1 North Range No. 3 West, San Bernardino Meridian; surveyed in 1853-1877.
1882 Plat Map: Township No. 1 North Range No. 2 West, San Bernardino Meridian; surveyed in 1882.

Hall, William Hammond
1888 *Irrigation in Southern California.* California State Printing Office, Sacramento, California.

Hampson, R. Paul
1987 California Historical Resources Inventory site record forms, 36-005978/CA-SBR-5978H. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

Kay, D., and K. Erickson
2005 California Historical Resources Inventory site record forms, 36-008094/CA-SBR-8094H. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.

Lippincott, Joseph Barlow
1902 *Development and Application of Water near San Bernardino, Colton, and Riverside, California.* Government Printing Office, Washington, D.C.

McKenna, Jeanette
1992 California Historical Resources Inventory site record forms, 36-006848/CA-SBR-6848H. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

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1989 *The San Bernardinos: The Mountain Country from Cajon Pass to Oak Glen, Two Centuries of Changing Use.* Big Santa Anita Historical Society, Arcadia, California.

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1984 San Bernardino County: Land of Contrasts. Windsor Publications, Woodland Hills, California.

Scott, M.B.
1977 Development of Water Facilities in the Santa Ana River Basin California, 1810-1968. Report prepared for the United States Geological Survey, Department of the Interior. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology 26. Reprinted by Malki Museum Press, Banning, Calif., 1972.
USGS (United States Geological Survey, U.S. Department of the Interior)
1901 Map: Redlands, Calif. (15', 1:62,500); surveyed in 1898-1899.
1943 Map: Redlands and Vicinity, Calif. (1:31,680); surveyed in 1939.
1954 Map: Redlands, Calif. (15', 1:62,500); aerial photographs taken in 1952.
1969 Map: San Bernardino, Calif. (1:250,000); 1958 edition revised.
1988 Map: Harrison Mtn., Calif. (7.5', 1:24,000); 1967 edition photorevised.
1996a Map: Keller Peak, Calif. (7.5', 1:24,000); aerial photographs taken in 1994.
1996b Map: Redlands, Calif. (7.5', 1:24,000); 1967 edition photorevised in 1994.
1996c Map: Yucaipa, Calif. (7.5', 1:24,000); 1954 edition photorevised in 1994.
Wallace, William J.
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1978 Post-Pleistocene Archeology, 9000 to 2000 BC. In Robert F. Heizer (ed.): *Handbook of North American Indians*, Vol. 8: *California*; pp. 25-36. Smithsonian Institution, Washington, D.C.
Warren, Claude N.
1968 Cultural Traditions and Ecological Adaptations on the Southern California Coast. In Cynthia Irwin-Williams (ed.): *Archaic Prehistory in Western United States*; pp. 1-14. Eastern New Mexico University Contributions in Anthropology 1(3). Portales, New Mexico.
1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.
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1986 Prehistory of the Southwestern Area. In Warren L. D'Azevedo (ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 183-193. Smithsonian Institution, Washington, D.C.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, UC Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.

2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, UC Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, UC Riverside.
1988-1993	Research Assistant, American Social History, UC Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

1988-1990	University of California Graduate Fellowship, UC Riverside.
1985-1987	Yale University Fellowship, Yale University Graduate School.
1980, 1981	President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.

2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
1993	A.A., Communications, Nassau Community College, Garden City, N.Y.
2001	Archaeological Field School, San Diego State University.
2000	Archaeological Field School, San Diego State University.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.

- Surveys, excavations, mapping, and records searches.

Honors and Awards

2000-2002 Dean's Honors List, University of California, Riverside.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S.

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.
2007	Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
2002	"Historic Archaeology Workshop," presented by Richard Norwood, Base Archaeologist, Edwards Air Force Base; presented at CRM TECH, Riverside, California.

Professional Experience

2002- Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
- Report writing, site record preparation, and supervisory responsibilities over all aspects of fieldwork and field crew.

1999-2002 Project Archaeologist, CRM TECH, Riverside, California.
- Survey, testing, data recovery, monitoring, and mapping.

1998-1999 Field Crew, K.E.A. Environmental, San Diego, California.
- Two and a half months of excavations on Topomai village site, Marine Corp Air Station, Camp Pendleton.

1998 Field Crew, A.S.M. Affiliates, Encinitas, California.
- Two weeks of excavations on a site on Red Beach, Camp Pendleton, and two weeks of survey in Camp Pendleton, Otay Mesa, and Encinitas.

1998 Field Crew, Archaeological Research Unit, University of California, Riverside.
- Two weeks of survey in Anza Borrego Desert State Park and Eureka Valley, Death Valley National Park.

PROJECT ARCHAEOLOGIST
John D. Goodman, II, M.S.

Education

1993	M.S., Anthropology, University of California, Riverside.
1985	B.S., Anthropology, University of California, Riverside.
2005	Training Session on Senate Bill 18; sponsored by the Government Office of Planning and Research, Riverside, California.
2002	Protecting Heritage Resources under Section 106 of the National Historic Preservation Act; sponsored by the Advisory Council on Historic Preservation, Arcadia, California.
2000	Federal Historic Preservation Law for the Forest Service; sponsored by the Advisory Council on Historic Preservation, San Bernardino, California.
1994	National Environmental Policy Act workshop; Flagstaff, Arizona.

Professional Experience

2011-	Project Archaeologist/Artifact Analyst, CRM TECH, Colton, California.
2008-	Independent sub-contractor (faunal analyses and historical archaeology).
2006-2008	Project Director, Statistical Research, Inc., Redlands, California.
2003-2006	Project Manager/Principal Investigator, Stantec Consulting, Inc. (formerly The Keith Companies [TKC]), Palm Desert, California.
2000-2003	Supervisory Archaeologist, Heritage Resources Program, San Bernardino National Forest, United States Forest Service, Department of Agriculture.
1993-2000	Project Manager, Historical Archaeologist, Faunal Specialist, Human Osteologist, and Shell Specialist, SWCA Inc., Environmental Consultants, Flagstaff, Arizona.
1982-1993	Project Director, Staff Archaeologist, Physical Anthropologist, Faunal Specialist, and Lithic Specialist, Archaeological Research Unit, University of California, Riverside (part-time).

Research Interests

Subsistence practices and related technologies of both prehistoric and historical-period groups; special interest in Archaic sites of western states; ethnic/group markers; zooarchaeology/faunal analyses, lithic analyses, and historical archaeology.

Cultural Resources Management Reports

Co-author of many cultural resources management study reports since 1986.

Memberships

Society for American Archaeology.

PROJECT HISTORIAN/ARCHITECTURAL HISTORIAN
Terri Jacquemain, M.A.

Education

2004 M.A., Public History and Historic Resource Management, University of California, Riverside.
- M.A. thesis: Managing Cultural Outreach, Public Affairs and Tribal Policies of the Cabazon Band of Mission Indians, Indio, California; internship served as interim Public Information Officer, Cabazon Band of Mission Indians, June-October, 2002.

2002 B.S., Anthropology, University of California, Riverside.
2001 Archaeological Field School, University of California, Riverside.
1991 A.A., Riverside Community College, Norco Campus.

Professional Experience

2003- Historian/Architectural Historian/Report Writer, CRM TECH, Riverside/ Colton, California.
- Author/co-author of legally defensible cultural resources reports for CEQA and NHPA Section 106;
- Historic context development, historical/archival research, oral historical interviews, consultation with local communities and historical organizations;
- Historic building surveys and recordation, research in architectural history; architectural description

2002-2003 Teaching Assistant, Religious Studies Department, University of California, Riverside.
2002 Interim Public Information Officer, Cabazon Band of Mission Indians.
2000 Administrative Assistant, Native American Student Programs, University of California, Riverside.
1997-2000 Reporter, *Inland Valley Daily Bulletin*, Ontario, California.
1991-1997 Reporter, *The Press-Enterprise*, Riverside, California.

Membership

California Preservation Foundation.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* A total of seven local Native American representatives were contacted; a sample letter is included in this report.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
nahc@pacbell.net

Project: Tentative Tract Map No. 18893 Project (CRM TECH Contract No. 2835)

County: San Bernardino

USGS Quadrangle Name: Harrison Mountain, Keller Peak, Redlands & Yucaipa, Calif.

Township 1 South **Range** 2 West SB **BM; Section(s)** 5,6, 7 and 8

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: Ngallardo@crmtech.us

Project Description: The primary component of the project is to develop 196 single-family residences in the City of Highland, San Bernardino County, California.

August 7, 2014

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

August 12, 2014

Nina Gallardo
CRM Tech
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Sent by Fax: (909) 824-6405
Number of Pages: 2

Re: Tentative Tract No. 18893 Project; (CRM TECH Contract No. 2835), San Bernardino County.

Dear Ms. Gallardo,

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

Native American Contact List
San Bernardino County
August 11, 2014

San Manuel Band of Mission Indians
Lynn Valbuena, Chairwoman
26569 Community Center Drive Serrano
Highland , CA 92346
(909) 864-8933
(909) 864-3724 Fax
(909) 864-3370 Fax

Serrano Nation of Mission Indians
Goldie Walker, Chairwoman
P.O. Box 343 Serrano
Patton , CA 92369

(909) 528-9027
(909) 528-9032

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 Fernandeño
Newhall , CA 91322 Tataviam
tsen2u@hotmail.com Serrano
(661) 753-9833 Office Vanyume
(760) 885-0955 Cell Kitanemuk

(760) 949-1604 Fax

Ernest H. Siva
Morongo Band of Mission Indians Tribal Elder
9570 Mias Canyon Road Serrano
Banning , CA 92220 Cahuilla
siva@dishmail.net
(951) 849-4676

Morongo Band of Mission Indians
William Madrigal, Jr.,Cultural Resources Manager
12700 Pumarra Road Cahuilla
Banning , CA 92220 Serrano
wmadrigal@morongo-nsn.gov
(951) 201-1866 Cell
(951) 572-6004 Fax

San Manuel Band of Mission Indians
Daniel McCarthy, M.S.., Director-CRM Dept.
26569 Community Center Drive Serrano
Highland , CA 92346
dmccarthy@sanmanuel-nsn.gov
(909) 864-8933 Ext 3248
(909) 862-5152 Fax

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad Cahuilla
Banning , CA 92220 Serrano
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.
This list is only applicable for contacting local Native Americans with regard to the proposed Tentative Tract Map No. 18893 Project (CRM TECH Contract No. 2835), San Bernardino County.

August 19, 2014

William Madrigal, Jr., Cultural Heritage Program Coordinator
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

RE: Tentative Tract Map No. 18893 Project
85 acres in the City of Highland
San Bernardino County, California
CRM TECH Contract #2835

Dear Mr. Madrigal:

Tom Dodson & Associates will be conducting environmental studies under CEQA for the Tentative Tract Map No. 18893 Project in the City of Highland, San Bernardino County, California. The project area encompasses approximately 85 acres of land located at the intersection of Greenspot Road and Santa Ana Canyon Road that will be developed into 196 single-family residences. The accompanying map, based on the USGS Redlands and Yucaipa, Calif., 7.5' quadrangles, depicts the location of the project area in Sections 5 and 6, T1S R2W, SBBM. CRM TECH has been hired to conduct a cultural resource study, including the Native American scoping, for this project.

In a letter dated August 12, 2014, the Native American Heritage Commission reports that the sacred lands record search identified no Native American cultural resources within the project area, but recommends that local Native American groups be contacted for further information. Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project area.

According to records on file at San Bernardino Archaeological Information Center, located in the San Bernardino County Museum in Redlands, there are five known historical/archaeological sites within the boundaries of the project area, mainly consisting of historic-period ditches and canals, foundations, a water conveyance system and a wagon road. No prehistoric sites have been recorded in the project area. Within a one-mile radius, 33 historic-period sites and two historic-period isolates have been recorded, mainly consisting of refuse scatters, ditches and canals, several water conveyance systems and foundations. No prehistoric sites have been recorded within the one-mile radius.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the project area that need to be taken into consideration as part of the cultural resources investigation. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, which is the City of Highland for CEQA-compliance purposes. We would also like to clarify that CRM TECH, as the cultural resources consultant for the project, is not the appropriate

entity to initiate government-to-government consultations. Thank you for the time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
CRM TECH
Email: ngallardo@crmtech.us

Encl.: project area map

From: Daniel McCarthy <DMcCarthy@sanmanuel-nsn.gov>
Sent: Thursday, August 21, 2014 11:59 AM
To: Nina Gallardo <ngallardo@crmtech.us>
Subject: RE: NA Scoping letter for Tentative Tract Map No. 18893 Project (CRM TECH #2835)

Nina,

Thank you for the opportunity to comment. We are not aware of any cultural resources located on the subject property. If cultural resources are identified during the survey, please submit to us a copy of the draft report so that we may provide comment. //daniel

Daniel McCarthy, MS, RPA
Director
Cultural Resources Management Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346
Office: 909 864-8933 x 3248
Cell: 909 838-4175
dmccarthy@sanmanuel-nsn.gov

APPENDIX 3

CALIFORNIA HISTORICAL RESOURCES INVENTORY SITE RECORDS

(Confidential)

Recorded by Terri Jacquemain, Daniel Ballester, and John G. Goodman, II
Date January 14, Continuation √ Update
Affiliation: CRM TECH, Colton Project No: CRM TECH 2835

Site 36-005978 was originally recorded in 1987 as a historic-period cobble-and-mortar foundation with a refuse scatter, an approximately 35-meter segment of irrigation ditch, and a cluster of non-native plants, all set within a citrus grove. During a field survey on September 18-19, 2014, these features were re-located and found to be in generally unaltered condition, although portions of the ditch could not be found. In addition, other irrigation features, a pre-1938 single-family residence, and a barn that are also associated with the citrus-growing enterprise were also recorded at the site, significantly expanding the site boundary.

Irrigation Features

The additional irrigation features include five stone-and-mortar canal segments totaling approximately 3,355 feet in length and measuring 12"x16" in width and depth, along with three 7'x5' weir boxes. These features are located mostly in the eastern portion of the expanded site. Like the previously recorded segment, parts of the canal have been buried over time and are no longer discernable on the surface, as the entire irrigation system has been abandoned in favor of a modern drip system.

Single-Family Residence

The one-story residence at 31019 Greenspot Road (APN 0297-021-18) is a wood-framed building whose L-shaped main mass is surmounted by a medium-pitched cross-gable roof sheathed with gray composition shingles and ending in medium eaves with weathered fascia boards. The exterior walls of the main mass are mostly clad in gray stucco. The building has been expanded by five apparent additions, including a stucco-clad room addition to the south half of the west-facing front façade, a storage shed attached to the south side of the main mass, and a concrete addition at the northeast corner in the rear, which is staggered between two other additions.

All of the additions are about room-sized, and all sport shed roofs, some with metal coping. Besides stucco and concrete, other wall cladding materials include a mix of horizontal wood siding, vertical board and batten, and untreated plywood panels, all found on the various additions. In some areas wood siding has been placed over older siding of similar types, and the overlap can be seen where the outer siding has deteriorated on the lower portion of the building. The residence appears to rest mostly on a concrete slab foundation.

The roof of the main mass extends at a lower pitch over the interior of the L-shaped ground plan to shelter a large, concrete-paved patio. This simple entry porch is supported by two thin, square wood posts anchored in the floor. The main entrance, facing the patio to the west, is filled with a glazed wood door and accompanied by a concrete stoop. A smaller concrete patio on the northern side is sheltered by a low-pitched shed roof, which is also supported by two square wood posts sunk in the concrete.

Windows of the house feature an organic mix of various types and materials, with fixed, double-hung, casement, and sliding sashes observed in no particular arrangement, some wood-framed and others aluminum-framed. Several of the window openings are windowless, boarded over, or secured only with chicken wire, and two of the windows in the primary façade are partially blocked with swamp coolers. Two vertical-rectangular windows on the rear façade of the main mass sport small pent

roofs supported by wood brackets, although one of them is no longer attached but leaning against the wall instead.

The residence is currently occupied, and is in livable but decrepit condition. It is somewhat secluded on the northwestern edge of the citrus grove, accompanied by landscaping plants and domestic trees on the west side, including a tall eucalyptus, yuccas, mulberries, citrus trees, and cacti. The surrounding area is rural character, with new suburban development encroaching from the west.

Barn

Located to the northwest of the residence, the barn is saltbox-shaped wood-frame building clad with corrugated metal panels, standing two stories high on the east side and sloping to one story on the west side. It has partially collapsed, with most of the roofing panels missing, leaving the rafters exposed. Some of the panels on the rear, or north, façade are also missing. A doorless entrance is set off-centered on the south side, while two sliding metal doors are found in the westernmost portions of both the south and the north façades. A similar door is placed high on the east portion of the south-facing façade, apparently to provide access to the now-collapsed upper level.

Historical Background

Archival records indicate that in the early 1900s Site 36-005978 was part of an 88-acre parcel belonging to R.E. and Hattie Cram. R.E. Cram was kin to Lewis Cram, who along with Frederick van Leuven developed the circa 1858 Cram and van Leuven Ditch, the first irrigation work with its intake at the mouth of Santa Ana Canyon. R.E. and Hattie Cram's property was assessed at $100 for improvements and $700 for "trees and vines" in 1925, around the time when they deeded the property to the East Highland Orange Company.

The East Highland Orange Company was founded in 1893 by Illinois native James S. Edwards. Around 1881, he set out for California at the advice of his doctor after contracting tuberculosis. After living in Riverside with former Illinois neighbors for less than a year, Edwards bought ten acres in Redlands with $500 borrowed from his father, Benjamin. He studied horticulture and soon expanded his holdings, with partner Wilbur Chamblin, into the East Highland area, at the time more commonly called "Cramville."

Known as a risk-taker and for his determination, Edwards became one of the most successful citrus developers in the area north of the Santa Ana River, and was also prominent in water and banking affairs in the area. Only nine years after his arrival in the state, Edwards was able to build Edward's Mansion, one of the best known Victorian mansions surviving in the area, which has been relocated near the San Bernardino County Museum and preserved as part of an event venue. Edwards died in 1933, but the East Highland Orange Company remained owner of the parcel containing Site 36-005978 through at least 1951.

Historic maps and aerials photographs indicate that no buildings stood on the property at the turn of the 20th century, but by 1938 the residence, or at least the original portion of it, and the barn were both in place. A third building shown next to the barn in aerial photographs from that year has since been removed. The barn was in use as late as 1980, when it housed a horse, and the residence is currently occupied by a caretaker.

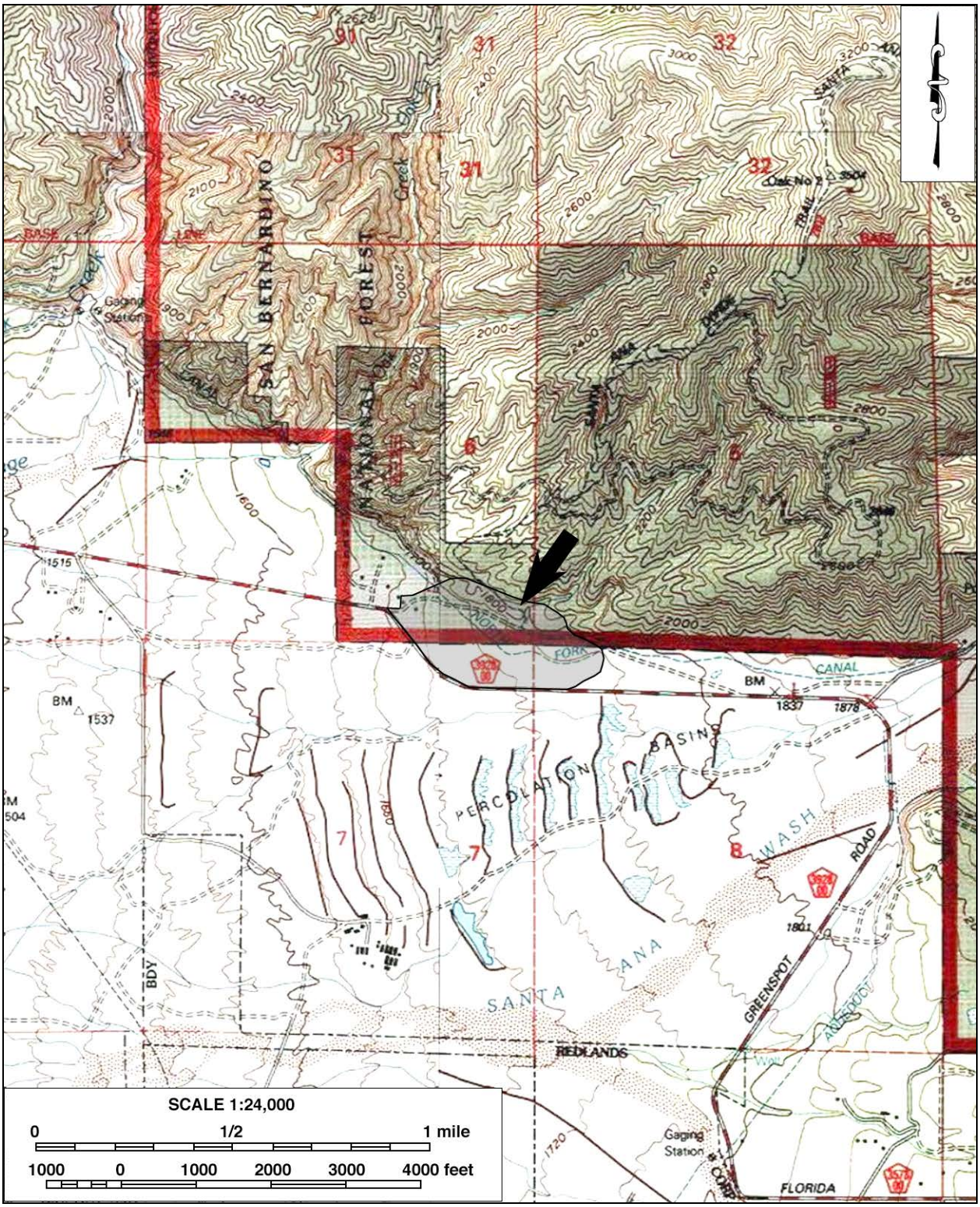
State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 36-005978 (Update)
HRI #
Trinomial CA-SBR-5978 (Update)

Page 3 of 6 *Resource Name or # (Assigned by recorder)

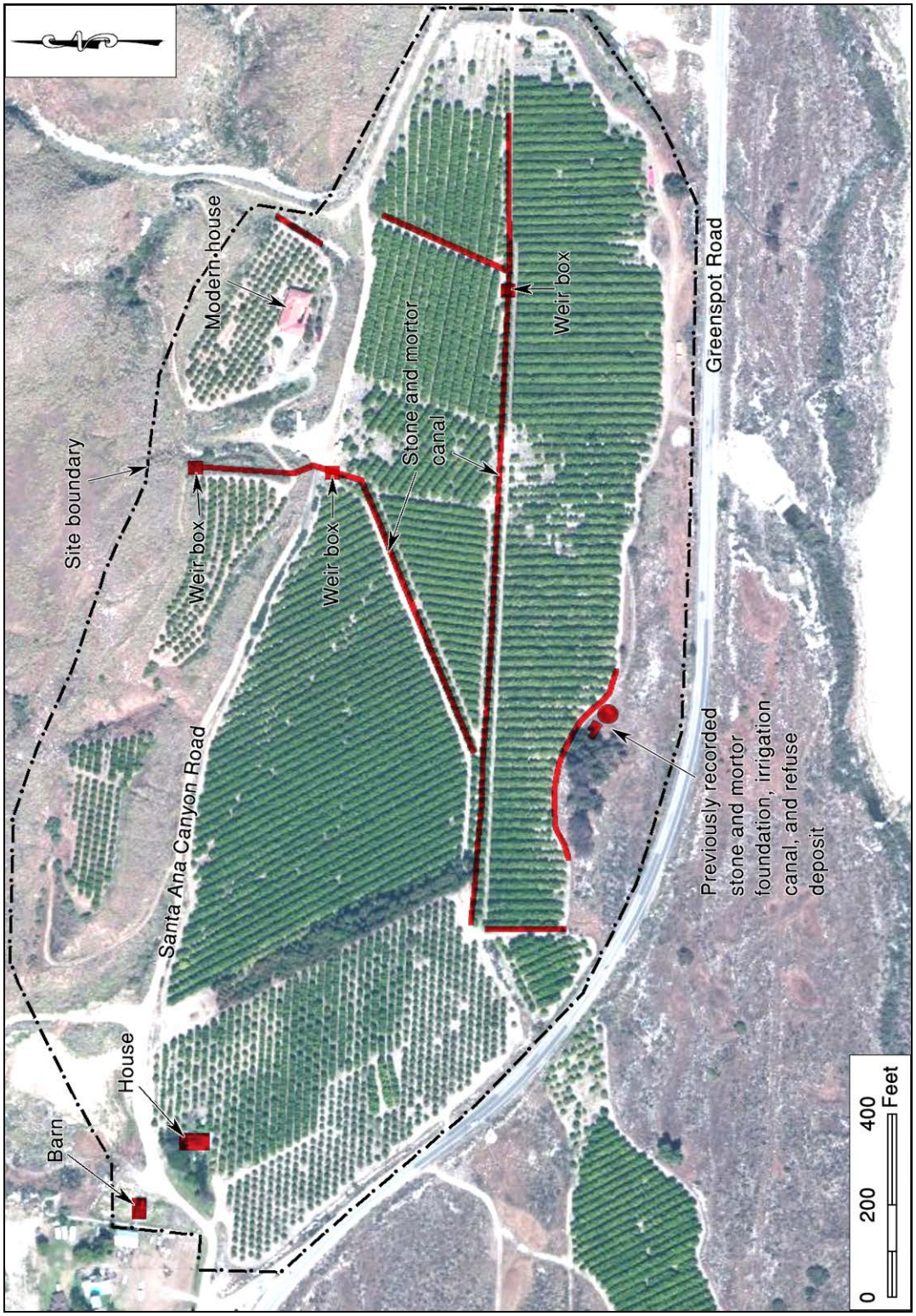
*Map Name: Redlands, and Yucaipa, Calif. *Scale: 1:24,000 *Date of Map: 1996



State of California--The Resources Agency	Primary # 36-005978 (Update)
DEPARTMENT OF PARKS AND RECREATION	HRI #
SKETCH MAP (plan view)	Trinomial CA-SBR-5978 (Update)

Page 4 of 6 *Resource Name or # (Assigned by recorder)

*Drawn by: Daniel Ballester *Date: January 14, 2015



Features at Site 36-005978. *1*: single-family residence, view to the southeast; *2*: north façade of the residence; *3*: addition to the south façade of the residence, view to the east; *4*: rear view of the residence, to the west; *5*: south façade of the barn; *6*: north façade of the barn; *7*: weir box; *8*; irrigation flume.

Report Citation:

Tang, Bai "Tom", Terri Jacquemain, Deirdre Encarnación, and Daniel Ballester
2015 Historical/Archaeological Resources Survey Report: Tentative Tract Map No. 18893, City of Highland, San Bernardino County, California.

Other References:

Arnott, Ron (current property owner)
2015 Personal communication. Interviewed in person on January 12.

Beattie, Kay
2004 James S. Edwards and the East Highlands Orange Company. *Highland Community News* September 4. Http://www.highlandnews.net/entertainment/article_92c09f13-71bd-54ca-8eed-71743bebd194.html.

San Bernardino County Assessor
1917-1922 Real property tax assessment records, Book 4b, Map 26. On file, San Bernardino County Historical Archive, San Bernardino.
1923-1928 Real property tax assessment records, Book 21, Map 26. On file, San Bernardino County Historical Archive, San Bernardino.

NETR Online
1938 Aerial photographs of the Highland area. Http://www.historicaerials.com.

USGS (United States Geological Survey, U.S. Department of the Interior
1901 Map: Redlands, Calif. (15’, 1:62,500); surveyed in 1898-1899.
1943 Map: Redlands and Vicinity, Calif. (1:31,680); surveyed in 1939.
1954 Map: Redlands, Calif. (15’, 1:62,500); aerial photographs taken in 1952.

PD6000972

1064

ARCHAEOLOGICAL SITE RECORD

PERMANENT TRINOMIAL: CA-SBR-5978-H
DATE OF ORIGINAL RECORD: 06/19/1987
TEMPORARY NUMBER: 14
DATE OF THIS FORM: 06/19/1987
AGENCY DESIGNATION:

1. COUNTY: San Bernardino

2. USGS QUAD: Yucaipa 7.5' 1967 REVISED: 1980

3. UTM COORDINATES: ZONE 11
488600 EASTING
3773630 NORTHING

4. TOWNSHIP 1S RANGE 2W
E 1/2 of
NW 1/4 of
NE 1/4 of
NE 1/4 of
SEC 7

5. MAP COORDINATES:
91 mm S
6 mm E

6. ELEVATION: 1,720 feet

7. LOCATION: From Highway 10 exit north on Orange Street. Turn east on Greenspot Road. The site is located approximately 50 meters north of Greenspot Road at the end of a curve approximately 3.4 miles east of Orange Street.

8. PREHISTORIC HISTORIC XXXX PROTOHISTORIC

9. SITE DESCRIPTION: The site consists of a cobble/mortar foundation with associated exotic plants.

10. AREA: 40 m (length) x 30 m (width); 1,200 m^2.
METHOD: Estimated by surface observation, pacing; structure measured.

11. DEPTH: Not determined, some depth is probable.
METHOD: Surface observation.

12. FEATURES: Cobble/mortar foundation; castor bean trees; prickly pear (Opuntia) patch; rock/mortar lined irrigation ditch associated with adjacent orange grove.

13. ARTIFACTS: Thin scatter of crimp (sanitary) cans and glass fragments observed southeast of the foundation. Ground cover was dense at the time of recordation and it is possible that additional materials are present.

14. NON-ARTIFACTUAL CONSTITUENTS: Exotic plants include castor bean trees, prickly pear, bamboo, pepper trees, elderberry, and introduced agave.

15. DATE OF ORIGINAL RECORD: 06/19/1987 DATE OF THIS FORM: 06/19/1987

16. RECORDED BY: R. Paul Hampson

17. AFFILIATION: Greenwood and Associates, 725 Jacon Way, Pacific Palisades, CA 90272 (213) 454-3091

ARCHAEOLOGICAL SITE RECORD

PERMANENT TRINOMIAL: CA-SBR-5978-H
DATE OF ORIGINAL RECORD: 06/19/1987
TEMPORARY NUMBER: 14
DATE OF THIS FORM: 06/19/1987
AGENCY DESIGNATION:

18. HUMAN REMAINS: None observed.

19. SITE INTEGRITY: A single foundation was observed, other structural remains are missing. Site appears undisturbed otherwise.

20. NEAREST WATER: Irrigation on site.

21. LARGEST BODY OF WATER WITHIN 1 KM: Santa Ana River adjacent to south.

22. VEGETATION COMMUNITY (SITE VICINITY): Chaparral.

23. VEGETATION COMMUNITY (ON SITE): Same, and introduced species which are predominant.

REFERENCES FOR ABOVE: After Altschul, Rose, and Lerch 1984 - Man and Settlement in the Upper Santa Ana River Drainage: A Cultural Resources Overview. Report to the Los Angeles District, Corps of Engineers, Los Angeles.

25. SITE SOIL: Sandy, gravel and cobble filled loam.

25. SURROUNDING SOIL: Same.

26. GEOLOGY:

27. LANDFORM: Edge of bank to Santa Ana River/wash, floodplain.

28. SLOPE: Irregular but negligible overall on site.

29. EXPOSURE: Open, partial protection from hills to north.

30. LANDOWNER(S), (TENANTS), ADDRESS:

31. REMARKS:

32. REFERENCES:

33. NAME OF PROJECT: Supplemental Cultural Resources Survey, Seven Oaks Dam Project

34. TYPE OF INVESTIGATION: Intensive survey.

35. SITE ACCESSION NO.: n/a CURATED AT: n/a

36. PHOTOS: Black and white TAKEN BY: R. Paul Hampson

37. PHOTO ACCESSION NO. n/a ON FILE AT: San Bernardino County Museum

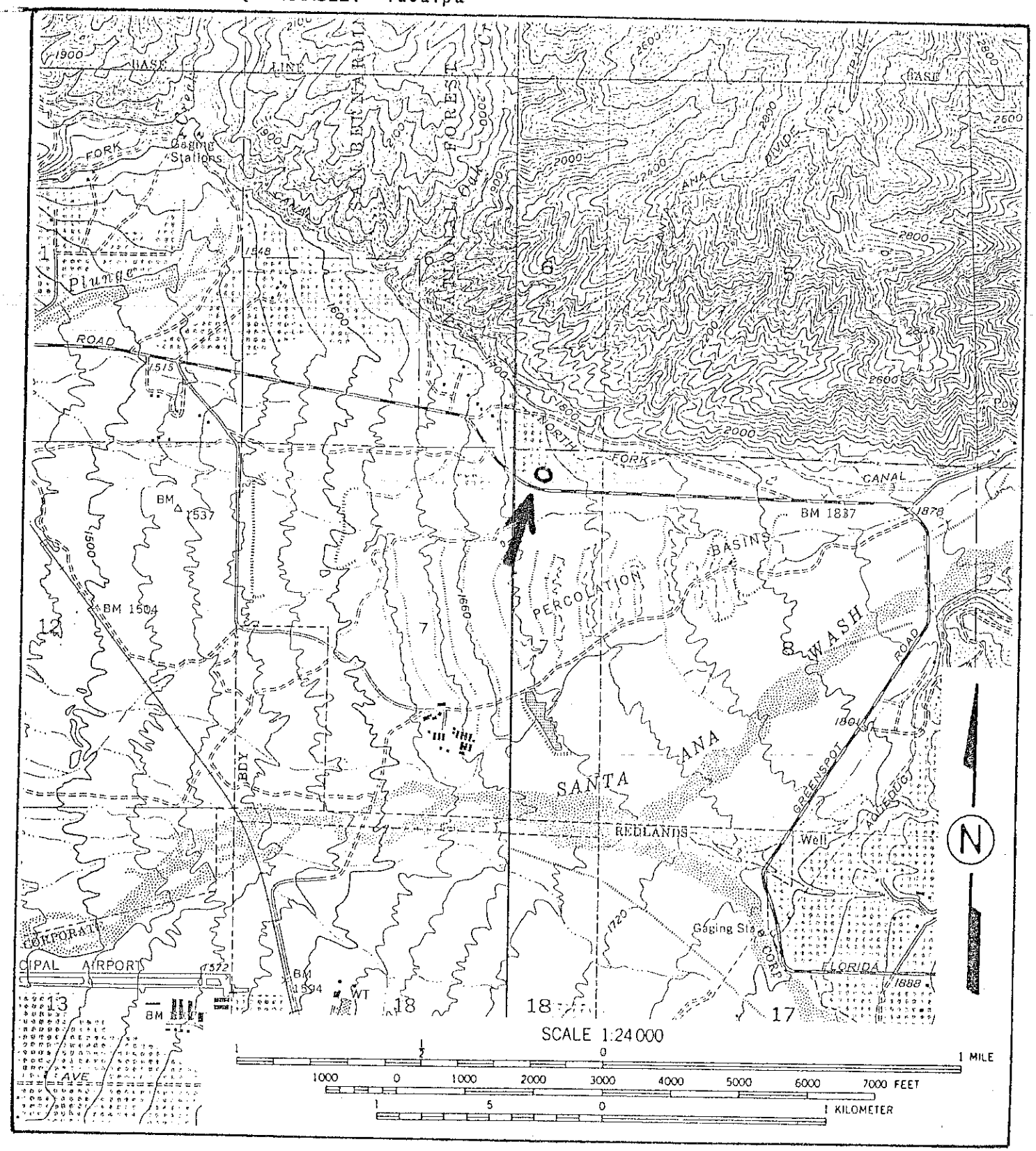
P36-005978

ARCHAEOLOGICAL SITE LOCATION MAP

PAGE: 3 OF 6
DATE OF ORIGINAL RECORD: 06/19/1987
DATE OF THIS FORM: 06/19/1987

PERMANENT TRINOMIAL: CA-SBR-5978-H
TEMPORARY NUMBER: 14
AGENCY DESIGNATION:

U.S.G.S. 7.5' QUADRANGLE: Yucaipa

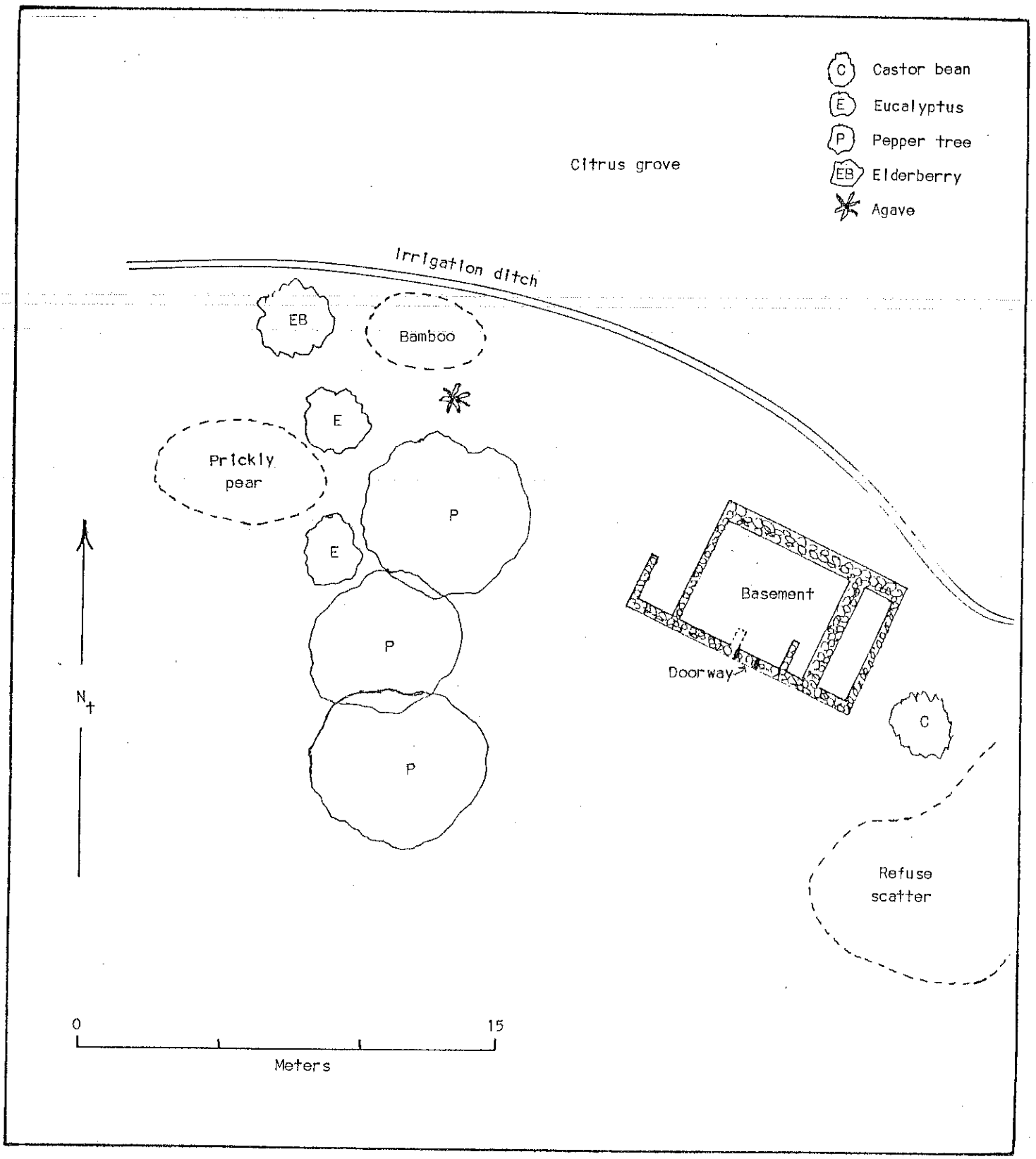


P36-005978

ARCHAEOLOGICAL SITE MAP

DATE OF ORIGINAL RECORD: 06/19/1987
DATE OF THIS FORM: 06/19/1987

PERMANENT TRINOMIAL: CA-SBR-5978-H
TEMPORARY NUMBER: 14
AGENCY DESIGNATION:



P36-000478

SITE PHOTOGRAPHIC LOG

PERMANENT TRINOMIAL: CA-SBR-5978-H
TEMPORARY NUMBER: 14
AGENCY DESIGNATION:
ROLL NUMBER(S): 9

DATE OF THIS FORM: 06/19/1987
PROJECT: Seven Oaks
TAKEN BY: R. Paul Hampson

CAMERA AND LENS TYPES: OM-1/28 mm

FILM TYPE AND SPEED: Tri-X 400

MO.	DAY	TIME	FRAME	SUBJECT/DESCRIPTION	VIEW TOWARD
6	19	10:58	1	#14, Foundation	W
6	19	10:59	2	#14, Foundation	NNW
6	19	11:20	3	#14, Prickly pear/eucalyptus	SSW
6	19	11:21	4	#14, Ditch/vegetation (foundation behind at center)	SE
6	19	11:23	5	#14, Vegetation/ditch (foundation center left)	SW
6	19	11:25	6	#14, Castor bean, closeup	NW
6	19	11:27	7	#14, General	N

P36005978

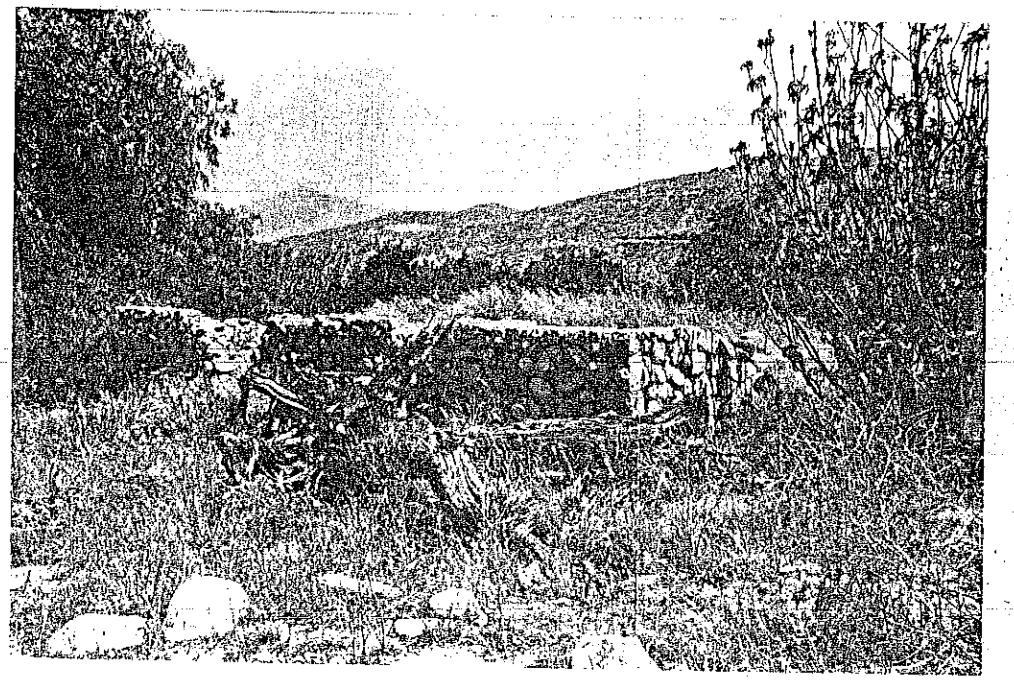
PHOTOGRAPHIC RECORD

PAGE: 6 OF 6
DATE OF ORIGINAL RECORD: 06/19/1987
DATE OF THIS FORM: 06/19/1987

PERMANENT TRINOMIAL: CA-SBR-5978-H
TEMPORARY NUMBER: 14
AGENCY DESIGNATION:

ROLL AND FRAME:
9/2

VIEW:
NNW



SUBJECT: Foundation.

P36-006544

1062

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERMANENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION: _____

1. County: San Bernardino

2. USGS Quadrangle: Harrison Mountain(7.5)XXX(15)____(Year) 1988

3. Zone: 11 /_____(Easting)/_____(Northing)

4. Township 1N Range 3W / ____ 1/4/ ___ 1/4/ S 1/2/ SW1/4/Section 27
Township 1N Range 3W / E 1/2/ NW1/4/ NE1/4/ NW1/4/Section 34

5. Map Coordinates: _____mmS_____mmE;

6. Elevation: 1520 to 1560 feet above mean sea level

7. Location: North of Highland Ave. and east of City Creek; at base of hills and across small pasture land - portions buried across pasture; connects to lateral on Highland Ave.; also includes earlier canals along north side of Highland Avenue.

8. Prehistoric_____HistoricXXXXXXXXXProtohistoric_____

9. Site Description: Portion of the historic North Fork Canal - running from City Creek to East Highlands (and further east) along the foothills of the local mountains (ca. 1858 to 1916) and currently used for water transportation (see continuation forms)

10. Area: 2 m X 1000 m = 2000 m2 Meth./Deter.: map data

11. Depth: 100-150 cm Method of Determination: field measurements

12. Features: canal with rock and mortar construction; irrigation valves; associated earthen dam; pipes; and diversion facility areas. Portions of canal are buried. Site includes three different canal alignments (1882, 1884, and 1916)

13. Artifacts: one large irrigation valve placed in wall of canal (MARTIN IRON WORKS LOS ANGELES, CALIFORNIA). Pipes and valves noted along canal at diversion station in pasture.

14. Non-Artifactual Constituents: N.A.

15. Date Recorded: January 16, 1993
16. Recorded By: Jeanette A. McKenna

17. Affiliation and Address: McKenna et al., 6008 Friends Ave., Whittier CA 90601 (310) 696-3852

P36-006544

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

18. Human Remains: None observed

19: Site Integrity: Portions here intact - some alterations

20. Nearest Water (distance/direction): City Creek - due west

21. Largest Body of Water within 1km (distance/direction): N.A.

22. Vegetation (site vicinity): Sage Scrub and grasses

23. Vegetation (on site): Sage Scrub and grasses

24. Site Soil: Sandy Loam

25. Surrounding Soil: Sandy Loam

26. Geology: Alluvial Fan at base of hills

27. Landform: Alluvial fan

28. Slope: slight to south/southeast

29. Exposure: Open

30. Landowners: East Valley Water District and State of CA. Portions of canal across private lands; diversion channel in CALTRANS/Highland Ave. R-O-W.

31. Remarks: Portions of canal will be impacted by proposed re-alignment of Highland Ave. and [redacted] pipeline route.

32. References: McKenna 1992 and 1993

33. Name of Project: East Valley Water District - City Creek Water Facility and Associated Pipelines, Highland Ave.

34. Type of Investigation: Phase I Survey and Preliminary Eval. of resources.

35. Site Accession No.: N.A. Curated At: N.A.

36. Photographs: on file Taken By: Jeanette A. McKenna

37: Photo Accession No.: N.A. On File At: McKenna et al.

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

 Continuation Sheet

Item No. Continuation

Investigations of the Pipeline Alignment

In an attempt to adequately cover the recently proposed pipeline alignment along Highland Avenue, McKenna et al. successfully conducted an intensive survey of a 100 foot wide corridor north of the Highland Avenue roadside. To complete this level of investigation, McKenna et al. also studied portions of the private land holdings along Highland Ave. In particular was the Rancho San Andreas North property located east of the existing plant facility and encompassing portions of the North Fork Canal system.

The 100 foot wide corridor was equivalent to an approximated 33 meter wide linear survey - which was also approximately 1/4 mile long. The field survey was completed on Wednesday, January 13, 1993, by Jeanette A. McKenna, Principal Investigator for McKenna et al. Ms. McKenna walked the project area by completing three transects: 1) once from the existing facility and walking east/southeast along Highland Avenue (but inside the fenceline); 2) once from southeast to northwest, again inside the fenceline; and 3) once outside the fenceline, along Highland Avenue, while walking the entire length of the North Fork Canal System from the northern diversion box to the Highland Avenue connection - and then back to the Highland Avenue facility.

In surveying these areas, McKenna et al. found and identified the physical remains of three periods of construction: 1) the 1916 canal located between Highland Avenue and the diversion box; 2) remains of the ca. 1882 canal; and 3) the remains of the ca. 1884 canal (as depicted in Figure 5).

The 1916 Canal System:

As noted earlier in this report, the ca. 1916 canal alignment - that alignment currently identified on the 1988 Harrison Mountain U.S.G.S. Quadrangle, was constructed by the Bear Valley and North Fork Ditch companies (co-owners) after flooding destroyed the earlier alignment. It was the decision of these companies to relocate the canal to the north, on a higher elevation; to protect the feature from future flooding episodes.

Item No. Continuation

McKenna et al. traced this canal from the diversion box on City Creek to the intersection with Highland Avenue. Illustrated in Figure 9 (also see photographs in Appendix C), this canal was excavated into the rocky hillsides of the foothills and measured fifty four inches across at the top and varied in depth from 28 inches on the north side to 34 inches on the south side. The base of the canal was flat - the depths being measured from the surface. Therefore, the height of the canal on the northern side was actually lower than the wall of the south side.

The canal was constructed of a series of rock cobbles (acquired locally) and placed along the base and walls of the feature.

Illustrated in photographs in Appendix C, this canal was cement lines, though many areas along the canal lacked evidence of cement. McKenna et al. attributed the lack of cement to erosion and decomposition of the cement, not a failure to place the cement.

There were obvious areas of maintenance where the cement was replaced or sporadic broken areas along the canal were patched with cement or concrete. In one instance, the addition of an irrigation gate was identified. This cast iron gate (see Photographs 20 and 21) was placed within the south/southwestern wall of the canal and cemented in with the identification of "A.C. Castro" and " ... P.S. Feria ... " etched in the cement. The iron gate was manufactured by Martin Iron Works of Los Angeles, California (as marked on the plate).

McKenna et al. found no evidence for a direct relationship of the nearby lands to anyone named "Castro". Therefore, McKenna et al. has tentatively concluded that "Castro" is the name of the contractor who placed the gate, rather than a local property owner.

The ca. 1916 canal runs as an open feature from the diversion box to a point where the canal turns due south towards Highland Avenue. From this point, the canal is buried under a cement capping and accessed by a series (four) of rectangular caps located between the 90 degree turn and Highland Avenue. While the first three caps have been cemented over, the southern-most cap is still open, exhibiting the piping, valves, and flow mechanisms indicative of a diversion system. This system appears to represent the pumping

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation

station necessary to move water from the southern extent of the canal to the northern (more recent) addition to the system. Once the water reached the major turn north of Cook Creek, gravity carried the water to the crossing at City Creek.

In assessing the significance of this feature/site, McKenna et al. took the four major criteria for significance into account: a) association with an event; 2) association with recognized individuals; 3) association with an specific architectural/construction design; and 4) potential to yield scientific data.

McKenna et al. has concluded that this feature (the ca. 1916 canal) is a feature representing a small portion of a large irrigation system in San Bernardino County. As such, it could be considered indicative of a significant event. However, since this is a relatively late addition to the overall system, the level of significance is lessened by the temporal distance between the initial establishment of the irrigation system and the ca. 1916 extensions of the system.

With respect to noted individuals, this particular reach of the irrigation system was constructed by the North Fork Company and the Bear Valley Water Company, not individuals as indicated by the earlier records (where local homesteaders or property owners formed a local agency). Therefore, this particular reach is not directly associated with "an individual", but a group(s). The North Fork Company, as noted above, may be associated with noted individuals, but as a whole, the application of this criterion is dubious. McKenna et al. would not emphasize the association with noted individuals as a means of establishing significance.

The 1916 canal is a feature exhibiting a form of construction indicative of the times - as illustrated for other areas of San Bernardino County (e.g. Fontana and East Highlands). The construction is not unique, but the burying of a portion of this feature is relatively unique - as is the presence of the pump stations, diversion boxes, and irrigation gates. Therefore, McKenna et al. would conclude that this feature is a significant feature and, therefore, potentially eligible to the National Register of Historic Places.

Item No. Continuation

Likewise, McKenna et al. would conclude that there is a potential for the recovery of additional and, as yet, unrecorded aspects of this system in the area of Highland Avenue. For this reason, McKenna et al. would conclude that this feature is significant and potentially eligible to the National Register of Historic Places because of its potential to yield additional data.

In summary, the 1916 canal is a significant feature under Criteria c) and d), as defined by the National register. Therefore, any impacts to this feature would be considered adverse, unless proven to be otherwise.

The proposed project will not impact the majority of this system. As designed, the current project will impact only that small portion of this canal in the area nearest Highland Avenue, where the Water District proposes to divert the water from this canal system to the facility on Highland Avenue by placing a new pipeline along Highland Avenue. McKenna et al. believes that this area has already been impacted by the alterations of the canal system between 1882 and 1916. The extent of these alterations, however, are unknown, as this portion of the canal system is buried.

McKenna et al., in assessing the impacts to this system, recommends that the excavations near Highland Avenue (for the construction of the associated pipeline) be monitored to record and/or report any additional components/elements of this canal system which are currently buried in this area.

McKenna et al. would recommend full-time monitoring of this area by a qualified historic archaeologist.

The 1884 Canal System:

In 1883, the North Fork Canal Company decided to extend the existing system to a small community on the western side of City Creek. To facilitate this expansion, the North Fork Canal Company constructed a diversion just east of City Creek and brought water northwest and then east, across City Creek, in the vicinity of Atlantic and Highland Avenues (see Figure 5). Though this 1884 canal appears to be in the area of the ca. 1916 canal, it is actually located between the 1916 diversion box (on City Creek) and Highland Avenue - just north of the existing water treatment facility (see Figure 7).

P86C0654

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation

The 1884 canal was utilized until ca. 1916, when flooding destroyed the canal (and resulted in the construction of the 1916 alignment). McKenna et al. noted fragments of concrete and debris within the City Creek Water Treatment Plant project area, but found no evidence of an intact or identifiable canal. Believed to be completely destroyed in the area of the treatment plant, McKenna et al. recommended monitoring of excavations, but did not require any additional studies at the time of the initial investigations (a consulsion similar to that reached by Sutton in 1990, that the canal was destroyed or significantly damaged).

Although destroyed within the initial treatment plant project area, McKenna et al. identified what is believed to be an active remnant of the 1884 canal in the area east of the treatment plant - north of Highland Avenue. Illustrated in Figure 10, this canal was basically squared - with the side walls perfectly vertical and the base measured as 32 inches across. The northern wall measured 22 inches from the base of the canal. The southern wall measured 30 inches from the base of the canal. Built in a fashion similar to that of the 1916 canal, the northern wall was shorter than the southern wall. Although this design does not prevent the accumulation of silt within the canal, it does allow for the catchment of run-off waters and prevents overflow to the south - along the associated roads or via the loss of needed water flow.

The walls and base of this canal are cement lines (as in the case of the 1916 canal), but more evenly and will less erosion. This may be due to the lessening amounts of water in this canal since the construction of the 1916 canal.

The portion of the canal identified as the 1884 canal is located in the eastern-most portion of the proposed Highland Avenue pipeline. This canal begins at the location of the mailbox for 28251 Highland Avenue and runs to the east. The entire alignment is not more than a few hundred feet long. At the present time, the canal is located between the trees lining Highland Avenue and the fence line for the private property to the north of Highland Avenue.

In assessing the significance of this feature (the 1884 canal alignment), McKenna et al. used the same four criteria for significance presented above. In this case, however, McKenna et al. found that the 1884 canal is a significant resource for different reasons.

Item No. Continuation

The 1884 North Fork Canal Extension is more directly associated with the initial period of irrigation/canal development in the eastern San Bernardino Valley. It is directly associated with the North Fork Company and was specifically constructed to supply a relatively new community with irrigation waters. Therefore, this canal is indicative of a major event in the area/region.

The North Fork Canal Extension(1884) is also associated with the early development of the North Fork Canal Company, its principals, and associated smaller companies. Between ca. 1865 and 1920, this Company was associated with the Highland region and the names of the Highland Well Company, the Highland Mill Company, and the Highland Lumber Company are all known for this area and the activities on or near City Creek. The individuals of the North Fork Canal Company represent this groups and, therefore, the individuals associated with this initial use of the area are basically significant individuals with extreme foresight for the potential for this area.

The design of the 1884 canal is different from the other canals identified in this general area. It is built relatively square and not with the slanted sidewalls indicative of most canals recorded for San Bernardino County. The dimensions do not necessarily permit a higher quantity of water (from earlier canals), but the design does appear to permit more unincumbered flow. McKenna et al. has determined, therefore, that this particular portion of canal is relatively unique and, therefore, significant. More can be learned form this portion of the canal once the connection in the area of the 1916 canal can be examined.

With this in mind, the 1884 canal has the potential to yield additional data and, therefore, is a significant feature. With all four major criteria being applicable here, McKenna et al. has concluded that this feature is potentially eligible for the National Register of Historic Places. As such, any disturbances to this feature would be considered an adverse impact requiring mitigation measures (see later discussion).

The 1882 Canal System:

The 1882 canal system on North Fork was initiated by the North Fork Canal Company to serve the settlements along Baseline Road - via the Plunge Creek to City Creek routes (see Figure 5). This alignment was initially diverted off the historic Cram & Van Leuven

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

 Continuation Sheet

Item No. Continuation

Ditch (ca. 1858) from an area east of Plunge Creek, but connected to the Cram & Van Leuven Ditch by a lateral (southwest to northeast) connecting line constructed in 1882-83 (at the Cram Divide). From the point of this connecting line, the canal ran to the northwest - to a point east of City Creek, then turned west/southwest to Baseline Road (west of City Creek).

The 1882 canal was a predecessor to the 1884 ditch, which did not negated the use of the 1882 ditch. Illustrated in Figure 6, Beattie (1951) shows the earlier alignment just south of the 1884 alignment (including a lateral on Highland Avenue. The diversion of these two canals appears to be in the general area east of City Creek and just north of Highland Avenue - in the area of the proposed pipeline.

In investigating this alignment, McKenna et al. identified a segment of a canal which differed form the identified 1884 canal and which was not associated with the 1916 canal. Adjoining the western extent of the 1884 canal, McKenna et al. interpreted these remains as the remains of the original 1882 canal, also damaged in the flooding of ca. 1916, and non-existent in the more western portions of the eastern side of City Creek. Illustrated in Appendix C (Photographs 3 and 4) and in Figure 11, the mode of construction within this feature is significantly different than those noted for either the 1884 or the 1916 canals.

The identified portion of the 1882 canal began slightly west of the defined 1884 canal (at the 28251 Highland Avenue mailbox) and ran west along the northern side of Highland Avenue until it became less well defined and eventually became an unlined and more natural drainage. In this area of construction (approximately 350 feet in length), the side wall of the canal consist of large rocks (boulders) laid on end and forming a sloping side wall. The base of the canal is approximately 26 inches wide (though it varies slightly), with the top of the canal spanning 36 inches (interior dimensions). The canal is 24 inches deep with the north and south walls being generally equal in height. The base of the canal is constructed of numerous smaller rocks/cobbles collected from the local area.

There is no evidence of mortar in this canal. There is no evidence of concrete or cement on the rocks in this canal and no suggestion that all traces of concrete were eroded away. As illustrated in Photograph 3 (Appendix C), this lack of concrete attributed to the overall erosion of the canal - portions having been dislodged during flooding or other forms of disturbance.

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation

Using the same discussion presented above for the 1884 canal, McKenna et al. has determined that portions of the 1882 canal are present within the proposed project area and this feature has a potential for significance under all four major criteria for significance: a) association with the development of irrigation in this area; b) association with the early developers of this area; c) presentation of a construction mode different from others in the area; and 4) the ability to yield additional data regarding the canal for the area.

As a significant feature, this feature/site is potentially eligible to the National register of Historic Places. Any disturbance to this feature must be considered an adverse impact requiring a level of mitigation of adverse impacts.

General Summary

In summary, the proposed tank locations will not impact any known significant resources. Therefore, McKenna et al. is not recommending any additional studies at this time, but will recommend that an archaeological monitor be on site during any construction excavations.

With respect to the proposed pipeline, the construction of the pipeline will impact at least three major episodes of canal construction: 1882; 1884; and 1916. The fact that these three construction episodes meet at a point within the project area is another point of significance for this area. Therefore, some level of mitigation of adverse impacts is necessary.

To date, McKenna et al. has completed a survey of the areas to be impacted, drawn sketches of the various canal segments, photographed the area, and completed a level of historic research. The mitigate the adverse impacts to these sites, McKenna et al. recommends that the research completed to date be supplemented by archaeological monitoring of the pipeline project area to keep records and report on the buried deposits known for the area and to be present should any as yet unidentified components of cultural elements be unearthed. McKenna et al. also recommends monitoring of the area to record data on the construction techniques for these three features (e.g. trench lines, construction materials not evident from the surface, etc.).

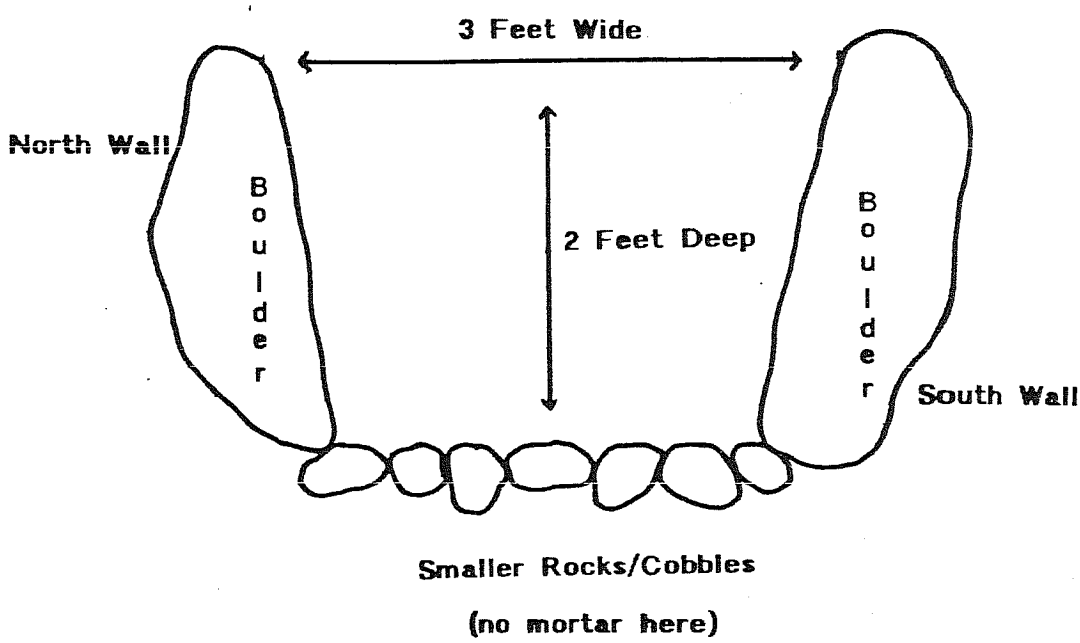
P86D0059

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation



Example of Canal North of Highland Ave.

(1 inch:1 foot)

Example of the ca. 1882 Canal Cross-section (viewed from the west).

Flow Runs from East to West

See Photographs 3 & 4, Appendix C

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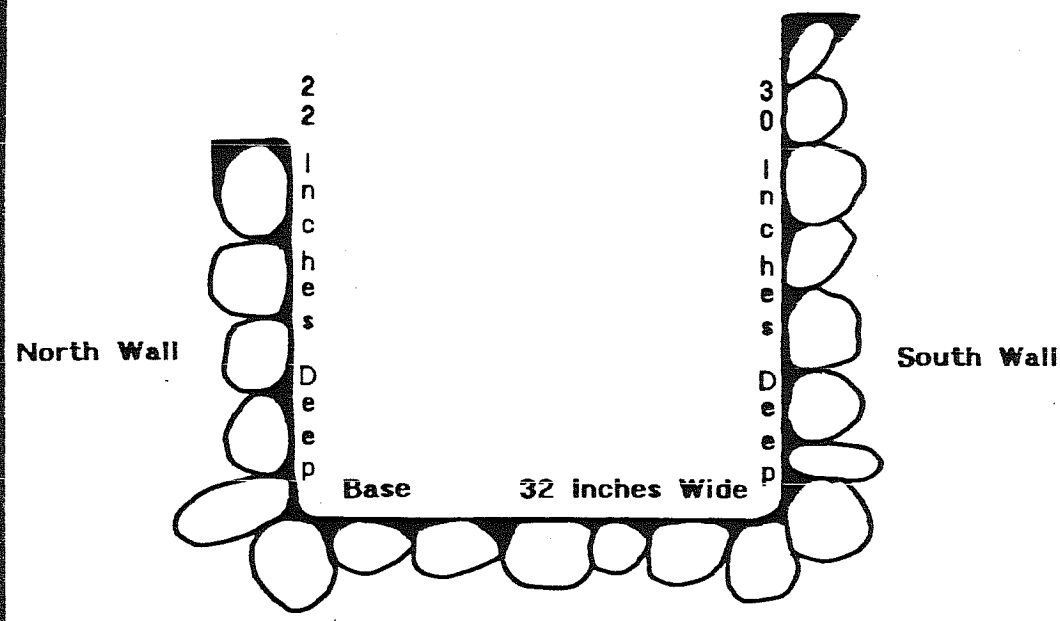
ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation



Cement Lined Base, Sides, and Caps

EXAMPLE OF CANAL NORTH OF HIGHLAND AVE.

(1 inch: 1 foot)

Example of ca. 1884 Canal Cross-section (viewed from the west).

Flow Runs from East to West

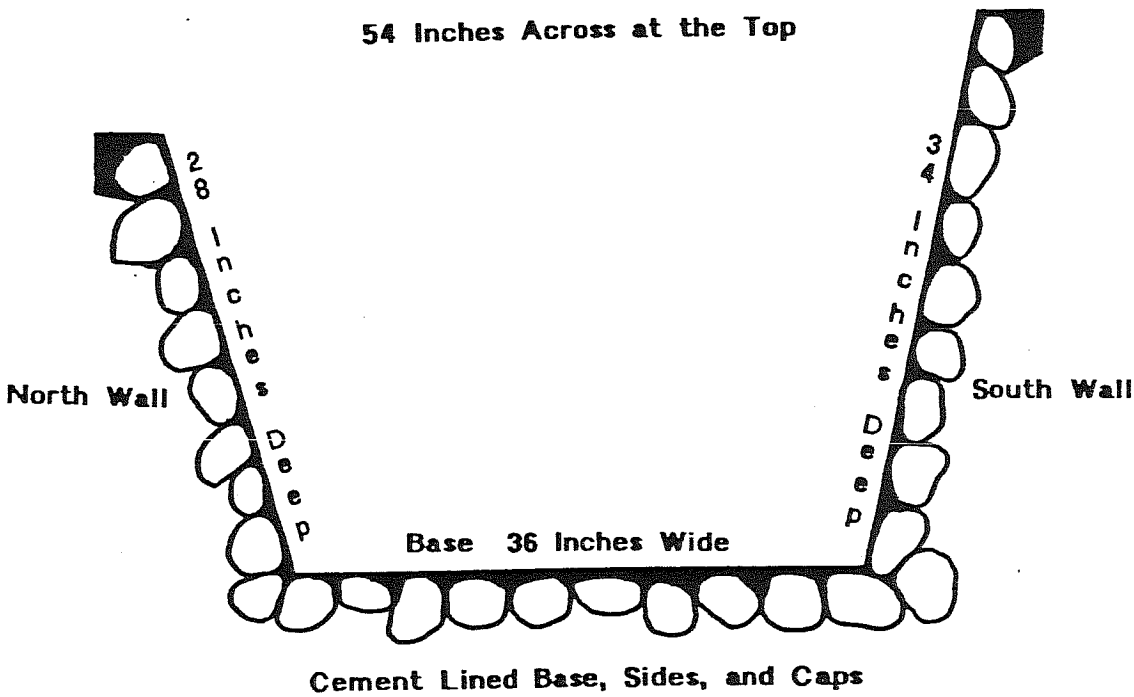
P36-006544

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Continuation Sheet

Item No. Continuation



EXAMPLE OF CA. 1916 CANAL

(1 inch: 1 foot)

Flow Runs from East to West

Example of the ca. 1916 Canal Cross-section (viewed from the west).

Item No. Continuation

CONCLUSIONS AND RECOMMENDATIONS

McKenna et al. found no evidence of significant resources in the areas of the proposed tanks. Therefore, no additional studies are required here. McKenna et al. would, however, recommend an archaeological monitor for the excavations in this area, as buried deposits are likely/possible, especially in the area of Tank No. 2.

As noted above, McKenna et al. has determined that the canals located within the area of the proposed project area significant and, therefore, potentially eligible for the National Register of Historic Places. With the evaluation process completed (during this study), McKenna et al. recommends a level of mitigation for the adverse impacts which will be realized by the construction of the proposed pipeline.

At this time, the level of mitigation includes:

1. A full-time archaeological monitor for any and all excavations conducted along the Highland Avenue pipeline right-of-way;

2. The full-time monitor must be qualified in historic archaeology and prepared to halt any activities of the proponent which are adversely impacting significant portions of the canal(s);

3. The monitor shall have the authority to record, photograph, and otherwise document any and all portions of the canals which appear to be of additional significance and yielding data not available in other areas;

Item No. Continuation

4. Should the recordation of the canals require more time than permitted by the construction schedule, the proponent will be responsible for the costs of this additional time;

5. Should remains be uncovered which are dissociated from the canals but which represent significant historic or prehistoric resources, an amendment to the monitoring schedule will be necessary and at the expense of the proponent.

Any changes to the contents or context of this report will require the written permission of the author, Jeanette A. McKenna, Principal Investigator for McKenna et al., Whittier, California (310-696-3852).

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION: _____

Archaeological Site Map

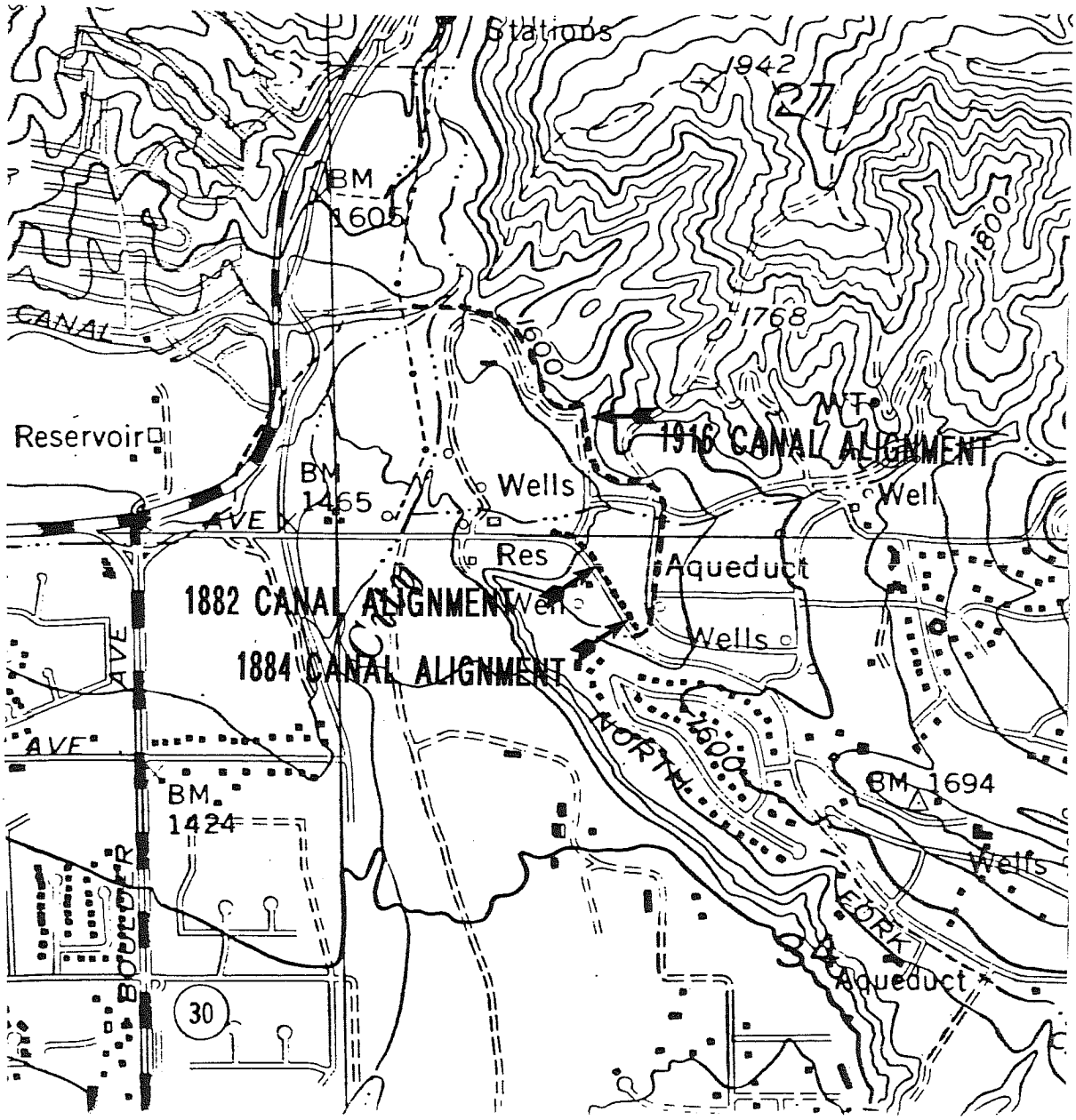
SEE ATTACHED DRAWINGS (pages 11-13)

P3U-006544

ARCHAEOLOGICAL SITE SURVEY RECORD
(McKenna et al., Whittier CA)

PERNAMENT TRINOMIAL: CA-SBR-6544H
TEMPORARY SITE NO.: PSBR-11-H
AGENCY DESIGNATION:

Archaeological Site Location Map



P36000544

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H Supplement [ ]

ARCHEOLOGICAL SITE RECORD

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

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1. County: San Bernardino

2. USGS Quad: HARRISON MTN., CALIF. 1967 (7.5') X (15') Photorevised 1988
REDLANDS, CALIF. 1967 (7.5') X (15') Photorevised 1988
YUCAIPA, CALIF. 1967 (7.5') X (15') Photorevised 1988

3. UTM Coordinates: Zone 11 / Map Reference No. 1: 496490 m Easting / 3771840 m Northing
UTM Coordinates: Zone 11 / Map Reference No. 2: 480820 m Easting / 3777010 m Northing

4. Township 1S Range 2W; Portions of Sections 4,8,5,6 Base (Mer.) SBM
Township 1S Range 3W; Portions of Sections 1,2 Base (Mer.) SBM
Township 1N Range 3W; Portions of Sections 35,34,27,28,33 Base (Mer.) SBM

5. Map Coordinates (from NW corner of map)
Map: YUCAIPA, CALIF.: Reference No. 1: 167 mmS 332 mmE
Map: HARRISON MTN., CALIF. Reference No. 2: 528 mmS 162 mmE

6. Elevation 1400 to 2960 feet above MSL

7. Location: The site (the North Fork Canal) is located along the base of the San Bernardino Mountains in San Bernardino County, CA. A suggested access route follows: from the intersection of Highland and Boulder Avenues in Highland, CA, travel approximately 0.15 mile (850 feet) east on Highland Avenue. Turn left (north) on Old City Creek Road via a locked gate maintained by East Valley Water District in San Bernardino. Head north approximately 0.22 mile (1150 feet) to where the road crosses over the canal.

NOTE REGARDING LOCATIONAL DESCRIPTION: THE AREA BETWEEN CITY CREEK AND EXISTING SR 330 WAS FIELD-CHECKED. OTHER LOCATIONAL INFORMATION IS BASED ON REFERENCE MATERIALS (HALL 1888, BEATTIE 1951, SCOTT 1976, HORNBECK AND BOTTS 1988, MIKESELL 1989).

8. Prehistoric Historic X Protohistoric

9. Site Description: LATE NINETEENTH CENTURY TO TWENTIETH CENTURY RUBBLE MASONRY IRRIGATION CANAL: THE NORTHFORK CANAL (also known as the High-line Ditch or the High-grade Bench-land Canal). Originally built as an earthen ditch 1858, the North Fork canal was relocated and improved in the 1880's in order to irrigate land near the base of the San Bernardino Mountains. William H. Randall, who owned property along City Creek designed the branch of the canal that extended north of Highland Avenue. He also served as the construction foreman for the segment crossing City Creek. The canal was built by 50 Chinese, 25 Anglo, and a few Mexican laborers (Beattie 1951:21). Although originally used for irrigation purposes, the canal is used presently for water treatment and artificial recharge of ground water (Mikesell 1989:6).

Location: The intake to the ditch is at the mouth of the Santa Ana River Canyon. The canal diverts water from the afterbay of the SCE Santa Ana River No. 3 Powerhouse. A diversion system dating to 1946, though replaced in 1971, serves several different canals. The canal heads northwest, crossing Plunge Creek and City Creek, crossing to the south side of Highland Avenue, and terminating at Palm Avenue in Highland, CA. ---- The High-grade Bench-land portion was constructed in 1881 and 1882 (Hall 1888:134-135, 148) to serve property owners along Baseline Avenue. Then in 1884, the canal was extended to the north in order to meet the irrigation needs of property owners north of

Highland Avenue. The crossing at City Creek washed out during the flood of 1916, and a portion of the canal was realigned further north where it merged with and superseded the Highland Canal.

Dimensions: approximately 8 miles long, trapezoidal cross-section with basal width = @ 2.5 to 6 feet, top width = @ 4.5 to 8 feet, depth = @ 2 to 3.5 feet (Hall 1888:142).

Construction: Rubble masonry conduit consisting of an excavated depression, paved with small, partially rounded granitic boulders (locally available, especially in creek channels) laid in lime mortar, with a concrete lining forming an even-planed face. According to Hall (1888:142), the canal had two timbered tunnels (a 1200 foot stretch near its origin, and a 500 foot length further west), and redwood trestles and flumes that crossed creeks and ravines. See ITEM 12 for an itemization of features, or design elements of the canal within the Area of Potential Effects (APE).

10. **Area:** @ 12512 m x 2 m = @ 25024 m^2. [@ 41050 ft x @ 6 ft = @ 246300 ft^2] **Method of Determination:** partial foot survey, historic maps, Hall 1888:142

11. **Depth:** @ 60 to 120 cm. (@ 2 to 3 ft) **Method of Determination:** Engineer's report (Hall 1888:142); folding rule.

12. **Features:** The North Fork Canal has six major features, or design elements within or near the SR 30/330 APE (west of City Creek and east of existing SR 330:

1) 1884 Channel: An abandoned remnant of the rubble masonry conduit constructed in 1884, and abandoned after the flood in 1916, crosses City Creek wash approximately 700 feet south of the current alignment.

2) 1916 Channel: The rubble masonry conduit of the 1916 alignment was constructed after the North Fork Canal merged with and superseded the Highland Canal. North Fork Canal water was carried across City Creek by means of The Highland Canal redwood flume.

3) Division Box: A concrete division box with three openings (an inlet gate, a gate to the North Fork Canal connector ditch, and a gate to the Highland Canal) was built in 1916, and modified in 1949 after installation of the siphon. A concrete block barrier was added to raise the division wall that encases the gate for the Highland Canal.

4) 1916 Connector Ditch: A 1916 connector ditch leads from the division box to the 1884 North Fork Canal alignment.

5) Siphon: A concrete pipe, inverted siphon that replaced the Highland Canal trestle/flume at City Creek in the late 1940's (Scott [1976:34] indicates 1947; Hinckley [1983] indicates 1949).

6) Weir 39: Concrete weir box "39", is southeast of existing SR 330, and north of Highland Avenue. It was probably improved in 1949 when SR 330 was constructed.

13. **Artifacts:** None noted

14. **Non-artifactual Constituents and Faunal Remains:** None noted

15. **Date Recorded:** 1-90

16. **Recorded By:** Paula Sutton

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17. **Affiliation and Address:** CALTRANS, District 08, 247 W. 3rd St. San Bernardino, CA 92402

18. **Human Remains:** N/A

19. **Site Disturbances:** Integrity of the canal within and near the SR 30/330 APE is poor. In 1916, a major flood destroyed the redwood trestle/flume section spanning City Creek and the crossing was moved 1/8 mile upstream, where it merged with and superseded the Highland Canal. In 1946, the redwood trestle/flume shared by the Highland Canal and the North Fork Canal was replaced with a 36 inch, concrete pipe, inverted siphon. Modifications were made at either end of the siphon, as well as at the division box. In 1949, North Fork water was rerouted into concrete pipes and existing SR 330 was constructed over nearly 700 feet of the rubble masonry channel.

20. **Nearest Water (type, distance and direction):** The canal crosses City Creek via a concrete pipe, inverted siphon.

21. **Vegetation Community (site vicinity):** Area of interest: north of Highland Ave, between existing SR 330 and City Creek.

    Community at City Creek: Southern Sycamore-Alder Riparian Woodland. Species observed: Sycamore, (Platanus rhombifolia), White Alder (Alnus rhombifolia), Sagebrush (Artemisia douglasiana), Elderberry (Sambucus mexicana), Poison Oak (Toxicodendron diversilobum).

    Community on benches and area west of City Creek: Riversidean Sage Scrub. Species observed: Sagebrush (Artemisia californica), Saltbrush (Atriplex canescens), Foxtail (Bromus rubens), Brittle Bush (Encelia farinosa), California Buckwheat (Eriogonum fasciculatum), White Sage, (Salvia apiana), Black Sage (Salvia mellifera), Our Lord's Candle (Yucca whipplei parishii), and Prickly Pear (Opuntia littoralis).

    The natural vegetation on the benches and area west of City Creek has been disrupted by agricultural activities. Citrus trees no longer exist, however, a few Palms (Arecaceae), Pepper trees (Schinus) and a grove of Eucalyptus (Eucalyptus) remain as part of the historic landscape. The vegetation is mostly ruderal, i.e., invaded by exotic weeds and grasses, although remnant or regenerated patches of the Riversidean Sage Scrub community also exist.

22. **Vegetation Community (on site):** Same as ITEM 21.

23. **Site Soil:** Silty loam/alluvium

24. **Surrounding Soil:** Silty loam/alluvium

25. **Geology:** Granitic cobbles and boulders eroded from the San Bernardino Mountains.

26. **Landform:** alluvial fan/valley edge (northwestern side of the San Bernardino Valley). Mouth of City Creek Canyon.

27. **Slope:** Grade of canal varies between 2% to 16% (Hall 1888:142)

28. **Exposure:** Open

29. **Landowner(s) (and/or tenants) and Address:** East Valley Water District, 1155 Del Rosa Ave, San Bernardino, CA 92410
    Previous Owners: Bear Valley Mutual Water Company, North Fork Water Company.

30. **Remarks:** The North Fork Canal represents a capital-intensive project that occurred during the economic boom of the 1880's. Other nearby irrigation canals include the Highland Canal and the City Creek Ditch.

31. **References:**

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1937 Black and White Aerial Photo showing the City Creek area in San Bernardino County, CA. Scale: 1" = 800'-1200'Job # 4646, Index # 50. Fairchild Aerial Surveys, Inc., Los Angeles. On file, District 08 Office, California Department of Transportation, San Bernardino, CA.

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* 1989 Historical Resources Evaluation Report-Historic, North Fork Canal, Highlands Canal and City Creek Ditch, 8-SBd-330, P.M. 28.7/30.2. Ms. on file, Environmental Branch, District 08 Office, California Department of Transportation, San Bernardino, CA.

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Sullivan, E. Q.
1945 SBd 207 Design Map, Sheet 4 of 25. On file, Environmental Branch, District 08 Office, California Department of Transportation, San Bernardino, CA.

Sutton, Paula A.
1990 First Addendum Archaeological Survey Report and First Supplemental Historic Resources Evaluation Report for the Construction of State Route 30 from and Highland Arden Avenues to Fifth Street (3.6 Miles), and Construction of State Route 330 from the Proposed 30/330 Interchange to 0.7 Miles North of Highland Avenue (1.6 miles): (08-SBd-30, 330-R26.7/30.2; 08-SBd-330 28.7/30.2, 08201-157901). Ms. on file, Environmental Branch, District 08 Office, California Department of Transportation, San Bernardino, CA.

U.S. Department of Agriculture
1949 Black and White Aerial Photo showing the City Creek area in San Bernardino County, CA. approximate scale: 1" = 600'. # AXL-6F-100. USDA Production and Marketing Administration, Western Region Laboratory, Salt Lake City, UT. On file, District 08 Office, California Department of Transportation, San Bernardino, CA.

32. **Name of Project:** Archaeological Survey of the Proposed SR 30/330 Connector, Bernardino County, CA (E.A.# 08201-157901).

33. **Type of Investigation:** Cultural Resource Survey **34. Site Accession Number:** No collections made **Curated At:** N/A

35. **Photos:** Roll # B & W / 4, Frames 2, 3, 8, 10, 11, 12, 25 **Taken By:** Paula Sutton
Roll # B & W / 5, Frames 22

* This report is attached.

T36-0016544

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544 H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
PHOTOGRAPH RECORD

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

Camera and Lens Types: Fuji Autofocus 34 and 53 mm

Film Type and Speed: Black and White Plus-x-pan 125 PX 135-24

Roll Number: B & W / 04

On File at: CALTRANS, Dist. 08
Environmental Branch
247 W. 3rd St.
San Bernardino, CA 92402

Mo.	Day	Time	Frame	Subject/Description	View Toward	Accession No.	Photographer
12/	14/89	2:10 PM	2	North Fork Canal where it goes under existing SR 330.	SSW		Paula Sutton
12/	14/89	2:10 PM	3	North Fork Canal near Palm trees, just east of existing SR 330.	NNE		Paula Sutton
12/	14/89	2:35 PM	10	Division box for North Fork Canal and Highland Canal.	E		Paula Sutton
12/	14/89	2:35 PM	11	Division box for North Fork Canal and Highland Canal.	NW		Paula Sutton
12/	14/89	2:35 PM	12	Division box for North Fork Canal and Highland Canal.	S		Paula Sutton
12/	14/89	3:30 PM	25	Section of the 1884 alignment of the North Fork Canal.	E		Paula Sutton

Film Type and Speed: Black and White Plus-x-pan 125 PX 135-24

Roll Number: B & W / 05

Mo.	Day	Time	Frame	Subject/Description	View Toward	Accession No.	Photographer
1/	11/90	AM	22	Weir box 39 of the North Fork Canal, southeast of the existing SR 330 alignment.	SW		Paula Sutton

P36-006544

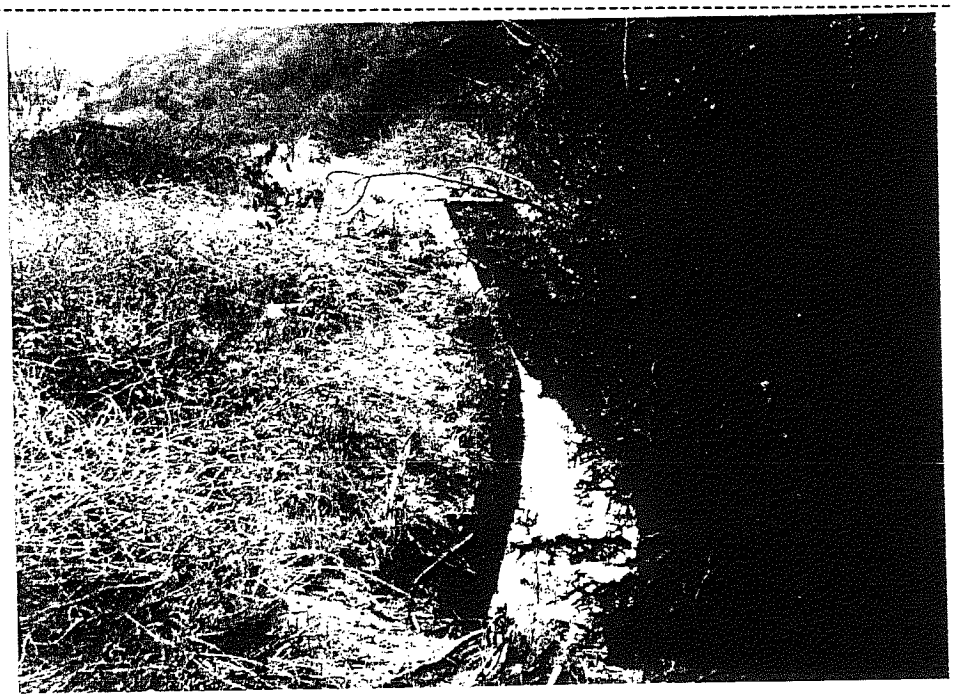
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

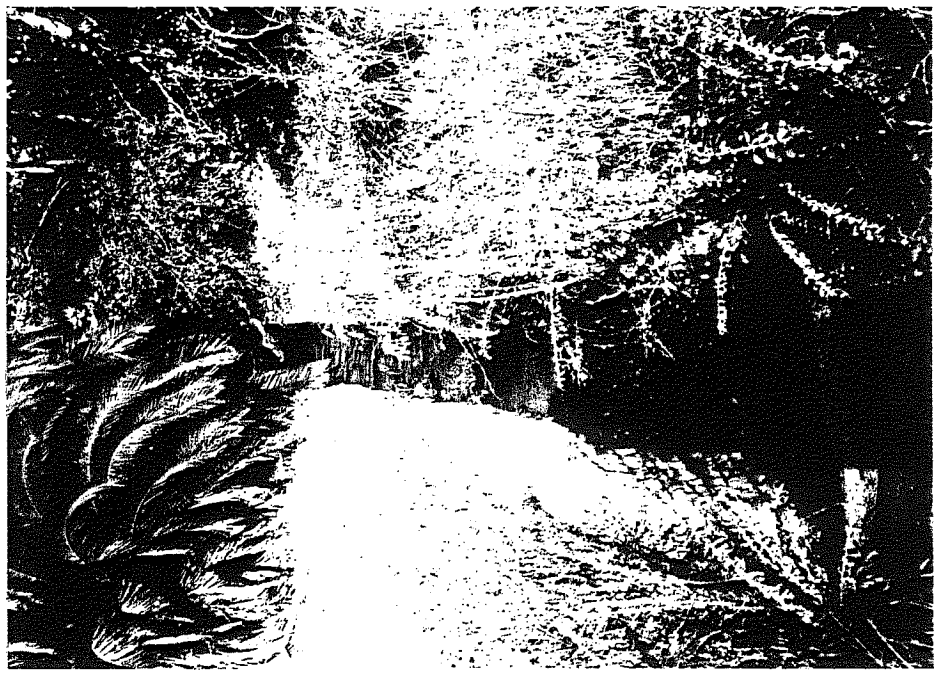
ARCHEOLOGICAL SITE RECORD
PHOTOGRAPHS

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



Roll Number: B & W / 04
Frame Number: 2
View Toward: South-southwest
Subject:

North Fork Canal where it goes under existing SR 330.



Roll Number: B & W / 04
Frame Number: 3
View Toward: North-northeast
Subject:

North Fork Canal near Palm trees, just east of existing SR 330.

P3L-006544

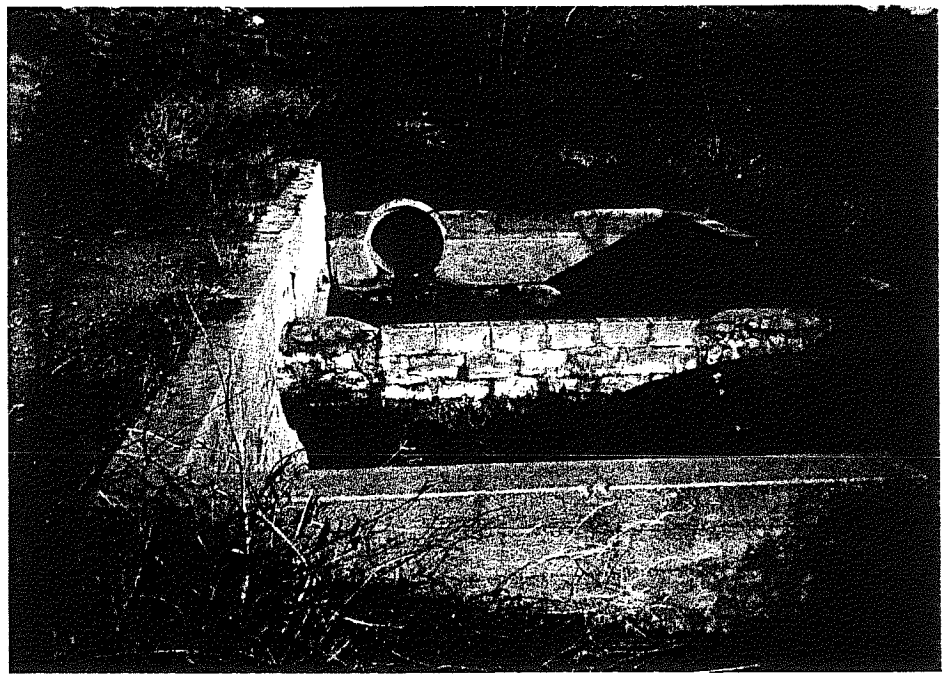
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

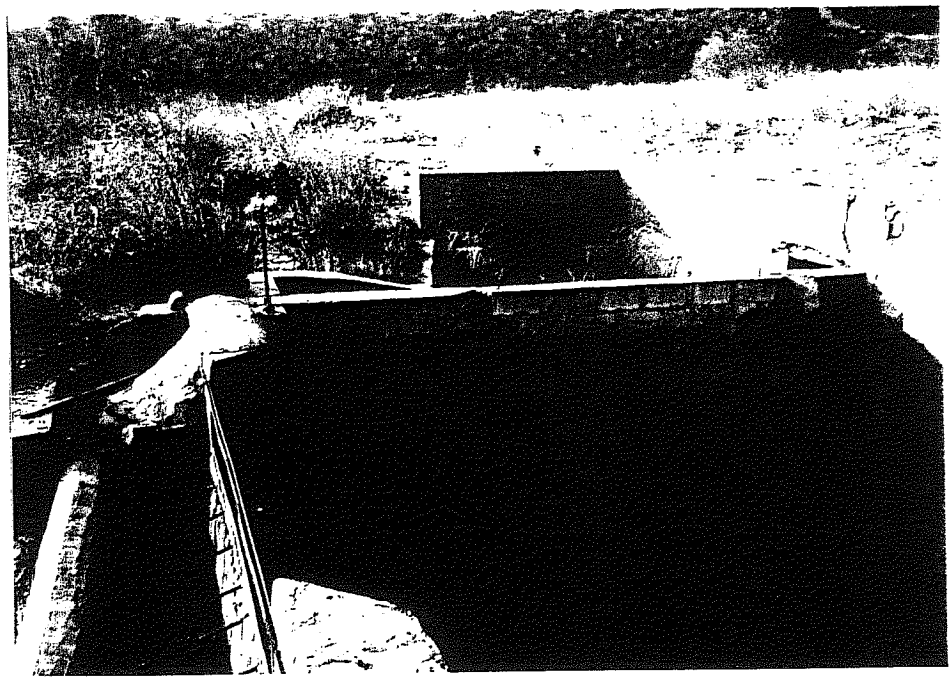
ARCHEOLOGICAL SITE RECORD
PHOTOGRAPHS

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



Roll Number: B & W / 04
Frame Number: 10
View Toward: East
Subject:

Division box for the North Fork Canal and the Highland Canal.



Roll Number: B & W / 04
Frame Number: 11
View Toward: Northwest
Subject:

Division box for the North Fork Canal and the Highland Canal.

P36-006544

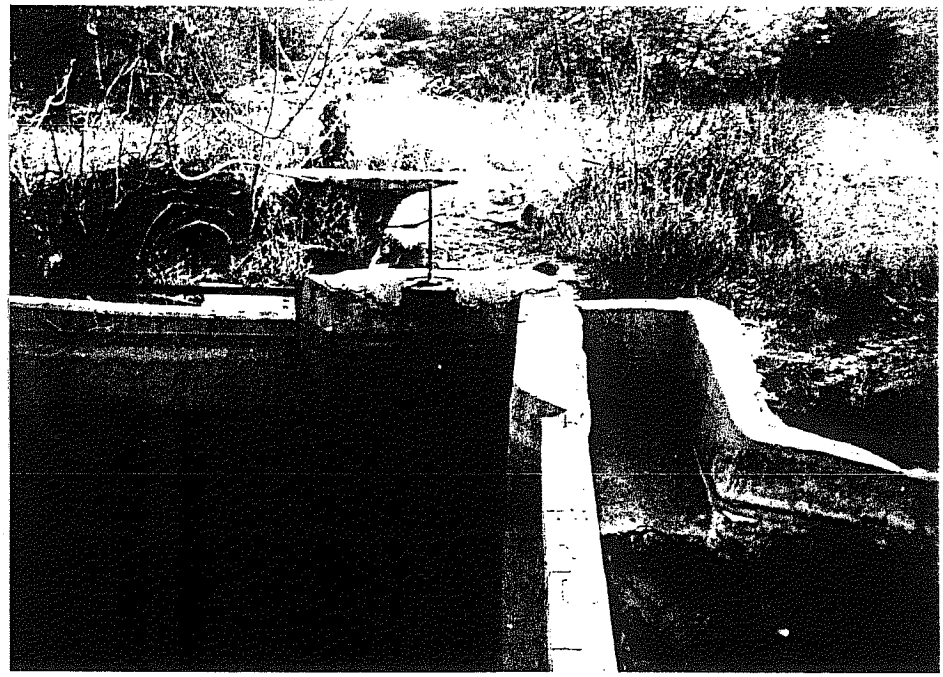
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544 H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
PHOTOGRAPHS

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



Roll Number: B & W / 04
Frame Number: 11
View Toward: South
Subject:

Division box for the North Fork Canal and the Highland Canal.

Roll Number: B & W / 04
Frame Number: 25
View Toward: East
Subject:

Section of the 1884 alignment of the North Fork Canal.

P36000841

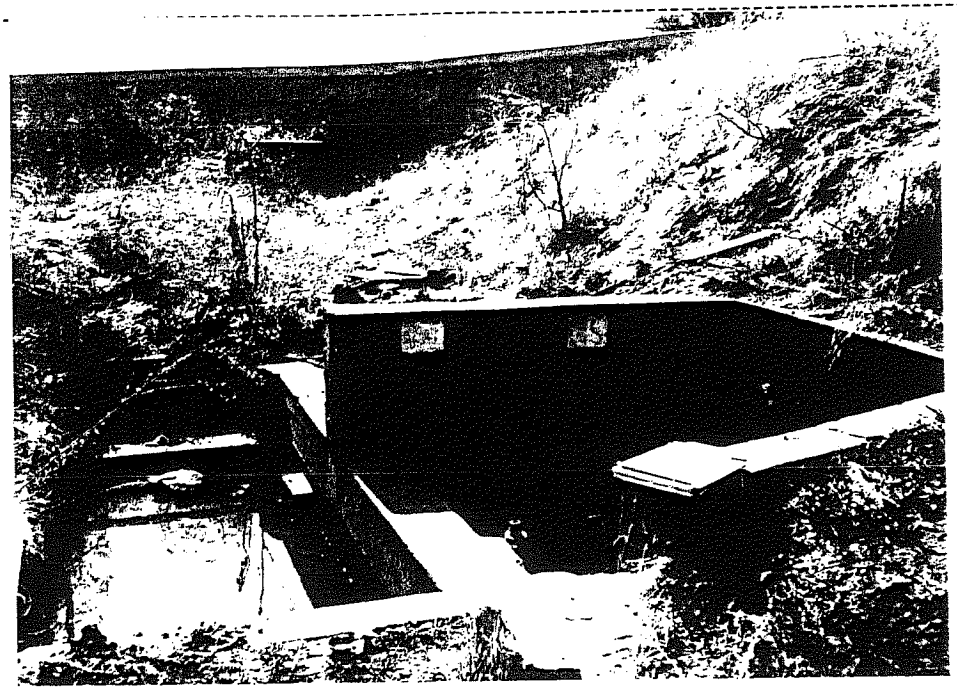
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544 H

3 / 90
Mo. Yr.

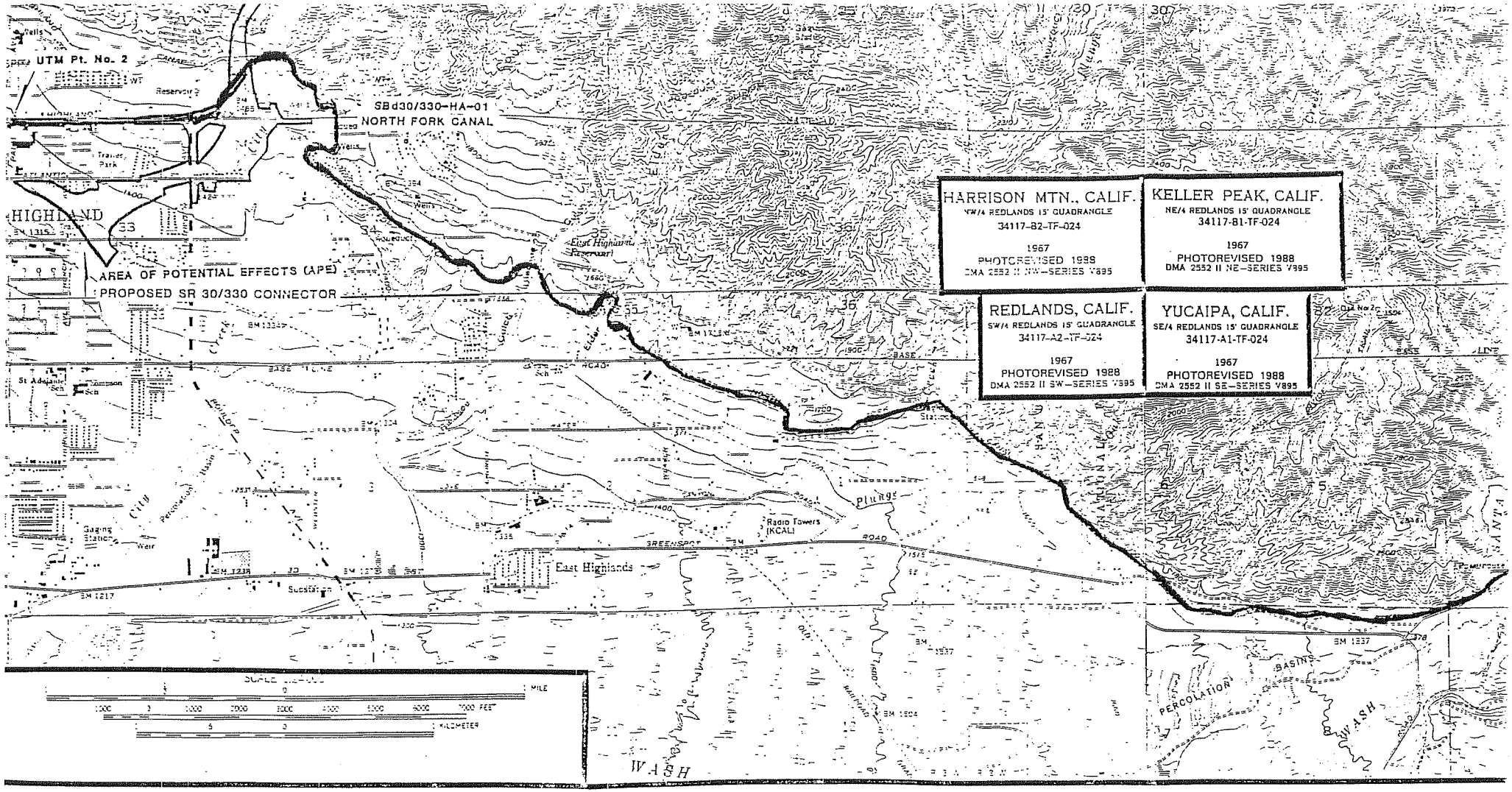
ARCHEOLOGICAL SITE RECORD
PHOTOGRAPHS

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



Roll Number: B & W / 05
Frame Number: 22
View Toward: Southwest
Subject:

Weir box 39 of the North Fork Canal, southeast of existing SR 330.



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544 H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
ARCHAEOLOGICAL SITE LOCATION MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

Page 11 of 22.

Attachment 4

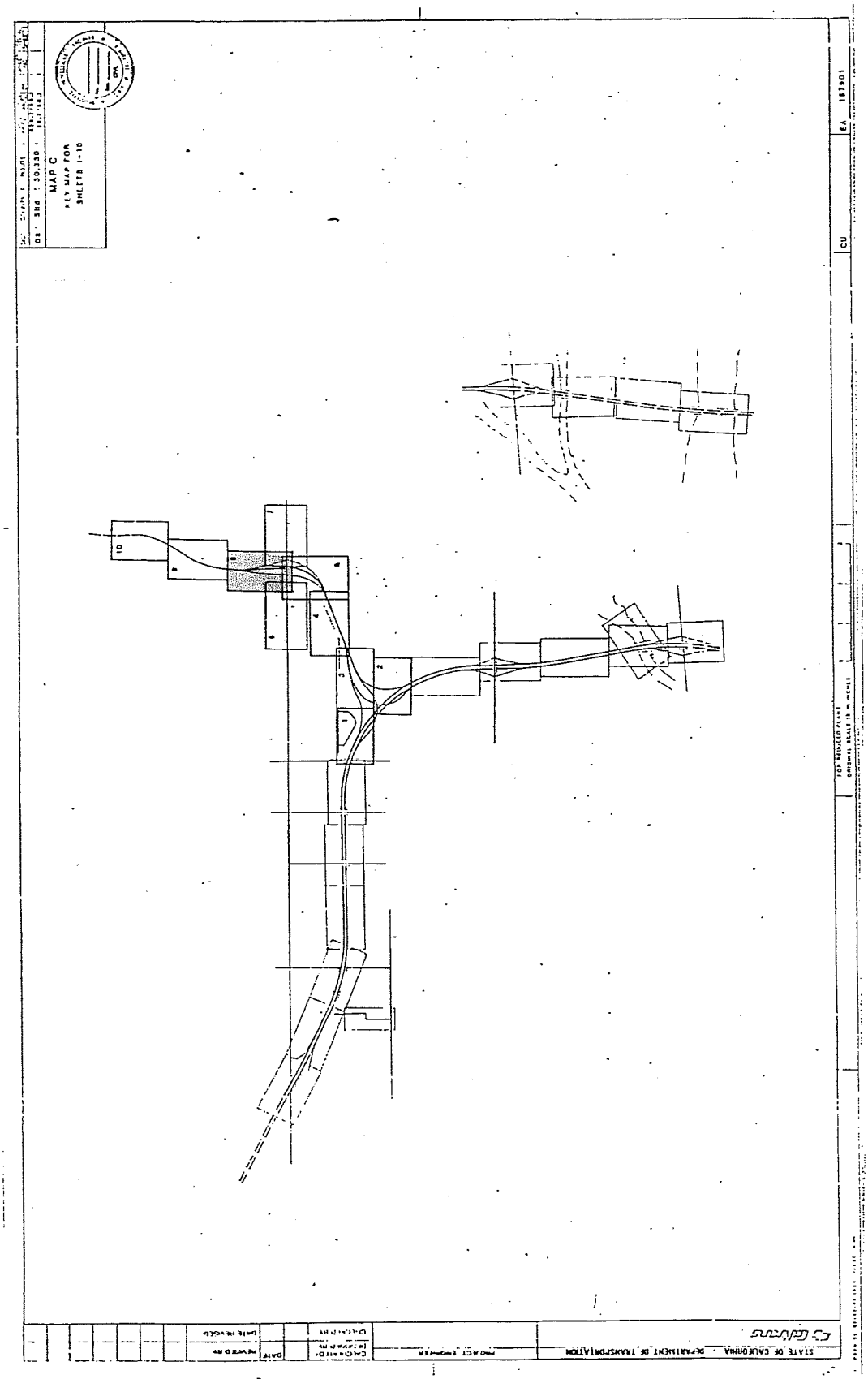
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
SITE MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



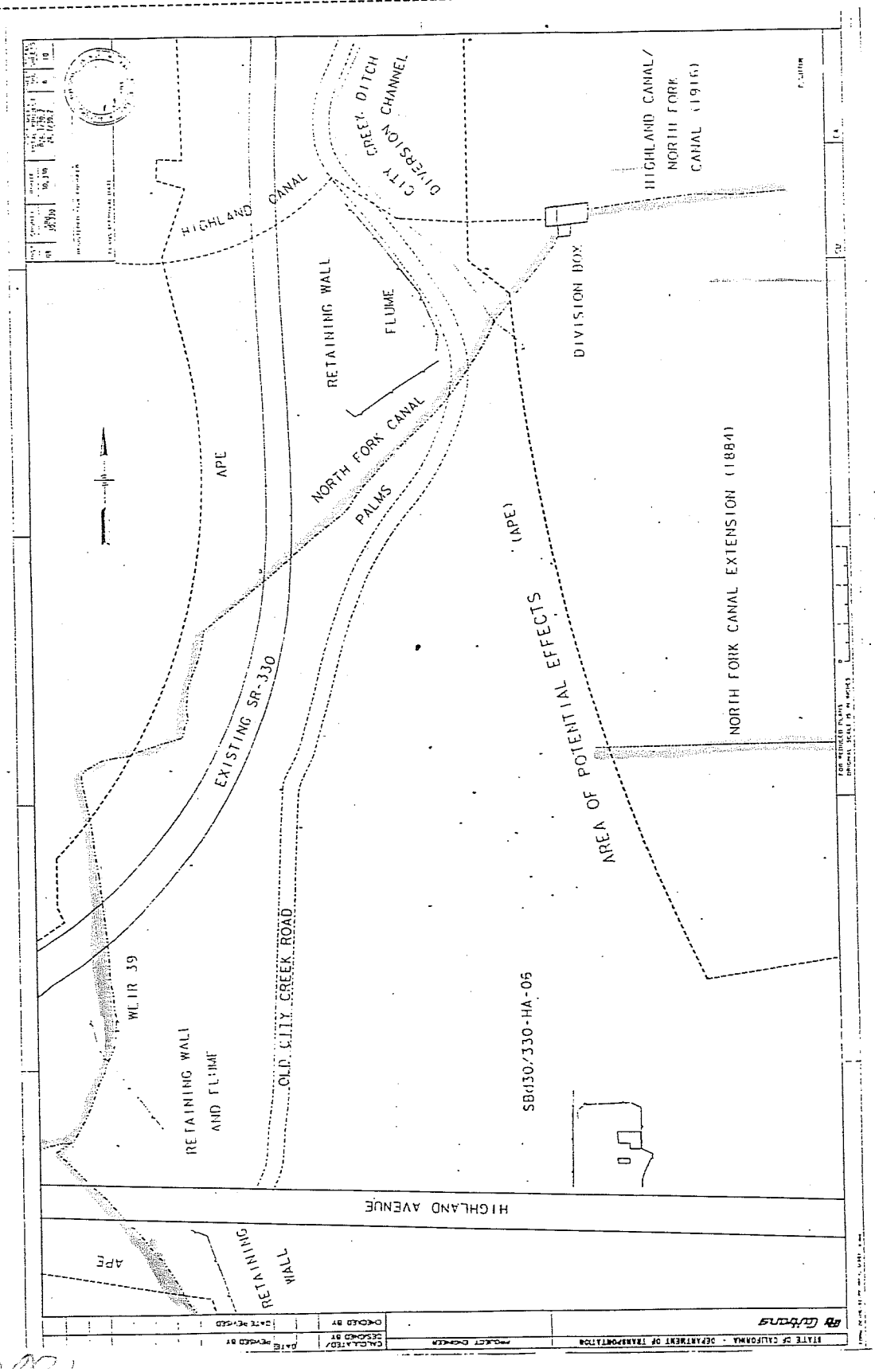
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-654 H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
SITE MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



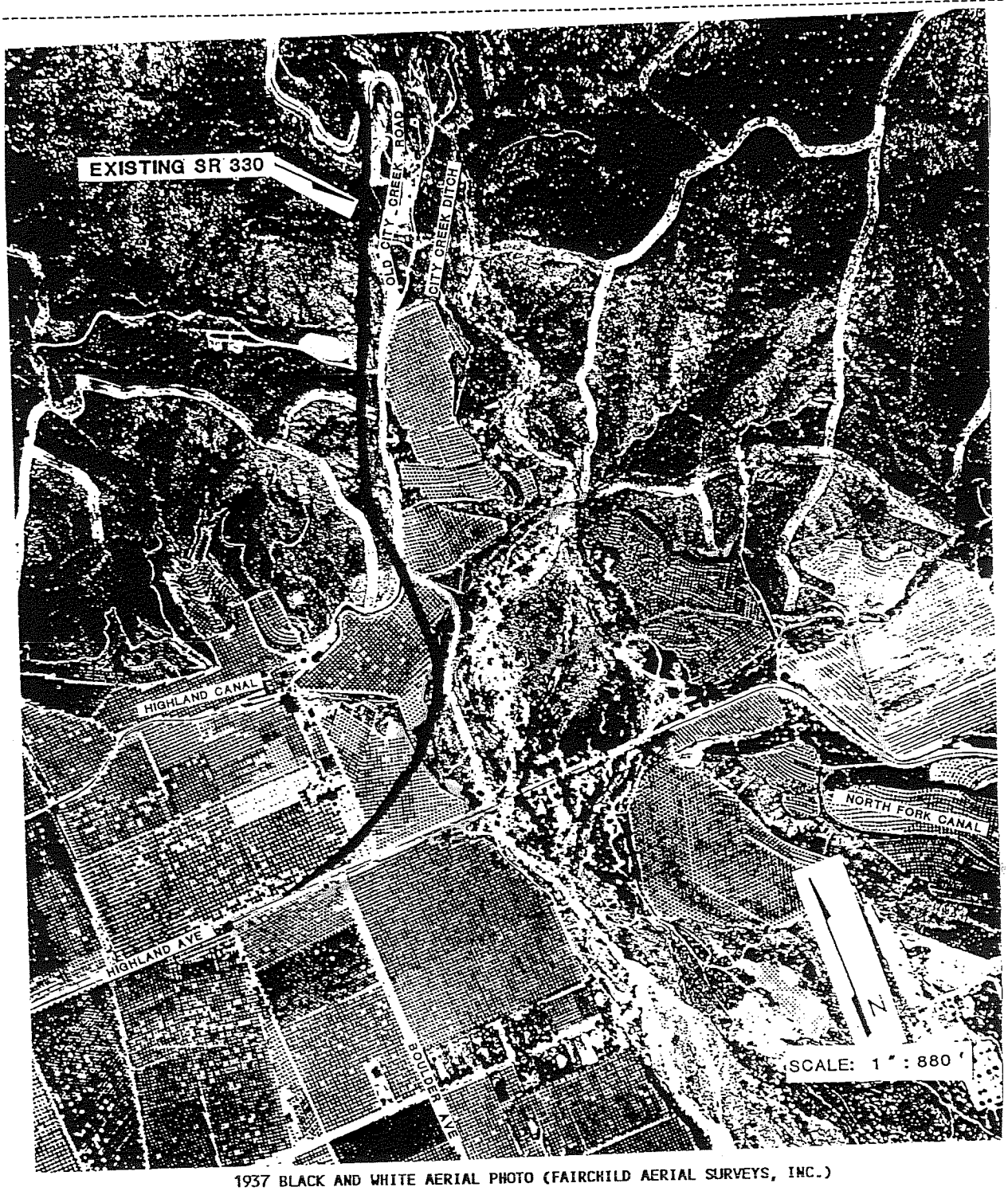
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

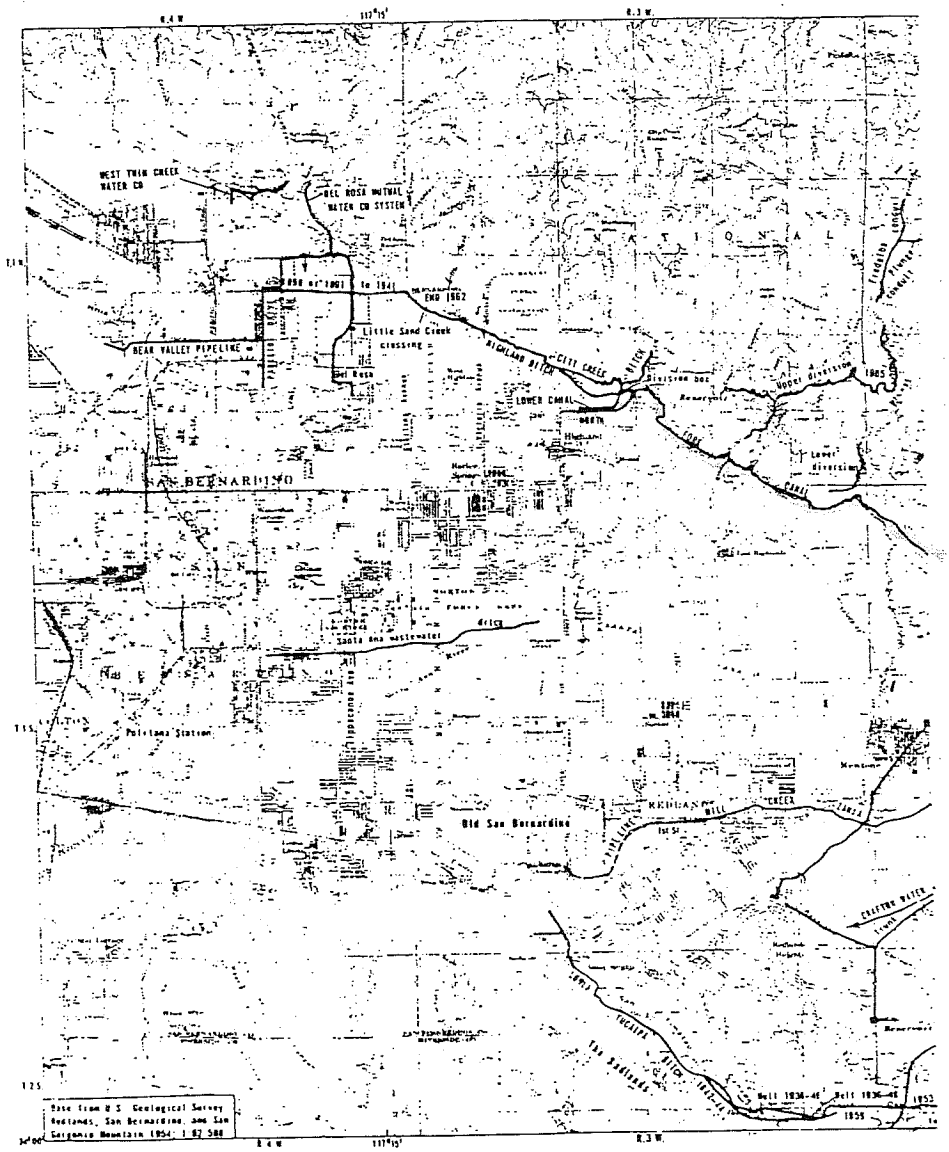
ARCHEOLOGICAL SITE RECORD
AERIAL PHOTO

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

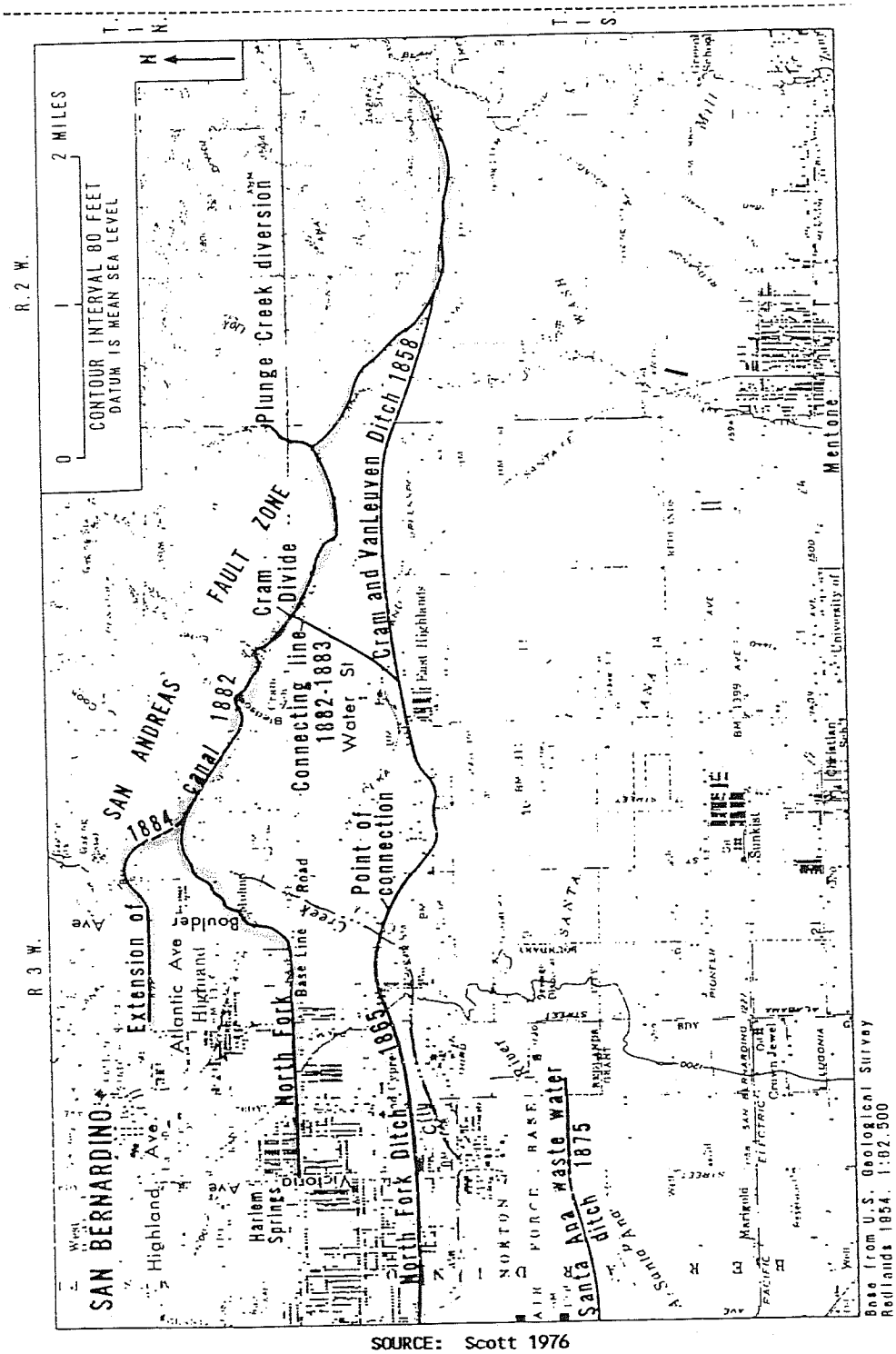


1937 BLACK AND WHITE AERIAL PHOTO (FAIRCHILD AERIAL SURVEYS, INC.)

FIGURE 11.--Diversions in the eastern part of San Bernardino Valley.



SOURCE: Scott 1976



SOURCE: Scott 1976

FIGURE 6.--Cram and Van Leuven ditch and North Fork Canal.

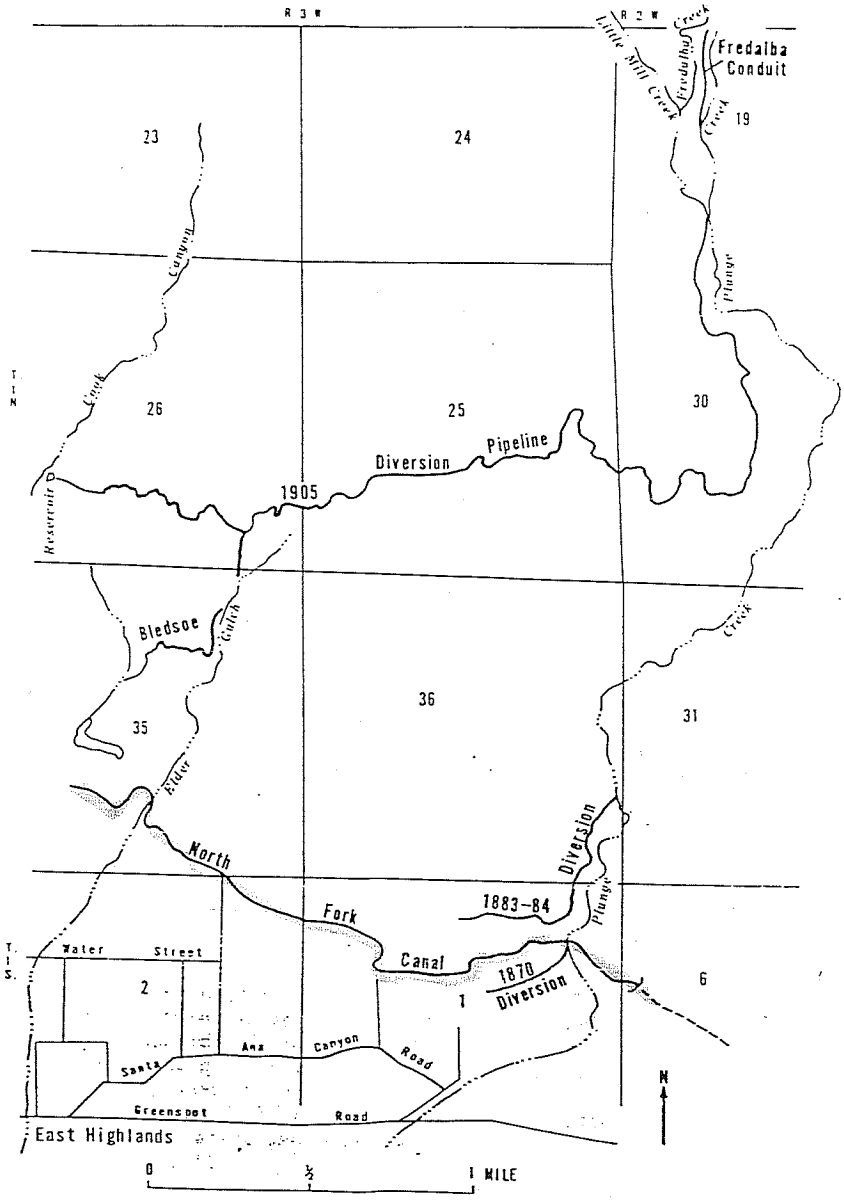


FIGURE 39.--Diversions from Plunge Creek.

SOURCE: SCOTT 1976

P05000344

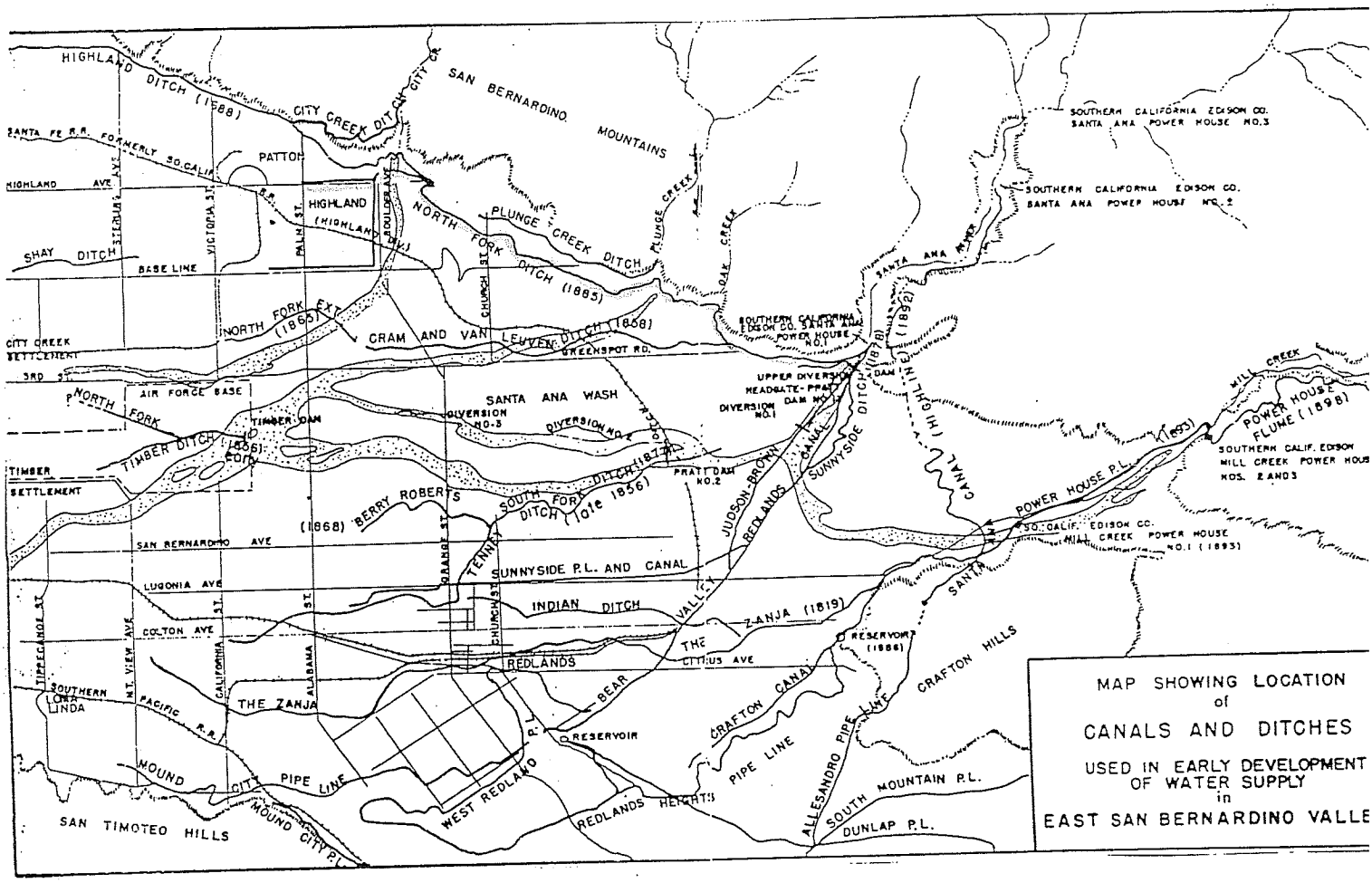
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



SOURCE: BEATTIE 1951

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State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

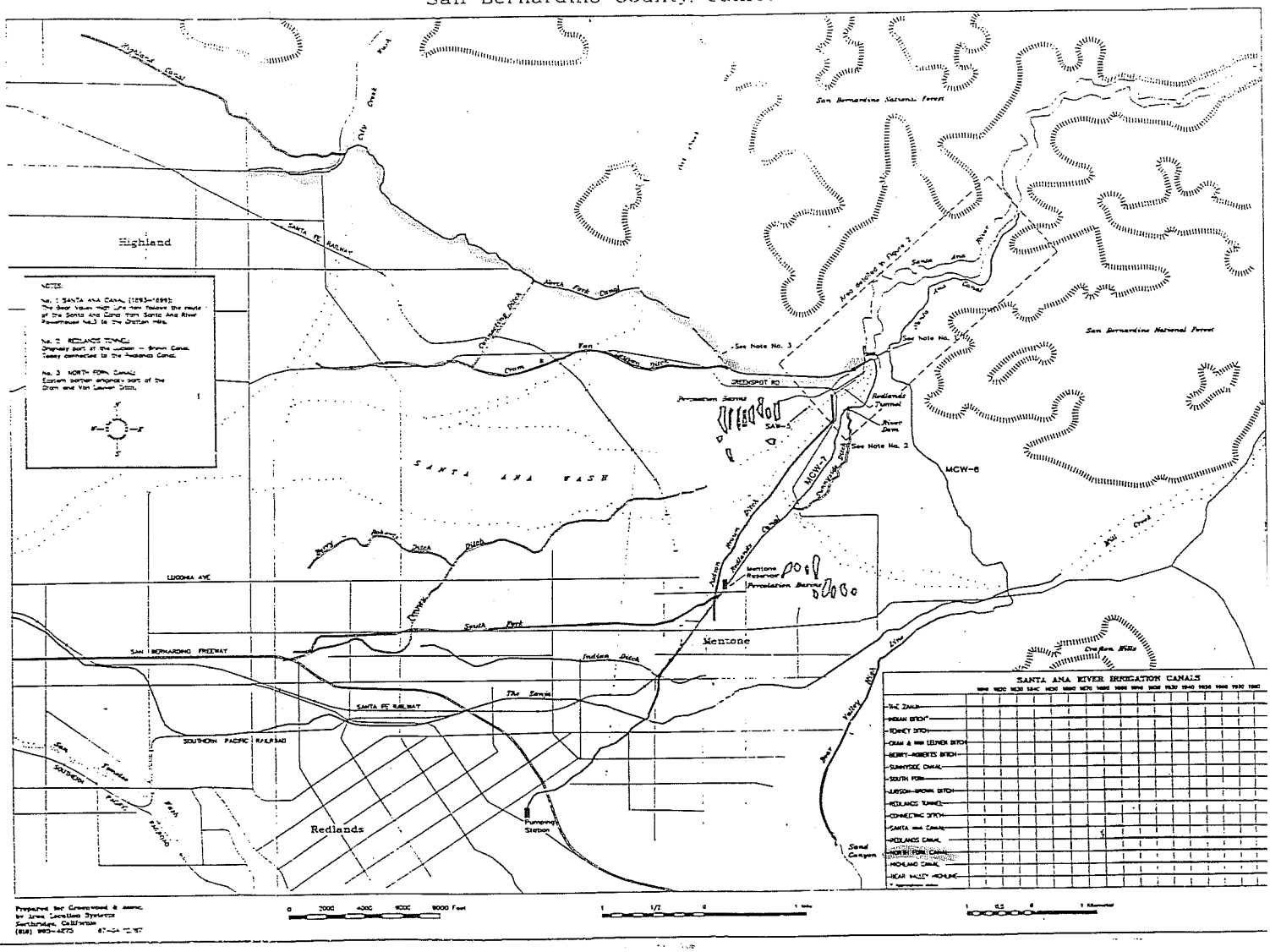
Permanent Trinomial: CA-SBR-6544/H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

Figure 1
Historical Development of
SANTA ANA CANYON IRRIGATION PROJECTS
San Bernardino County, California



SOURCE: HORNBECK AND BOTTS 1988:6 (FIGURE 1)

PSBR00544

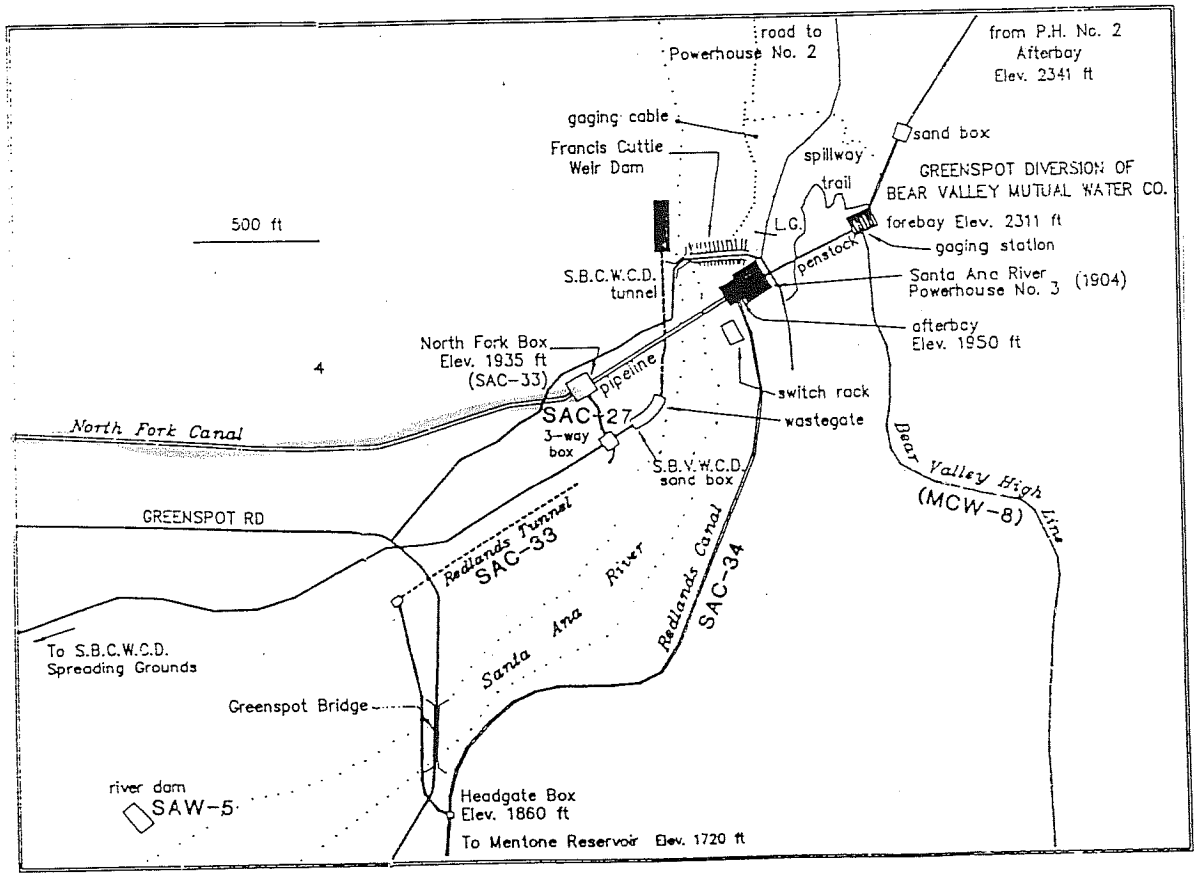
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544/H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
MAP

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H



SOURCE: HORNBECK AND BOTTS 1988:14 (FIGURE 2)

P36-000544

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
ARCHITECTURE INVENTORY/EVALUATION FORM

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

PSBR-11-H

ARCHITECTURAL INVENTORY/EVALUATION FORM

SAC-33 NORTH FORK CANAL/WEIR

___LISTED ___DETERMINED ELIGIBLE
___APPEARS ELIGIBLE ___APPEARS INELIGIBLE

IDENTIFICATION
1. Common name: NORTH FORK CANAL/WEIR
2. Historic name: SAME
3. Street or rural address: ____
City ____ Zip ____ County San Bernardino
4. Parcel number: ____
5. Present Owner: ? Address: ____
City ____ Zip ____ Ownership is: Public ____ Private ____
6. Present Use: Irrigation Original use: Same

DESCRIPTION
7a. Architectural style:
7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition:

This site consists of a weir box (33a) and a canal (33b) and is located at an elevation of 1,920 ft. amsl. The weir is situated along the east side of the road as it enters Santa Ana Canyon approximately 100 m southwest of the bridge (SAC-28). The canal is eight miles long and extends from the weir located on the west side of the mouth of Santa Ana Canyon. Originally, portions of the ditch were simply lined with boulders while other sections were cemented. Currently, the ditch remains in use and has been entirely channelized with concrete.

Attach Photo(s) Here

8. Construction date:
Estimated ____ Factual 1888
9. Architect ____
10. Builder ____
11. Approx. property size (in feet)
Frontage ____ Depth ____
or approx. acreage ____
12. Date(s) of enclosed photograph(s) ____

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Permanent Trinomial: CA-SBR-6544H

3 / 90
Mo. Yr.

ARCHEOLOGICAL SITE RECORD
ARCHITECTURE INVENTORY/EVALUATION FORM

Other Designation: SBd30/330-HA-01
Pending Site No. PSBR-11-H

13. Condition: Excellent ___ X Good ___ Fair ___ Deteriorated ___ No longer in existence ___

14. Alterations: General maintenance

15. Surroundings: (Check more than one if necessary) Open land ___ Scattered buildings X Density built-up ___
Residential ___ Industrial ___ Commercial ___ Other: ___

16. Threats to site: None known X Private development ___ Zoning ___ Vandalism ___
Public Works project ___ Other: ___

17. Is the structure: On its original site? X Moved? ___ Unknown? ___

18. Related features: Santa Ana Powerhouse No. 3 (SAC-26)

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

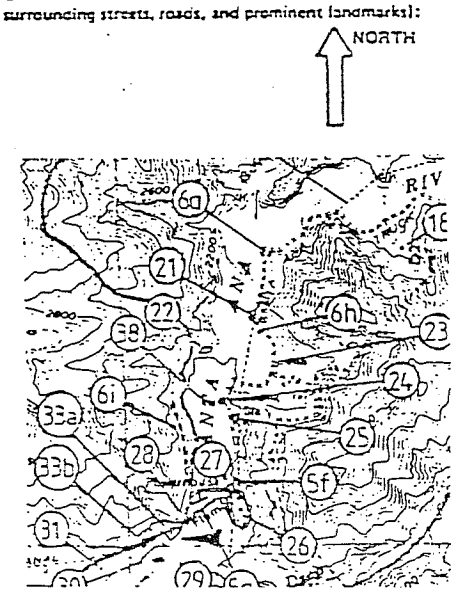
The North Fork Ditch was originally built in the 1860s. A new canal, built on higher ground, was completed by the North Fork Ditch Company in 1885. The company was formed by Frank Brown in 1883. George W. Beattie supervised the construction (1883-1885), employing a crew made up of 50 overseas Chinese, a number of exminers from Holcomb Valley, and a few Mexicans. The ditch was designed to distribute part of the Santa Ana River flow among citrus ranchers in the Highland area. The weir box was originally built of redwood but was washed-out in the flood of 1916. The present weir was built after the flood and has remained essentially the same since the 1916 construction.

20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture ___ Arts & Leisure ___
Economic/Industrial X Exploration/Settlement ___
Government ___ Military ___
Religion ___ Social/Education ___

21. Sources (List books, documents, surveys, personal interviews and their dates).
Beattie 1951
Hinckley 1985

22. Date form prepared January 8, 1986
By (name) John E. Williams
Organization ECOS
Address: 5300 Orange Ave., Suite 220
City Cypress, CA Zip 90630
Phone: (714)527-1130

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):



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P36-000504

ARCHITECTURAL INVENTORY/EVALUATION FORM

SAC-33 NORTH FORK CANAL/WEIR

___LISTED ___DETERMINED ELIGIBLE
___APPEARS ELIGIBLE ___APPEARS INELIGIBLE

IDENTIFICATION

1. Common name: NORTH FORK CANAL/WEIR
2. Historic name: SAME
3. Street or rural address: _____

City _____ Zip _____ County San Bernardino

4. Parcel number: _____
5. Present Owner: ? Address: _____

City _____ Zip _____ Ownership is: Public _____ Private _____

6. Present Use: Irrigation Original use: Same

DESCRIPTION

7a. Architectural style:

7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition:

This site consists of a weir box (33a) and a canal (33b) and is located at an elevation of 1,920 ft. amsl. The weir is situated along the east side of the road as it enters Santa Ana Canyon approximately 100 m southwest of the bridge (SAC-28). The canal is eight miles long and extends from the weir located on the west side of the mouth of Santa Ana Canyon. Originally, portions of the ditch were simply lined with boulders while other sections were cemented. Currently, the ditch remains in use and has been entirely channelized with concrete.

Attach Photo(s) Here

8. Construction date:
Estimated _____ Factual 1885

9. Architect _____

10. Builder _____

11. Approx. property size (in feet)
Frontage _____ Depth _____
or approx. acreage _____

12. Date(s) of enclosed photograph(s)

SBR-6544-H

13. Condition: Excellent ___ X Good ___ Fair ___ Deteriorated ___ No longer in existence ___

14. Alterations: General maintenance

15. Surroundings: (Check more than one if necessary) Open land ___ Scattered buildings X Densely built-up ___
Residential ___ Industrial ___ Commercial ___ Other: ___

16. Threats to site: None known X Private development ___ Zoning ___ Vandalism ___
Public Works project ___ Other: ___

17. Is the structure: On its original site? X Moved? ___ Unknown? ___

18. Related features: Santa Ana Powerhouse No. 3 (SAC-26)

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

The North Fork Ditch was originally built in the 1860s. A new canal, built on higher ground, was completed by the North Fork Ditch Company in 1885. The company was formed by Frank Brown in 1883. George W. Beattie supervised the construction (1883-1885), employing a crew made up of 50 overseas Chinese, a number of exminers from Holcomb Valley, and a few Mexicans. The ditch was designed to distribute part of the Santa Ana River flow among citrus ranchers in the Highland area. The weir box was originally built of redwood but was washed-out in the flood of 1916. The present weir was built after the flood and has remained essentially the same since the 1916 construction.

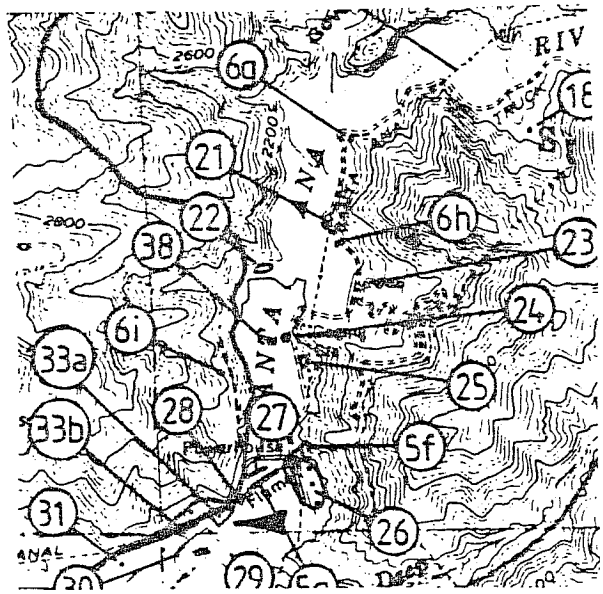
20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture ___ Arts & Leisure ___
Economic/Industrial X Exploration/Settlement ___
Government ___ Military ___
Religion ___ Social/Education ___

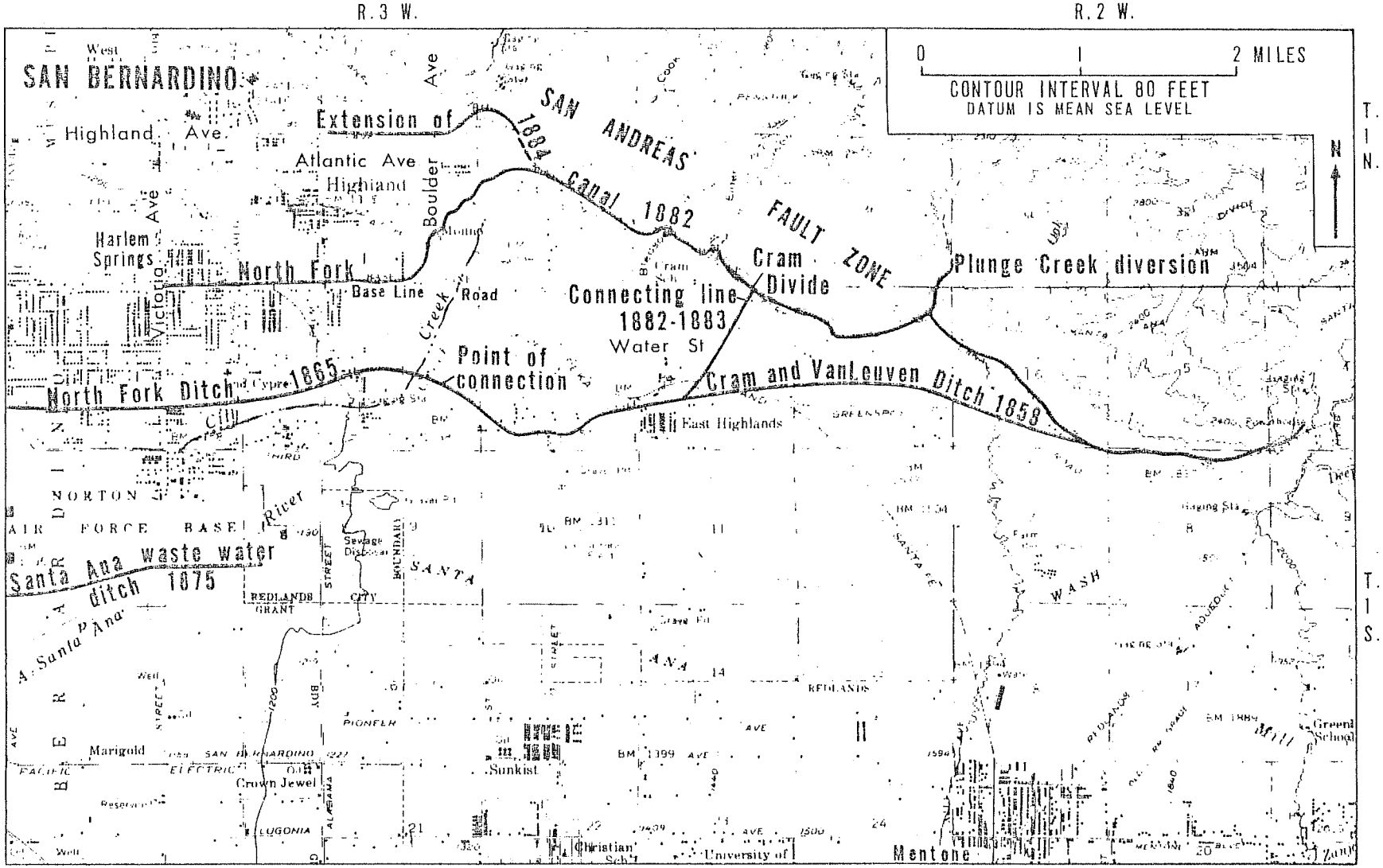
21. Sources (List books, documents, surveys, personal interviews and their dates).
Beattie 1951
Hinckley 1985

22. Date form prepared January 8, 1986
By (name) John E. Elliott
Organization FCOS
Address: 5300 Orange Ave., Suite 220
City Cypress, CA Zip 90630
Phone: 714/827-1180

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):

NORTH





Base from U.S. Geological Survey
Redlands 1954, 1:62,500

FIGURE 6.--Cram and Van Leuven ditch and North Fork Canal.

P36-006544

The owners of the North Fork ditch were dissatisfied with the commission's order; they claimed that the combined entitlement of the North Fork and Timber ditches should be divided equally between the two ditches. Furthermore, they were interested in maintaining their rights to use of the water, whereas the owners of Timber ditch were gradually selling their water rights to landowners on the south side of the Santa Ana River. The North Fork ditch owners pressed their case and on June 12, 1879, the two groups agreed to an equal division of water between the two ditches (Beattie, 1951, p. 4). That agreement was approved by the water commissioners. By this time, however, all Timber ditch water rights had been transferred to the Berry Roberts ditch (p. 22-25) and the Timber ditch was abandoned--probably about 1878 (Hall, 1888, p. 162-163).

With each passing year additional agricultural development took place in the San Bernardino Valley. In 1880 R. J. Cunningham, representing a number of Riverside investors, purchased a considerable acreage and North Fork water rights along City Creek, south of Harlem Springs (Beattie, 1951, p. 19). John Stone, one of Cunningham's clients, purchased rights to 43 hours of North Fork water through Cunningham and became the principal owner of the North Fork ditch. The land between Base Line Road and City Creek was planted to deciduous fruits and other crops, and by the second year most of the land was under cultivation.

A year earlier, in 1879, E. G. Judson and Frank E. Brown had become interested in the potential of the benchland above the Cram and Van Leuven and North Fork ditches for raising oranges, a crop with more value than the vegetables grown on the lowland (Beattie, 1951, p. 16). They purchased the claims of settlers living near Plunge Creek in sec. 35, T. 1 N., R. 3 W., and secured options on other parcels of land in the vicinity of sec. 35. To bring water to the benchland, Judson and Brown met several times with owners of the two ditches and offered to build a new high-line ditch for $1,000. The North Fork ditch owners opposed the plan, but by 1880, several owners of land on the bench had purchased lowland water rights and requested transfer of those rights to the benchland (Hall, 1888, p. 148). Judson and Brown and the owners of North Fork ditch rights signed an agreement, in the spring of 1881, for the construction of a high-line ditch to serve the benchlands.

North Fork Canal

Construction of the high-line ditch, known as the North Fork Canal, began in the autumn of 1881, and it was completed and in operation in April of the following year (Hall, 1888, p. 148). The North Fork Canal left the original Cram and Van Leuven ditch a short distance west of the east line of sec. 6, T. 1 S., R. 2 W., and followed the course shown in figure 6 to City Creek. To reach the area along Base Line Road, the canal crossed City Creek in a flume, then turned south, probably following along the route of the old City Creek-Base Line ditch of 1865. This route followed along Boulder Avenue to Base Line Road, then west to Victoria Avenue, as described later in the section of this report titled, "City Creek Water Company" (p. 107). Part of this route may be that followed by the present-day Snake ditch (fig. 41) that is

P36-00654A

currently used by the North Fork Water Co. After the completion of the North Fork Canal, the owners of the Cram and Van Leuven ditch built a connecting ditch in 1882-83 from their ditch to the North Fork Canal (Hall, 1888, p. 149). The approximate location of that connecting ditch is shown in figure 6.

The North Fork Canal was excavated through highly permeable material and was subject to considerable seepage loss and breaks throughout most of its length. To reduce water losses, Cunningham (p. 17) contracted to have the canal paved from the heading to about half a mile east of Plunge Creek--probably in 1882 (Beattie, 1951, p. 19). Many of the owners objected, but the work was completed and each owner paid his share. At about this time additional land was being purchased for agriculture north of Base Line Road and north of Highland Avenue. To meet the demand for more water it was necessary to enlarge and further pave part of the canal (figs. 7 and 8); to serve the area north of Highland Avenue it was necessary to build a new extension of the canal. (The route of the proposed extension is designated "Extension of 1884" in figure 6). After considerable discussion, the ditch owners agreed in the autumn of 1883 that the canal capacity should be increased to 1,500 miner's inches, and that the canal should tunnel through the San Andreas fault ridge east of City Creek. The canal would then cross City Creek (fig. 9) and continue west, on the south side of Highland Avenue, to its end at present-day Palm Avenue. The construction of a ditch to service the area north of Highland Avenue was to be left to the owners of that land. (See the section of this report titled, "West Highlands Water Co.," p. 33-34.)

FIGURE 7.--North Fork Canal east of Plunge Creek; enlarged and paved in 1883-84.

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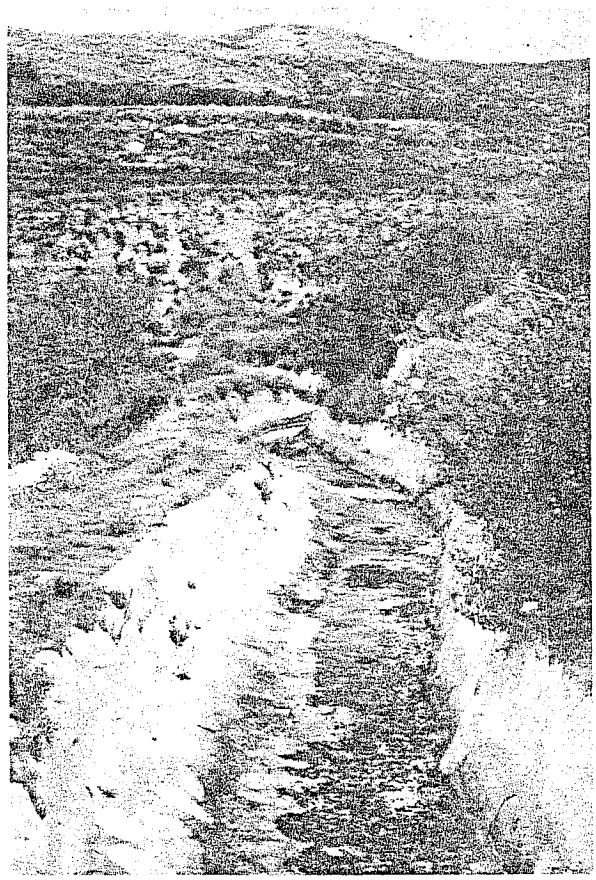


FIGURE 8.--North Fork Canal east of Plunge Creek crossing.

The first part of the construction that was completed was the tunnel and the extension of the canal along Highland Avenue. That completion date was January 1884 (Beattie, 1951, p. 21). By August 1885 all improvements had been completed with the help of the Bear Valley Land and Water Co., as described below.

On January 13, 1885, the owners of North Fork water rights incorporated under the name of North Fork Water Co. The owners of the Cram and Van Leuven ditch water rights were not included in the new company, but they continued their affiliation with the new company as joint owners of the upstream part of the North Fork Canal. An unusual feature of the incorporation of the North Fork Water Co. was that the individual owners granted their water rights to the company by a trust deed limiting their possession to a period of 12 years. Another provision required that the deed be signed by owners of three-fourths of the 240 hours or shares in the ditch before the incorporation could become effective.

P3U-00654

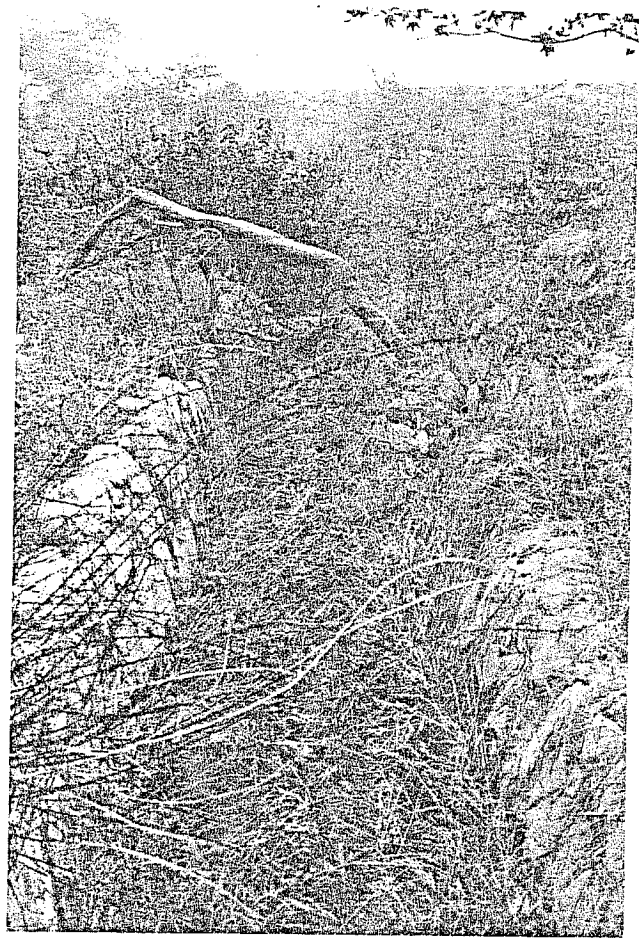


FIGURE 9.--North Fork Canal across City Creek; used 1884-1916.

The Bear Valley Land and Water Co.--an organization that developed about this time and one that is discussed later in this report--was given control of all the Santa Ana River water by the terms of an agreement, signed May 5, 1885, with the North Fork Water Co. and the owners of Cram and Van Leuven water rights. The North Fork Water Co. relinquished all rights to flow in excess of the following discharge rates: 500 miner's inches in June; 450 miner's inches in October; 400 miner's inches in November; 600 miner's inches in any of the first four months of the year, provided the sum of the four monthly deliveries did not exceed 2,250 miner's inches. During the remaining 5 months of the year, one-fourth of the supply at the diversion point, exclusive of additional supply contributed by a new reservoir on Bear Creek, was to be delivered to the owners of North Fork and Cram and Van Leuven water rights. (The disposition of the Cram and Van Leuven water rights is discussed in later paragraphs.)

P36-001634

The Bear Valley Land and Water Co. purchased a half-interest in the North Fork Canal and joined with the North Fork Water Co. in enlarging and paving the canal, making it capable of conveying 1,500 miner's inches of water. Each company paid half the cost, and each agreed to pay half of future maintenance costs.

Both companies benefited from the agreement. The North Fork Water Co. secured a water supply of 500-600 miner's inches during two or three months of heavy demand in each year, regardless of the total flow in the stream, although they might receive less water than before in some of the other months. In addition, the reduction of water losses brought about by the improvement of the canal, insured increased water deliveries, so that nearly 50 percent more acreage could be irrigated. The Bear Valley Land and Water Co., by obtaining control of the surplus flow in the canal for supplying its customers, reduced its dependence on water stored in the new reservoir on Bear Creek. By having control of the operation of the entire system, the company eliminated many possible conflicts among the water users. Furthermore, the company had the cooperation of the North Fork Water Co. in enlarging and maintaining one of the principal canals for the delivery of its water.

The owners of Cram and Van Leuven water rights incorporated as a separate company in February 1890 (Beattie, 1951, p. 28) and continued to operate as a separate company for the next 35 years. As mentioned on page 19, the Cram and Van Leuven people owned an interest in the upstream part of the North Fork Canal--that part upstream from Cram Divide (fig. 6)--but their water could not be carried in the canal beyond Cram Divide. That meant that owners of Cram and Van Leuven water rights who had purchased land on the bench beyond the divide could not deliver water to their property. As early as 1884 one of those property owners had requested permission to deliver water to his property, but it was 1891 before the first of such requests was granted for a fee (Beattie, 1951, p. 28).

Owners of Cram and Van Leuven water rights merged their interests with the North Fork Water Co. in March 1925 (Beattie, 1951, p. 29). Cram and Van Leuven stock was transferred to the North Fork Water Co., and in exchange, the owners of that stock received North Fork Water Co. certificates giving them the right to a quantity of water equivalent to the value of their certificates.

Since 1891 water has been conveyed from the downstream end of the North Fork Canal to Highland ditch (fig. 11), to serve the area of West Highlands. (Highland ditch is discussed in a later section of this report on pages 33-34.) In recent years there have been many changes in land use in the North Fork Canal-Highland ditch service area. Some of the land formerly irrigated for agriculture has now been urbanized, and land that was previously undeveloped has been placed under irrigation. The net result, however, has been that the acreage irrigated has changed only slightly in the last 30 years (oral commun., North Fork Water Co., 1967).

The use of ground water has been ever-increasing in the San Bernardino Valley, and during dry years the diversion from the Santa Ana River is supplemented by water from wells. In addition, water is diverted from the mouth of Plunge Creek and released to the North Fork Canal (fig. 6).

From Report 88-3.5

SBR-6544H

2:

IRRIGATION SYSTEMS FOR AGRICULTURAL LAND ON THE NORTH SIDE OF THE SANTA ANA RIVER

Cram and Van Leuven Ditch (1858)

The earliest of the irrigation systems emerging from Santa Ana Canyon was the Cram and Van Leuven Ditch. Prior to the digging of this ditch by Lewis Cram and his brothers and Frederick Van Leuven and his sons, all other ditches had their intake in the Santa Ana River, well below the mouth of the Upper Santa Ana River, outside the scope of this study (Figure 1). This was the first ditch to begin at the Santa Ana Canyon mouth, thereby reducing water lost across the alluvial fan due to percolation and evaporation. The ditch led from the canyon to Cram and Van Leuven lands at the base of East Highlands Mesa and continued west to City Creek wash in San Bernardino (Beattie 1951:3). Conflicts over water rights developed in August 1860 with a lawsuit being filed by Timber and North Fork Ditch owners (irrigation ditches located eight miles below Upper Santa Ana Canyon mouth). The case was settled in 1861 with the recognition of the right of Cram and Van Leuven to one-sixth of the flow of the river at the canyon mouth. This decision represented the first water rights dispute in the Upper Santa Ana River to be adjudicated by the courts (Beattie 1951:4).

The flood of 1862 reworked the river channel to such an extent that both downstream ditches, especially North Fork, were left largely useless. In 1865, the North Fork shareholders petitioned the owners of the Cram and Van Leuven ditch for permission to enlarge the Cram and Van Leuven ditch to carry the North Fork water (Beattie 1951:6). Consent was given for this arrangement as it was distinctly advantageous to both groups. The North Fork users would lose less water through riverbed seepage and Cram and Van Leuven water right holders would gain from the greater water flow through the joint canal. The ditch was enlarged and lengthened to reach North Fork lands. Nothing of the ditch remains today.

North Fork Ditch (1885-Present): SAC-33

By the early 1880s, water shareholders in the Cram and Van Leuven and North Fork ditches were limited to irrigating relatively low quality land on the edge of the Santa Ana River. The construction of a new canal at a higher elevation (highline) along the rugged base of the San Bernardino Mountains would maximize the potential acres which could receive irrigation water. A new canal would allow water to be carried onto the "benchlands" or mesas where oranges, a high value crop, could be grown. The North Fork Ditch represents the capital-intensive projects which were undertaken during the real estate boom of the 1880s.

P36-006544

In 1881, construction began on the new ditch. For about the first 10,000 feet beyond the regulator gate, the canal followed the Cram and Van Leuven ditch of 1859 with a slope of 150 to 200 feet per mile. "The channel is excavated in the gravel and bowlder [sic] bed of the canyon, and then paved with small bowlders on sides and bottom and cemented" (Hall 1888:135). This portion of the canal was later reexcavated, enlarged, and relocated where necessary in the winter of 1887-1888 (Hall 1888). The new portion began at a point on the Cram and Van Leuven North Fork Ditch just above Oak Canyon. At the Cram and Van Leuven Divide a connecting ditch was constructed to carry water into the old ditch (Beattie 1951:18). Proceeding from this point the new highline ditch was constructed along the contours of the mountain slope with flumes constructed over the gullies.

The California State Engineer, when describing the project in his 1888 report, noted that the canal construction consisted of an excavated depression with canal lining consisting of granite boulders with interstices filled and chinked, and the surfaces smoothed with cement. Flumes were constructed of redwood planking, usually in two-inch thicknesses (Hall 1888:137). Little provision had been made for cross drainage as it was considered cheaper to pay laborers to repair or clean the ditch (Hall 1888).

The North Fork Ditch as originally conceived was to end at the Highlands settlement. By 1883, many individuals wished to have the North Fork extended farther west. In the fall of 1883 work began to expand the canal to 1500 miner's inches and extend the ditch across City Creek to a terminus at Highland and Palm Avenues (Beattie 1951:20). To complete the lower end of the canal, W. H. Randall, who had experience in rock construction gained in the silver mines of Virginia City, Nevada, was hired as foreman and paid five dollars a day. His section of the ditch was completed in January 1894. Mr. Beattie supervised 50 Chinese laborers, 25 Anglo workers, and a few Mexican laborers, who completed the work on the upper section by August 1894 (Beattie 1951). The canal spanned a total of eight miles from the mouth of Santa Ana Canyon to its terminus in San Bernardino. Canal maintenance and zanjero expenses by agreement between Bear Valley Company and the North Fork Water Company were to be shared equally. The agreement signed on May 23, 1885 remains in effect today (H. Hinckley 1983:38-39).

Several significant changes have occurred in the North Fork Ditch since its initial completion and continue to the present (H. Hinckley 1983).

1. In 1916, the trestle section of the North Fork Ditch crossing City Creek was moved 1/4 mile north. In 1946, this trestle was replaced by a 30-inch concrete siphon.

2. In 1931, a 1/2-mile section of the canal near Oak Creek was first routed through a tunnel (now abandoned) and later replaced by a 30-inch pipe. This previously open section of canal had been plagued by mud and debris slides.

P930-006544

3. Until the 1938 flood, all North Fork and San Bernardino County Water Conservation District spreading ground water was carried across the Santa Ana River in a wooden flume on a trestle. The water flowed into an open pool where water specified for the North Fork Ditch was transported by a tunnel to the North Fork Weir. After the flood this flume was replaced by a 55-inch pipe. In 1946, a 30-inch pipe was connected to the larger pipe to carry the water directly to the North Fork Weir. The 30-inch pipe was replaced in 1971 with 34-inch pipe.

4. In 1954, other troublesome sections totaling 1450 feet were replaced with 27-inch and a 30-inch concrete pipe.

5. In 1977, the State Water Project was tied into the North Fork Ditch 3/4 of a mile downstream from the North Fork Weir via the San Bernardino Valley Municipal Water District Foothill Feeder.

Highland Canal (1888)

In 1888, land owners located west of the North Fork Ditch along the base of the mountains formed the Highland Ditch Corporation to build a canal to irrigate the lands above Highland Avenue (Beattie 1951:28). A 2 1/8-mile long canal was constructed connecting into the North Fork Ditch in East Highlands. The Highland Canal crosses City Creek and several other channels on flumes and flows through two tunnels, one 1200 feet in length and the other 500 feet long (Hall 1888:142-143). Later, a 20-inch steel pipeline carried water another four miles to the west side of San Bernardino but this pipeline was abandoned in 1941 (E. Hinckley 1951:41). Sections of the ditch vacated in 1965 and 1978 are visible (E. Hinckley 1951). Today, only a single stockholder of Bear Valley Mutual Water Company gets water delivered through remaining parts of the system (H. Hinckley 1983).

From Forest 88-3.5

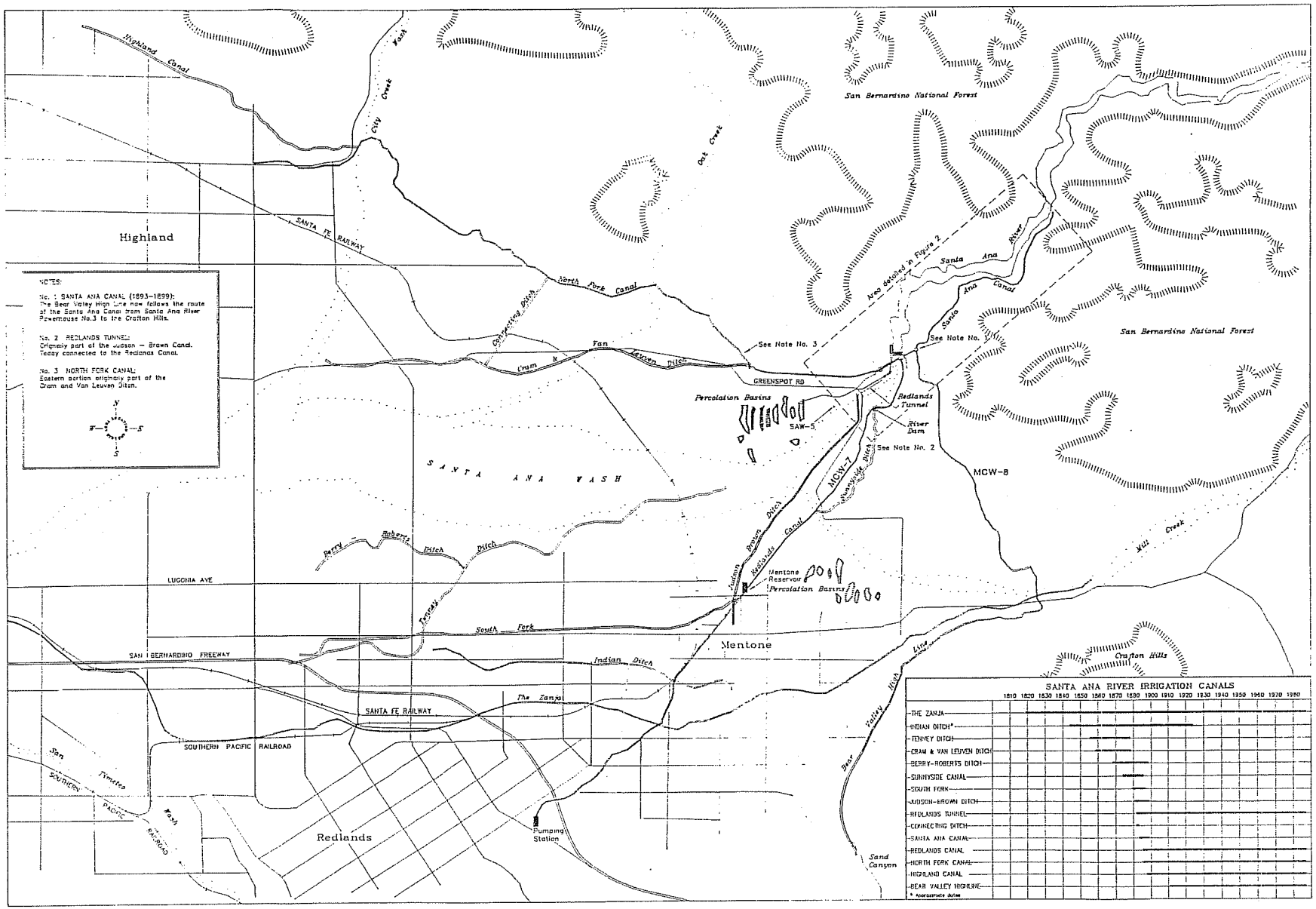
6

Figure 1

Historical Development of

SANTA ANA CANYON IRRIGATION PROJECTS

San Bernardino County, California



Prepared for Greenwood & Assoc.
by Area Location Systems
Northridge, California
(818) 993-4275 97-04 12/87

From Report 38-3.5

SAR-60.III
P36-006344

remains at this site is a cobble-lined ditch, concrete footing and a nearby concrete tank. This structure was probably typical of many diversion works constructed between 1909 and 1930, prior to the building of the permanent Francis Cuttle Weir. Diversion dams and culverts were built to direct the flood and surplus river water to the spreading grounds. Utilizing local material and cheap labor these structures were not designed to be permanent. A berm and two tunnels were located in the area. The berm is a levy constructed in 1969 as an emergency measure following heavy floods that year. The two tunnels are old diversion headgates used in conjunction with the spreading grounds. No dates were available for when the tunnels were built or used (Hiltgen, personal communication 1987).

North Fork Weir: SAC-33

The weir was described by Hall in 1880 as a low rock dam which extended out into the river channel. Its purpose was to hold water an even elevation against the headgate of the North Fork Ditch entrance tunnel, with surplus water allowed to flow over the weir and back into the river channel (Hall 1888:134-135). Today the site consists of a weir box and canal located about one-half mile above the canyon mouth at an elevation of 1920' AMSL (Figure 2). The present weir box was built after the flood of 1916, replacing the original redwood box (Brock et al. 1986:83).

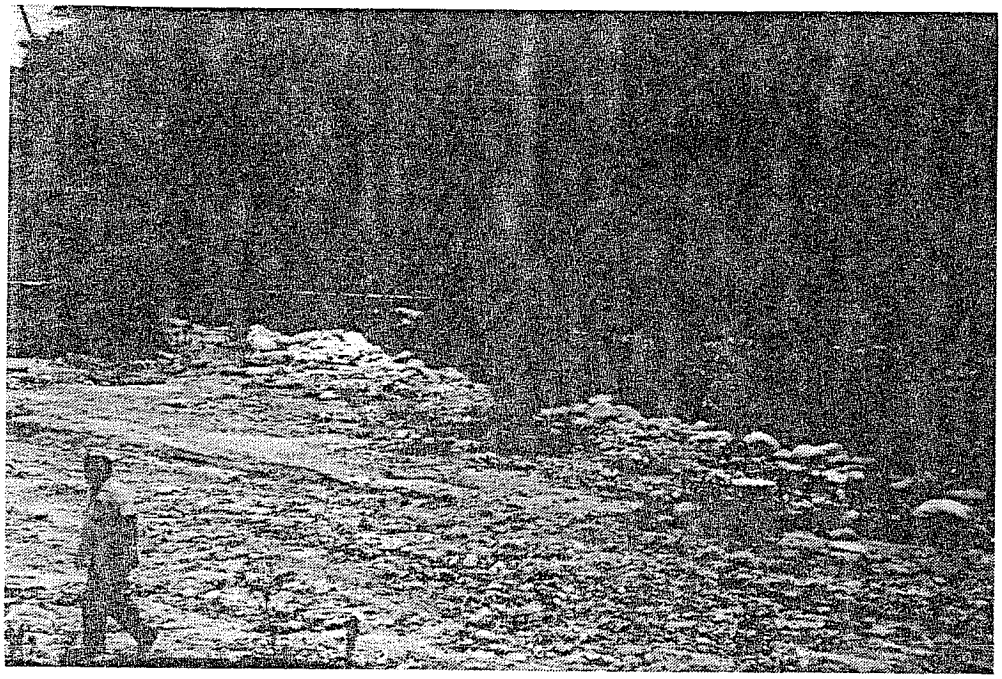
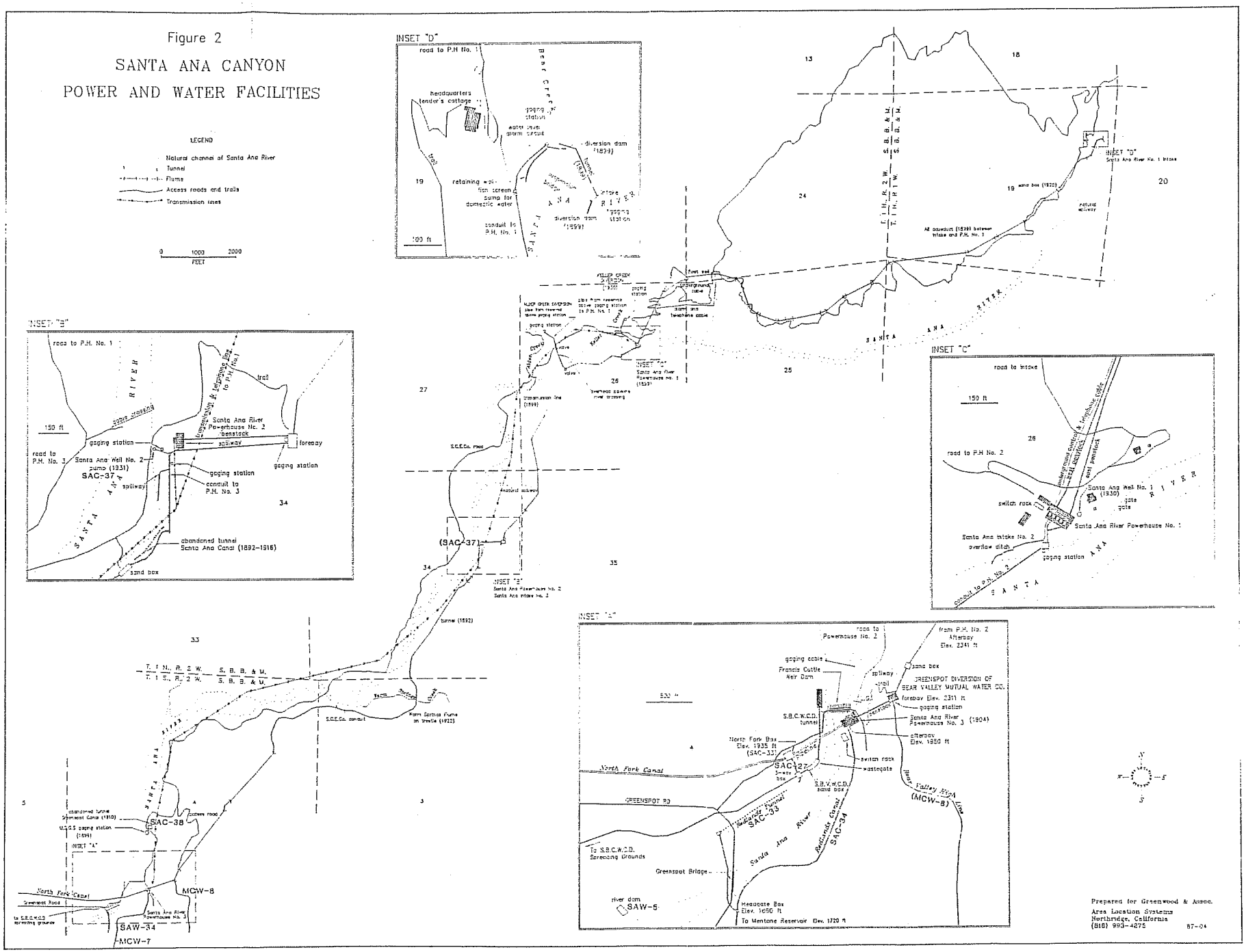


Figure 5. Alder Creek Pipeline across the Santa Ana River. Connected into the tunnel between SAR 1 and SAR 2. (Photograph by H. Botts.)

Figure 2

SANTA ANA CANYON

POWER AND WATER FACILITIES



From Report 81-5.7
SBC-6544H

aboriginal society had been disrupted by missionization and the resultant changes in land tenure to such an extent that it never really returned to its former state. Following a period of Mexican cattle ranches in the 1840's and the development of the valley by the Mormons in the 1850's, the beginnings of American agricultural development came, including the citrus industry and the development of irrigation systems, two areas of historical interest which are directly tied to the cultural resources of the East Highland Ranch area.

The first irrigation ditch to be built through the study area was known as the Cram-Van Leuven Ditch, since it was built by members of those two pioneer families to bring water to their lands from the Santa Ana River. This ditch was first dug in 1858, and ran from the mouth of the Santa Ana Canyon to their lands at the base of what is today known as the East Highlands bench (Beattie 1951:3). The Cram-Van Leuven Ditch crossed the southwestern portion of the project site, following a route south of the Santa Ana Canyon Road and passing through the present townsite of East Highlands before ending east of the City Creek Wash, approximately on what is now East Third Street.

There had earlier, in 1856, been a ditch called the North Fork Ditch which was downstream 8 miles from the Cram-Van Leuven Ditch, and which directed water from the river to a community called the City Creek Settlement, since it was located on the bank of City Creek, approximately on today's Sixth Street between Waterman and Sterling Avenues. When the river flooded in 1862, it ruined the intake of that ditch and so the people of the City Creek Settlement asked the Crams and Van Leuvens for permission to enlarge their ditch and extend it to serve City Creek area (Beattie 1951:6, Wright 1981).

In 1879, Redlands developers Judson and Brown became interested in the

T-06-0005-44

undeveloped lands north of the river on the East Highlands Bench. They saw opportunities for profit by moving the Cram-Van Leuven/North Fork Ditch from the base of the bench to a line higher up on the bench, and then developing the resultant acres which could then be watered. They secured possessory rights in Section 35, which was later to be the center of the East Highlands Ranch, and secured options on other lands in the region. Then they contracted to build the new high-line ditch for $1,000. The Beatties also bought in for 1/3 and so paid $333. This new ditch would open up an area which would be suitable for growing oranges, and all were enthusiastic about the possibilities. In the following years, there were many problems in constructing the ditch, but it was finally finished in its present location by 1885. It now forms the southern boundary for a large portion of the project site, and passes through the project site in the Southwest Quarter of Section 35. Originally it was a mere dirt ditch with redwood flumes where necessary, but by the time it was finished, it had been paved with rock and concrete, utilizing Chinese labor. The new high-line ditch became known and is today still known as the North Fork Ditch or Canal. The North Fork Water Company was incorporated in February of 1885 and the ditch was completed in time for the August irrigation (Beattie 1951:16-23).

It was during this period that J. S. Edwards came on the scene in East HIghlands. He was ~~apparently involved in surveying the route of the North Fork Ditch, and~~ was one of the first buyers in the new town of Redlands, which had been laid out by Judson and Brown. When they decided to turn all their interests into developing Redlands, Edwards moved to buy Section 35 in East Highlands, which was Railroad land owned by Southern Pacific. The sale was made in two parcels, and occurred in 1887. This sale was the beginning of the East Highlands

F04-0006314

Orange Company. Less than a month later, Edwards (and a financial partner named Mr. Chamblin) bought 206 acres in the West Half of Section 2 from members of the Van Leuven family. This parcel was probably the first planted to orange trees and most likely has some of the oldest rock work on the ranch. The first reference to the Plunge Creek Ditch also comes in 1887, apparently developed by the seller of the property in the NE 1/4 of the NE 1/4 of Section 2, a Mr. William McCombie. From the beginning of his development of the East Highland Ranch, J. S. Edwards continued to move to acquire Plunge Creek water rights and devise more ways of watering the higher lands he had bought. He devised miles of pipelines and tunnels to bring water from small streams to central points, from where it was distributed through the groves by means of an elaborate system of flumes and drains.

From the 1890's through 1939 when he died, the story of the East Highland Ranch is one of continual acquisition and development of water rights and ditches, terracing and planting of orange groves, and borrowing money to finance the operations (Jennings 1967).

Description of Resources:

Prehistoric Cultural Resources

Because of ethnographic references to an Indian rancheria named Korputat Aki which was formerly located where the East Highland Reservoir is now, and some scattered finds of isolated artifacts in the general area, there is reason to believe that prehistoric cultural resources are present on the project site. However, nearly a century of major disturbance from agricutural practices leave little hope that there is anything in the way of an intact cultural deposit yet

From Report 81-5.7

P86-006544

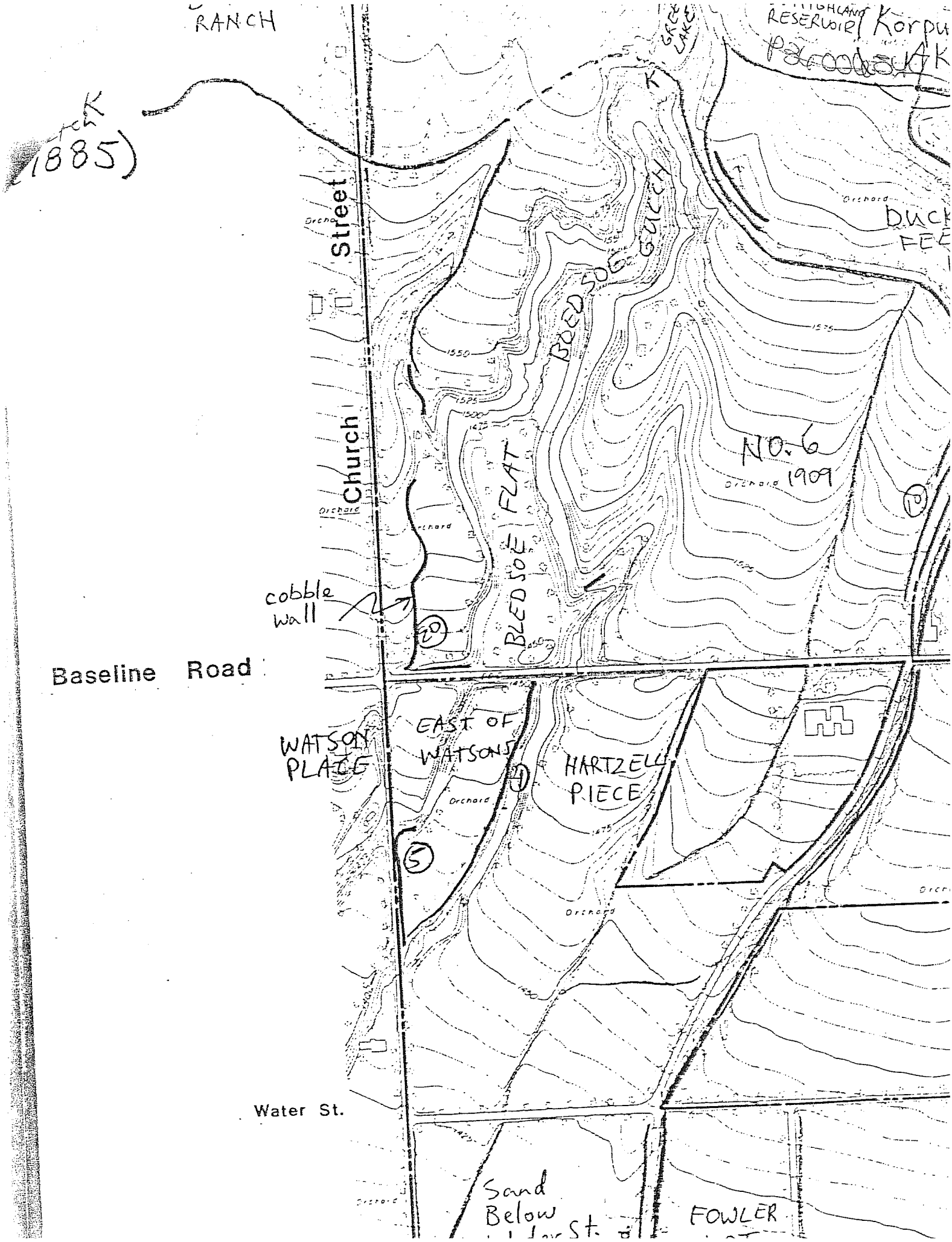
Feature J may be of similiar age. It is an open well with a stone lined casing which is at least 100 feet deep.

K. North Fork Ditch Trestle over Bledsoe Gulch. A trestle to carry the North Fork Ditch over Bledsoe Gulch was first built as early as 1881 by Judson, Brown, and the Beattie family. The first trestle was made of wood and was located farther downstream than the present one. This first trestle was 125 feet high and had just been built with yet no guy lines when a strong November north wind blew it down and broke it to pieces. Judson and Brown salvaged what they could and moved it to the present location where it didn't require so high a crossing. The trestle gains historical mention again in 1902 when the North Fork Water Company grew concerned that the dam which the East Highland Orange Company was building directly under the wooden trestle would weaken it. The Water Company brought a suit which was settled by the Orange Company agreeing to pay $1,000 so the the trestle could be strengthened with steel. The Orange Company agreed that the dirt at the top of the dam, which formed what is known as "Green Lake," would not come closer than five feet to the trestle.

L. The Hamilton House. This house is said to be built using the same load of wood used to build the first Cram School in 1919. An earlier structure was here during the 1890's and early 1900's which was torn down but part may have been salvaged for other uses. An interesting feature of the Hamilton house is that an irrigation flume is built right into the west wall of the rock foundation.

M. This house was probably built about 1920 and was the home of B. F. Edwards, the father of J. S. Edwards.

N. This house was built in 1922 and was the home of Russell Edwards, the son of J. S. Edwards.


RANCH
(1885)
RESERVOIR
Korpu
Street
Church
BLED SOE GULCH
BLED SOE FLAT
NO. 6
1909
cobble wall
Baseline Road
WATSON PLACE
EAST OF WATSONS
HARTZELL PIECE
Water St.
Sand Below
FOWLER

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #: P36-006848
HRI#/Trinomial: CA-SBR-6848H (UPDATE)

*Resource Name or Number (Assigned by recorder): CA-SBR-6848H
*Recorded by: ECORP Consulting, Inc. *Date: 3/9/2006 ☐ Continuation ☒ Update

This historic archaeological site, consisting of a segment of the Cram-Van Leuven Ditch, was originally recorded in 1993 during a cultural resources survey conducted by Gallegos and Associates. At that time, the ditch was found to be an unlined excavation with a central deeper area and shallower terraces on each side. It was measured at 30 feet wide and 10 feet deep, overall (Eighmey et al. 1993).

During a cultural resources survey conducted in March, 2006 by Ecorp Consulting, Inc. for a proposed residential development, this segment of the ditch was field checked and found to be consistent with the description of the original recorders. However, the ditch is irregular in width and depth, varying from approximately 75 feet wide and 10 feet deep at the eastern end of the segment, to 30 feet or less wide and 5 feet deep farther west. At its west end, the ditch terminates where it is interrupted by a modern concrete flood control channel that runs north-south. Approximately 1,115 feet west of this point, the ditch is completely filled with soil and no longer exists for a distance of approximately 840 feet, where it reemerges again as an open ditch and continues to the west. In the areas where it is still open, the ditch is strewn with boulders and overgrown with shrubs and grass.

References

Eighmey, Jim, Ivan Strudwick, Roxana Phillips, Petei McHenry, John Boughton, and Russell Collett
1993 Archaeological Site Record, Site CA-SBR-6848H, the Cram-Van Leuven Ditch. On file at the San Bernardino Archaeological Information Center, Redlands, California.

Mason, Roger D. and Cary D. Cotterman
2006 *Cultural Resources Survey Report for the Heather Glen Project, City of Highland, San Bernardino County, California.* Prepared by ECORP Consulting, Santa Ana, California. Prepared for North American Residential Communities, San Dimas, California.

Cram-Van Leuven Ditch (CA-SBR-6848H), view toward west, 3/9/2006. Photo no. 27.

* Required information

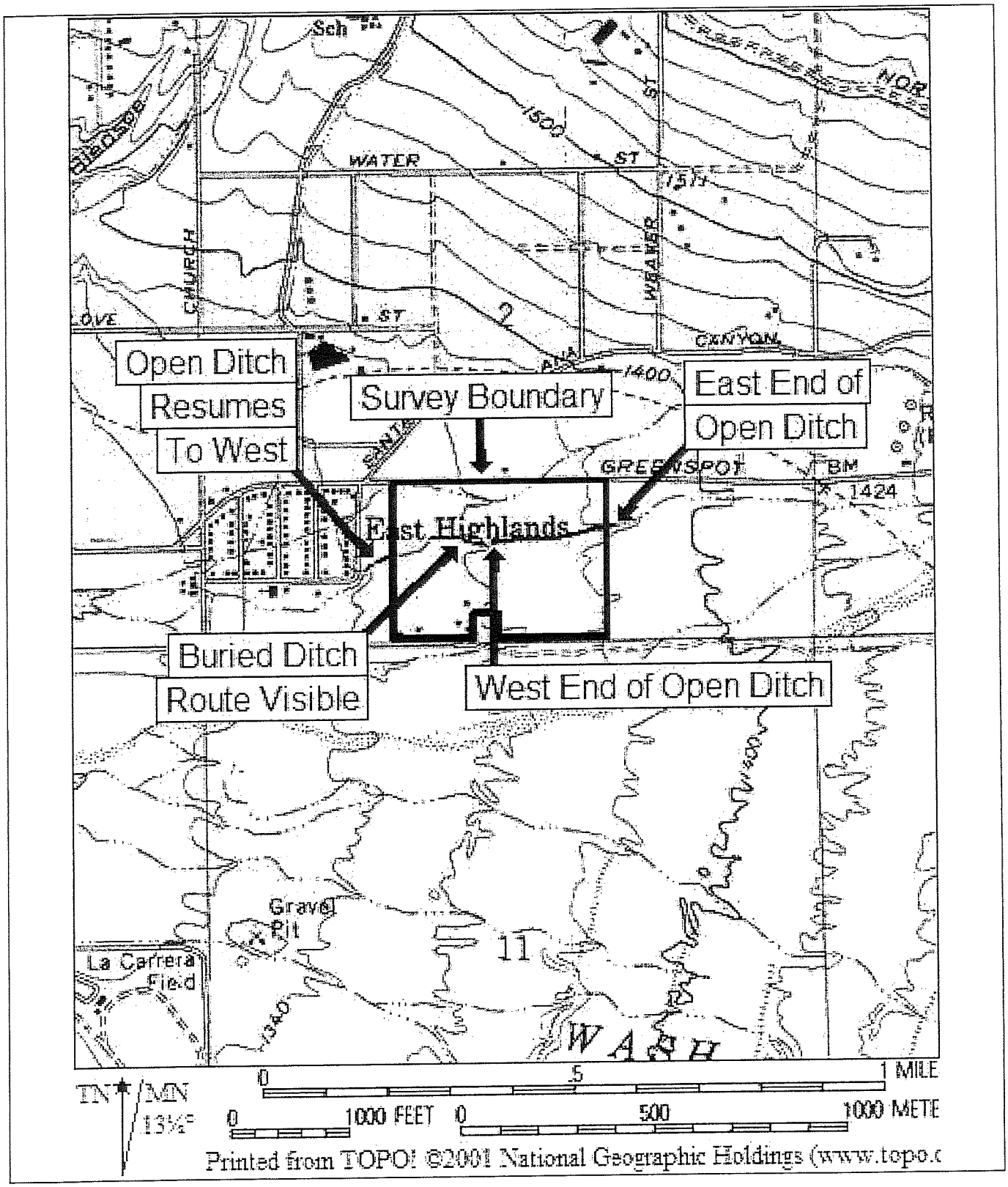
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP (Enlarged)

Primary #: P36-006848
HRI#
Trinomial: CA-SBR-6848H (UPDATE)

Page 2 of 3
*Map Name: Redlands, Calif.

*Resource Name or Number (Assigned by recorder): Cram-Van Leuven Ditch
*Scale: Enlarged from 1:24,000
*Date of Map: 1996



DPR 523J (1/95)

* Required information

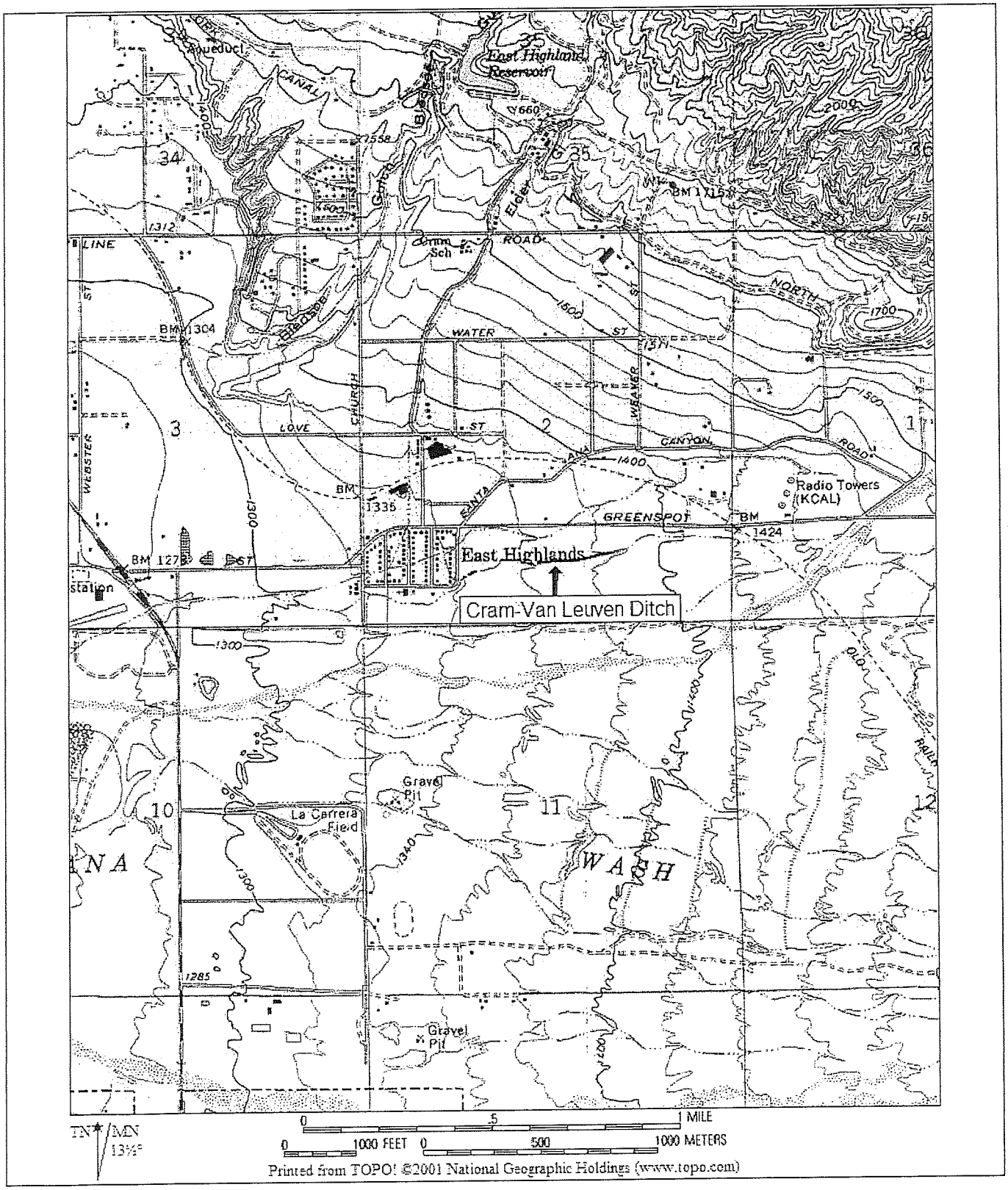
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #: P36-006848
HRI#
Trinomial: CA-SBR-6848H (UPDATE)

Page 3 of 3
*Map Name: Redlands, Calif.

*Resource Name or Number (Assigned by recorder): Cram-Van Leuven Ditch
*Scale: 1:24,000
*Date of Map: 1996



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DPR 523J (1/95)

* Required information

-P36-006078

1063

State of California - The Resources Agency

DEPARTMENT OF PARKS AND RECREATION

ARCHAEOLOGICAL SITE RECORD

UPDATE

Permanent Trinomial: CA-SBR-6848H.

Temporary Number:_____.

Additional Designation:_____.

Agency Designation:_____.

1. County: San Bernardino.
2. USGS Quad: Redlands (7.5') 1967 (15') _____ Photorevised 1988.
3. UTM Coordinates: Zone 11 / 485180 Easting / 3774040 Northing Eastern Boundary/ 484720 /Easting / 3773940 Northing West Boundary( ).
4. Township: 1S Range: 3W; SE of the SW to SW of the SE 1/4s of Section 2 .
   Base (Mer) SB ( ).
5. Map Coordinates: 7.4 to 7.8 mm S, 34.5 to 32.5 mm E (from NW corner of map)
6. Elevation: 1360-1380 ft .
7. Location: Ditch is located approximately 200 feet south of Greenspot Road and exits approximately 600 feet south of Greenspot Road along 1700 feet of project area, and approximately four and one-half miles east of Highway 30 in the East Highlands area .
8. Prehistoric ___ Historic XX Protohistoric ____ .
9. Site Description: This irrigation ditch was originally excavated in 1858 and was named the Cram-Van Leuven Ditch after the two families responsible for providing the first i rrigation waters to the East Highlands area. .
10. Area: 16-30 m (N/S width) x 518 m (E/W length) ____ m^2 .
    Method of Determination: tape .
11. Depth: 1.3 to 3.1 m .
    Method of Determination: tape.
12. Features: The ditch itself is the only feature.
13. Artifacts: N/A .
14. Non-Artifactual Constituents: N/A .
15. Date Updated: March 10, 1993 .
16. Updated By: Jim Eighmey, Ivan Strudwick, Roxana Phillips, Petei McHenry, John Boughton, and Russell Collett .
17. Affiliation and Address: Gallegos and Associates, 2227 Faraday, Suite C, Carlsbad, CA 92008.

32. References: Cultural Resource Survey Report for the Concordia Homes Project, County of San Bernardino, California, Gallegos & Associates, March 1993.
33. Name of Project: Concordia Homes Cultural Resource Survey .

36. Photos: Yes Taken By: Petei McHenry.
37. Photo Accession Number: 2-93 On File At: Gallegos & Associates

PBL 006848

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

FEATURE RECORD

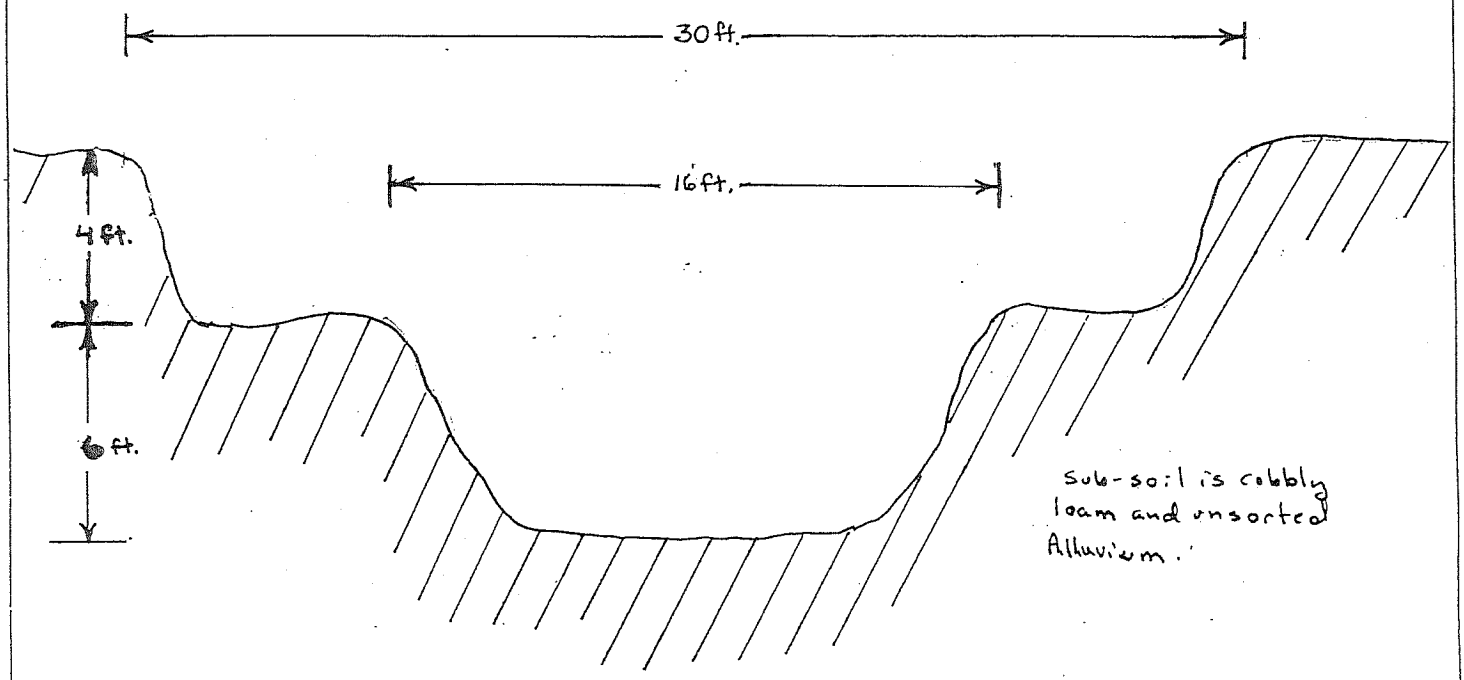
Permanent Trinomial: _____ / _____ (mo.. yr.)

Temporary Number: CA - SBR - 6848 H

Page _____ of _____.

Agency Designation: _____

Type of Feature: Irrigation Ditch circa 1860's



Cross-section of Cram-Vanheuven Ditch

Construction Notes: The Ditch is unlined and somewhat irregular in cross-section. The path of the ditch is not linear, but appears to move irregularly from the North-east to the south-west accross the project area. A series of trash dumps, some dating to the 1800's, are located nearby. No formal camps or dumps that can be directly tied to the construction of the ditch were noted. No dams or diversion structures were found within this section.

DPR 422D (Rev. 8/82)

P36-006848

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARCHEOLOGICAL SITE RECORD

Permanent Trinomial: CA-SBR-6848H Supplement XX

Temporary Number:

Agency Designation:

1. County: San Bernardino

2. USGS Quad: Redlands (7.5') XXXXXX (15') TO EASTERN END Photorevised 1988

3. UTM Coordinates: Zone 11 / 486120 Easting / 3774100 Northing ( )

4. Township 1S Range 3W ---- ¼ of ---- ¼ of N½ ¼ of SW ¼ of Section 1 Base (Mer) SBBM ( )

5. Map Coordinates: 73 (TO EASTERN END) mmS 376 mmE (from NW corner of map) 6. Elevation 1424'

7. Location: This portion of the canal is located south of Greenspot Road, west of Plunge Creek and East of Weaver Street; identified on the USGS map as a blue line water course. ( )

8. Prehistoric ____ Historic XXXXX Protohistoric ____ 9. Site Description: Irrigation Canal tentatively identified as the Cram & Van Leuven Ditch (ca. 1858), though there is a possibility that this designation is erroneous. Maps for the Cram and Van Leuven Ditch indicate that it was north of Greenspot Road in this area. ( )

10. Area: 4m m(length) x ++ m(width) ____ m^2. Method of Determination: visual inspection ( )

11. Depth: varies cm Method of Determination: visual inspection ( )

12. Features: singel canal identified approximately 300 meters west of Plunge Creek (eastern extents destroyed) and consisting of a single elongated depression winding through the N½ of SW¼ (Section 1) ( )

13. Artifacts: modern materials impacting eastern portion of feature; other materials possibly buried. ( )

14. Non-Artifactual Constitutients: N.A. ( )

15. Date Recorded: May 29, 1992 16. Recorded By: Jeanette A. McKenna ( )

17. Affiliation and Address: McKenna et al., Whittier CA 90601 (310) 696-3852 ( )

P36-006848

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
ARCHEOLOGICAL SITE RECORD
DPD-OEA-003B (01/90)

Permanent Trinomial: CA-SBR-6848H / June 1992 (mo / yr.)

Temporary Number:

Agency Designation:

18. Human Remains: none observed ( )

19. Site Integrity: portions impacted; portions destroyed; portions intact ( )

20. Nearest Water (type, distance and direction): Plunge Creek immediately to east

21. Largest Body of Water within 1 km (type, distance and direction): N.A. ( )

22. Vegetation Community (site vicinity): coastal scrub (Plant List ( )) ( )

23. Vegetation Community (on site): coastal scrub w/some intrusive trees (Plant List ( )) ( )

References for above: Munz 1977 ( )

24. Site Soil: sansy loam/cobbles ( ) 25. Surrounding Soil: sany loam/cobbles ( )

26. Geology: foothills ( ) 27. Landform: drainage floodplain ( )

28. Slope: slight to southwest ( ) 29. Exposure: open ( )

30. Landowner(s) (and/or tenants) and Address: unknown ( )

31. Remarks: Site was described by Greenwood & Associates as C & VL Ditch, but may be a privately developed ditch ... additional research recommended. ( )

32. References: McKenna 1992 ( )

33. Name of Project: Greenspot Road Pipeline Project (Water District) ( )

34. Type of Investigation: Phase I survey and archaeological monitoring program

35. Site Accession Number: N.A. Curated At: N.A. ( )

36. Photos: on file, McKenna et al. Taken By: Jeanette A. McKenna ( )

37. Photo Accession Number: N.A. On File At: McKenna et al., Whittier CA ( )

P36-006848

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

ARCHEOLOGICAL SITE LOCATION MAP

Page 3 of 3.

Permanent Trinomial: CA-SBR-6848H / June 1992 (mo. yr.)

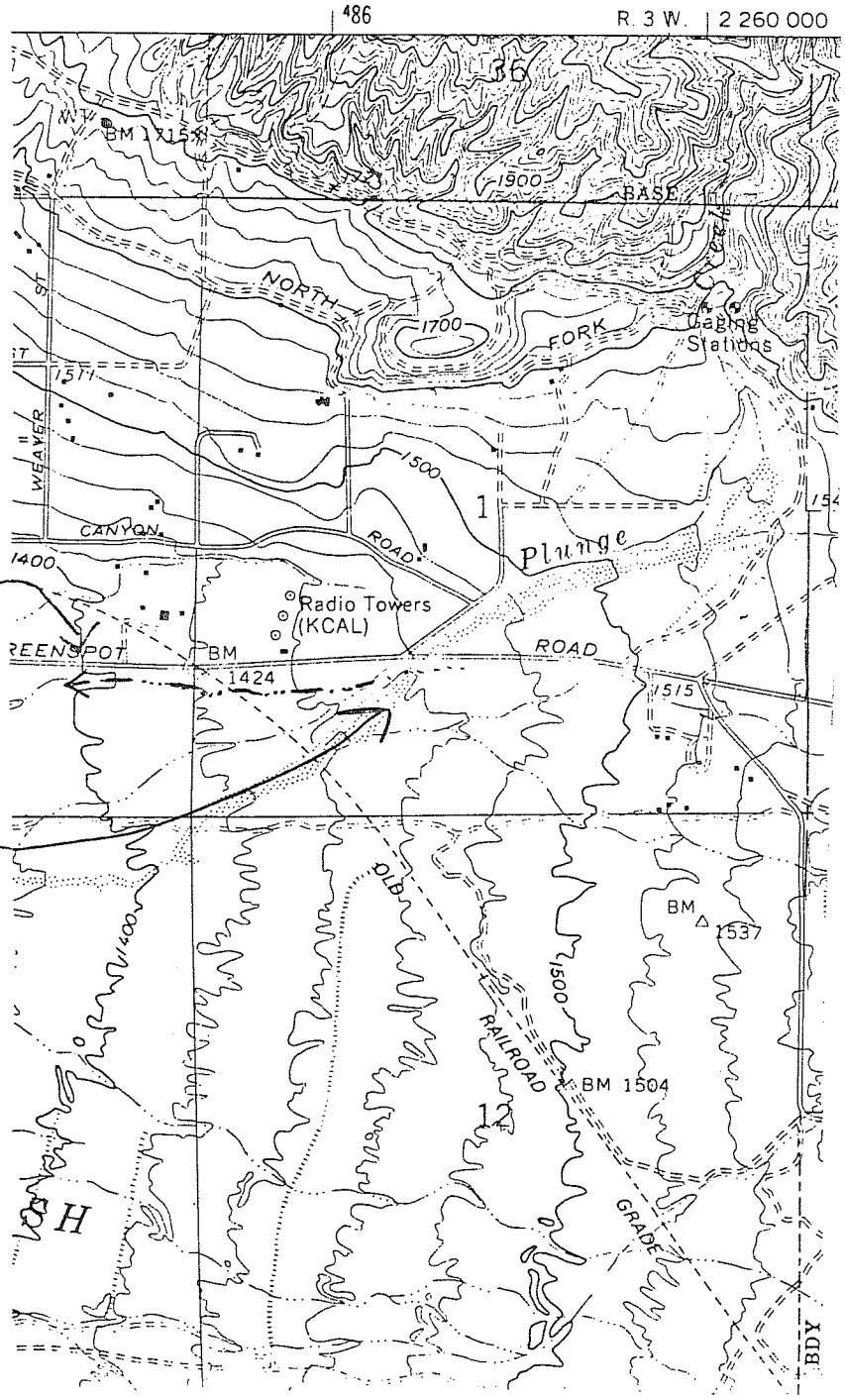
Temporary Number:

Agency Designation:

REDLAN

7.5 MINUTE

SW/4 R



CANAL LIKELY CONTINUES TO WEST. EASTERN PORTIONS DISTURBED OR DESTROYED

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # CA-SBR-8094H (Update)
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date 6/08/2005

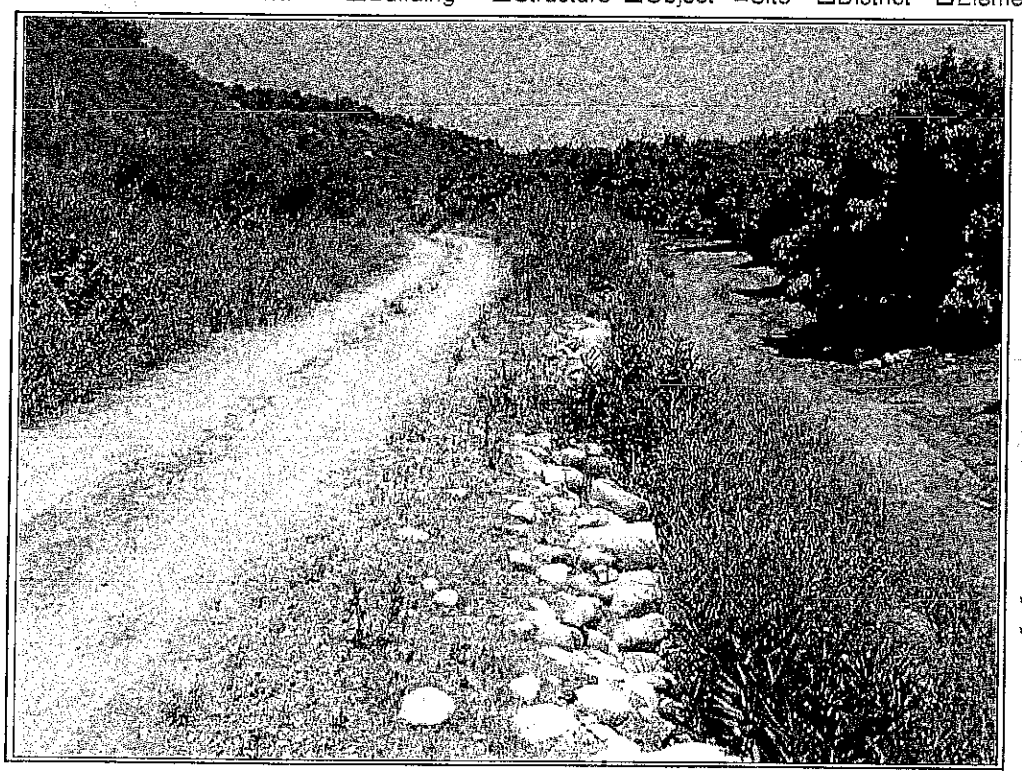
 *Resource Name or #: Santa Ana Canyon Road

P1. Other Identifier: Sunrise Drive
*P2. Location: ☐ Not for Publication ☐ Unrestricted *a. County: San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
*b. USGS 7.5' Quad: Yucaipa, Calif. Date: 1967 T 1S ; R 2W ; Portions of Sec 5 and 6; M.D. B.M.
c. Address: City: Zip:
d. UTM: Zone: 11 ; 488396 mE/ 3774119 mN (G.P.S.) NAD 83
489150 mE/ 3773750 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation:
The site is located along the base of the San Bernardino Mountains in San Bernardino County, CA. From the SR30, take the Baseline exit and head east for approximately 1.25 miles to Church Street. Continue south on Church Str. for approximately 0.7 miles to the intersection of Greenspot Road. Continue east on Greenspot Rd. for 1.95 miles to Sunrise Drive. Travel approximately 200 meters (0.1 miles) northeast on the unimproved road to the beginning segment.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The segment known as the Santa Ana Canyon Road (Sunrise Drive; 2000 Thomas Guide, pg 578) was re-recorded. The area of impact is an approximate 700-meter (2300 foot) segment located north of Greenspot Road and west of the Santa Ana River. The unimproved dirt road is lined with a cobblestone retaining wall along the southern edge. The road currently runs through existing orchards. In addition, the existing access road has been extensively maintained and repaired due to continued seasonal flooding in the area. The overall integrity of the site has been modified from its original configuration.

*P3b. Resource Attributes: (List attributes and codes)
*P4. Resources Present: ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #)

*P6. Date Constructed/Age and Sources: ■Historic ☐Prehistoric ☐Both

*P7. Owner and Address:

*P8. Recorded by: (Name, affiliation, and address)
D. Kay and K. Erickson
URS Corp
10723 Bell Court
Rancho Cucamonga, CA 91730

*P9. Date Recorded: : 6/08/05
*P10. Survey Type: (Describe)
Intensive Pedestrian Survey

*P11. Report Citation: (Cite survey report and other sources, or enter "none.")

*Attachments: ☐NONE ■Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ■Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ■Photograph Record ■Other (List): Photographs

*A1. Dimensions: a. Length: 700 m. (E/W) × b. Width: 3.5 m. ( )
Method of Measurement: ■ Paced ☐ Taped ☐ Visual estimate ■Other: GPS
Method of Determination (Check any that apply.): ☐ Artifacts ■ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):

Reliability of Determination: ■High ☐ Medium ☐ Low Explain:

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☐ Disturbances ☐ Vegetation ☐ Other (Explain):

A2. Depth: ■None ☐ Unknown Method of Determination:
*A3. Human Remains: ☐ Present ☐ Absent ☐ Possible ■Unknown (Explain): None were observed and most likely do not exist due to construction and existing location of road.

*A4. Features (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.):

The unimproved dirt road is lined with a cobblestone retaining wall along the southern edge. The road currently runs through existing orchards. In addition, the existing access road has been extensively maintained and repaired due to continued seasonal flooding in the area. The overall integrity of the site has been modified from its original configuration

*A5. Cultural Constituents (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
None

*A6. Were Specimens Collected? ■ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)
*A7. Site Condition: ☐ Good ☐ Fair ☐ Poor (Describe disturbances.):

*A8. Nearest Water (Type, distance, and direction.): Santa Ana River approximately 1700 meter (1.1 miles) east.
*A9. Elevation: 1720
A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.): Vegetation consists of Riparian Woodlands (Sycamore and Alder), sagebrush, poison oak, and citrus orchards.

A11. Historical Information: This site consists of the Santa Ana Canyon Road segment of an alignment of an old dirt wagon road predating the present alignment of Seven Oaks Road. The old wagon road was originally constructed as early as the 1860's for the primary means of reaching Big Bear Valley, prior to the lake. There are several components associated with the original road. The Southern California Power Company, Gus Knight and Hiram Clark, and the County of San Bernardino constructed these components during the years 1896 – 1897. It was the main thoroughfare thru the Santa Ana Canyon. Due to frequent flooding, the roads were destroyed and continuously rebuilt between 1897 and 1938.

*A12. Age: ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ■ 1880-1914 ☐ 1914-1945
☐ Post 1945 ☐ Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations):

Due to frequent flooding, the roads were destroyed and continuously rebuilt between 1897 and 1938. The overall integrity of the site has been modified from its original configuration.

A14. Remarks:

A15. References (Documents, informants, maps, and other references):

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.): See photo record

Original Media/Negatives Kept at: See location below
*A17. Form Prepared by: Dustin Kay Date: 6/08/2005
Affiliation and Address: URS Corp, 10723 Bell Court, Rancho Cucamonga, CA

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PHOTOGRAPH RECORD

Primary # CA-SBR-8094H
HRI#
Trinomial

Resource Name or #: **Santa Ana Canyon Road**

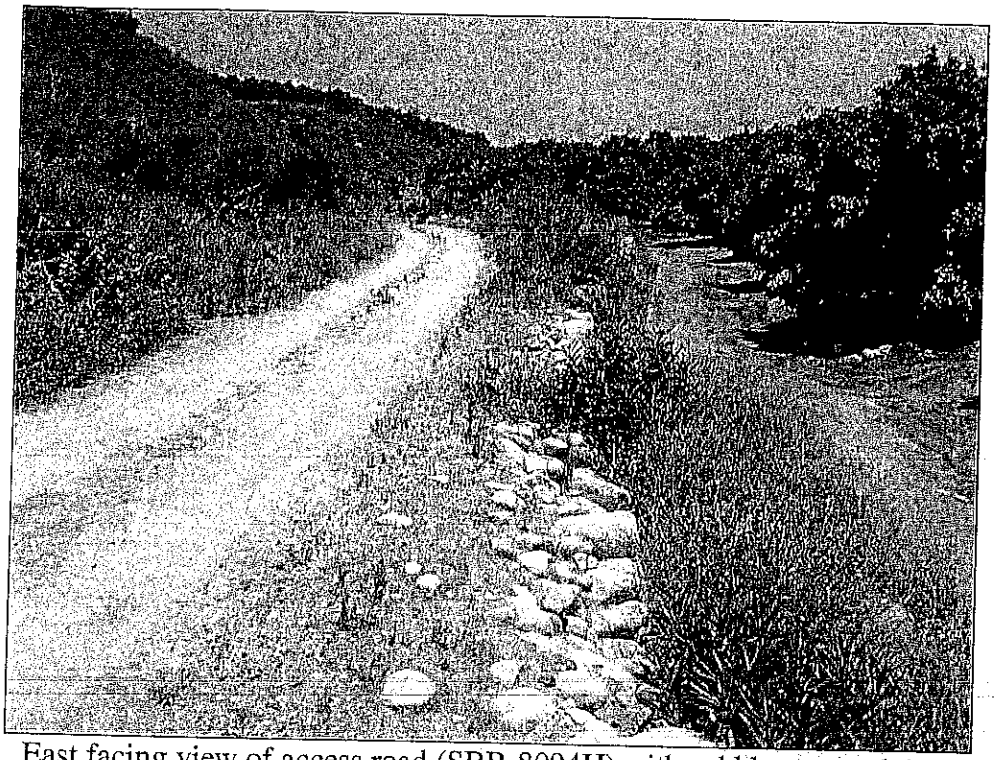
Year 2005

Camera Format: Canon Digital

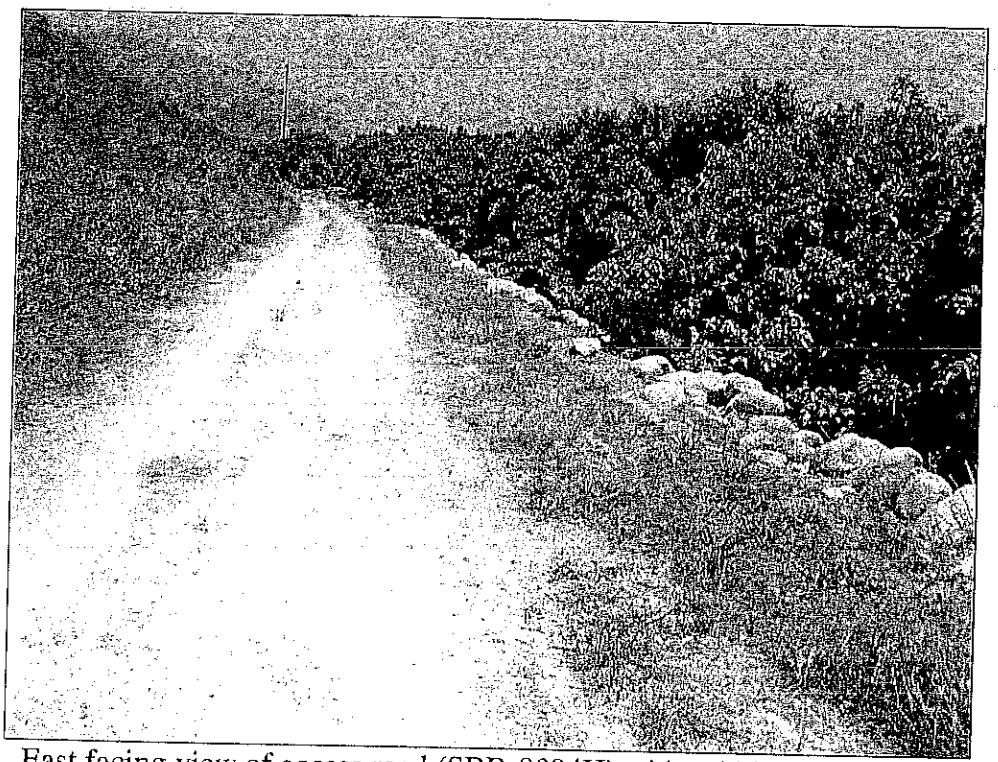
Lens Size:

Mo.	Day	Exp./Frame	Subject/Description	View Toward	GPS Accession #
6	8	21	access road (SBR-8094H) with cobble stone edging	E	488396 3774119
6	8	22	access road (SBR-8094H) with cobble stone edging	E	

DPR 523I (1/95)



East facing view of access road (SBR-8094H) with cobble stone edging.



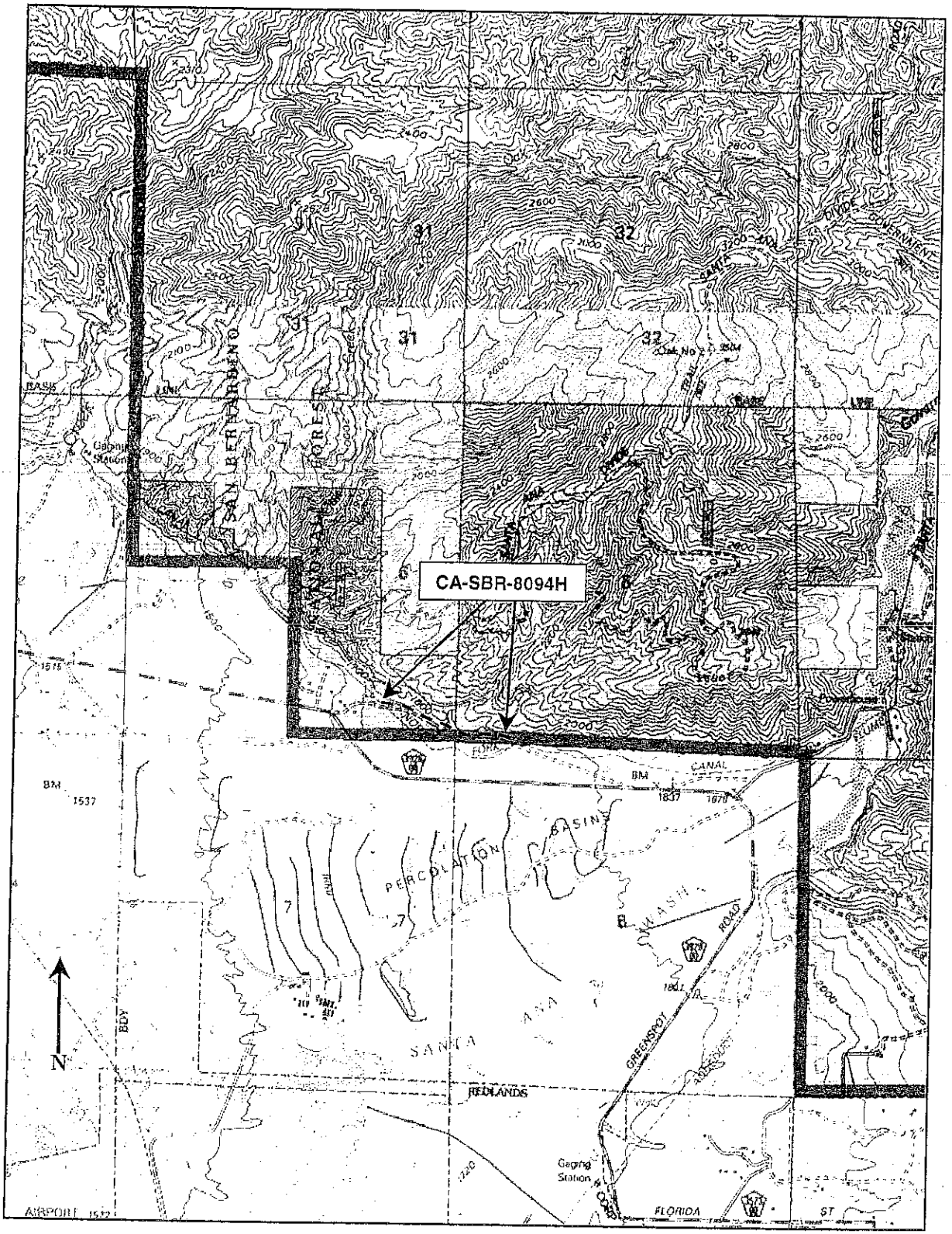
East facing view of access road (SBR-8094H) with cobble stone edging.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # CA-SBR-8094H
HRI#
Trinomial

*Resource Name or #: Santa Maria Canyon Road



APPENDIX 5

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

FAULT HAZARD INVESTIGATION SUMMARY REPORT
PROPOSED RESIDENTIAL DEVELOPMENT
PHASE 1 OF PRELIMINARY TRACT 18893
EAST HIGHLANDS AREA
SAN BERNARDINO COUNTY, CALIFORNIA

PROJECT NO. 32126A.33
SEPTEMBER 16, 2014

Prepared For:

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, CA 91730

Attention: Mr. Camille Bahri

6121 Quail Valley Court ▲ Riverside, CA 92507 ▲ (951) 653-1760 ▲ (951) 653-1741 (Fax) ▲ www.lorgeo.com
19-438 Ruppert Street ▲ P.O. Box 580799 ▲ N. Palm Springs, CA 92258 ▲ (760) 329-2727 ▲ (760) 329-2626 (Fax)

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

September 16, 2014

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, CA 91730

Project No. 32126A.33

Attention: Mr. Camille Bahri

Subject: Fault Hazard Investigation Summary Report, Proposed Residential Property, Phase 1 of Preliminary Tract 18893, East Highlands Area, San Bernardino County, California.

As requested by you, we have prepared this report which presents a summary of fault investigation work which has been completed within and around Phase 1 of Preliminary Tract 18893 in Highland, California. Phase 1 of Preliminary Tract 18893 is proposed for residential development and this area consists of relatively flat alluvial areas south and west of nearby hillsides. The proposed structures are anticipated to be one to two stories and of wood frame construction with an exterior plaster veneer. The intention of this report is to summarize available information regarding the potential for the presence of onsite active faults and our conclusions regarding the potential for faulting to impact the proposed site.

LOR Geotechnical Group, Inc.

6121 Quail Valley Court ▲ Riverside, CA 92507 ▲ (951) 653-1760 ▲ (951) 653-1741 (Fax) ▲ www.lorgeo.com
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INTRODUCTION

As requested by you, we have prepared this report which presents a summary of fault investigation work which has been completed within and around Phase 1 of Preliminary Tract 18893 in Highland, California. Phase 1 of Preliminary Tract 18893 is proposed for residential development and this area consists of relatively flat alluvial areas south and west of nearby hillsides. The proposed structures are anticipated to be one to two stories and of wood frame construction with an exterior plaster veneer. The intention of this report is to summarize available information regarding the potential for the presence of onsite active faults and our conclusions regarding the potential for faulting to impact the proposed site. As discussed further herein, our evaluation of available data indicates that sufficient investigation within onsite and adjacent areas has been completed to clear the current areas of Phase 1 of Preliminary Tract 18893 located outside of recommended Restricted Use Zones from potential hazards related to fault rupture hazard.

The boundaries of proposed Phase 1 of Preliminary Tract 18893 essentially consist of the once proposed Calvary Chapel site at 30976 Greenspot Road and an additional area to the east of this location. An index map showing the general location of Phase 1 of Preliminary Tract 18893 is presented as Enclosure A-1 within Appendix A while the location and limits of Phase 1 and the associated Restricted Use Zones are shown on Enclosure A-2 (in pocket).

BACKGROUND

The majority of the area of Phase 1 of Preliminary Tract 18893 was previously investigated for evaluation of the possible presence of onsite faulting by Escandon (2005). His investigation included all of this area except for the eastern approximately 200 to 300 feet and was conducted for a then proposed church facility at 30976 Greenspot Road. The investigation work by Escandon (2005) showed that the nearest location for the San Andreas fault is within the lower portion of the steep mountainside slope that descends toward the Santa Ana River wash, which forms the majority of the area of Phase 1 of Preliminary Tract 18893. LOR (2013b) conducted a Preliminary Geotechnical Investigation of this same site and generally concurred with the findings and conclusions as presented by Escandon (2005).

We have also conducted a Preliminary Geotechnical Investigation for Arnott Ranch which includes the property that extends from the eastern portion of Phase 1 of Preliminary Tract 18893 approximately one mile to the east and southeast (LOR, 2005). Subsurface investigation for the purpose of identifying onsite faults was also conducted within the Arnott Ranch by this firm. However, that work was not completed within phases 2, 3 and 4 of Tentative Tract Map 18893 due to concern over premature interruption of the existing citrus operation and the client at the time dropped the project. That work included a fault trench, FT-1, which was located approximately 2,000 feet southeast of Phase 1. We have included a log of the soils exposed within the excavation for FT-1 as Enclosure A-5 within Appendix A.

Subsurface investigations for evaluation of the presence of onsite faults has been completed for two other nearby projects located to the northwest of Phase 1 of Preliminary Tract 18893. These include work by Rasmussen (1990) and CHJ (1997) for Tract No. 14326 and investigation by Suitt (2004) for Tract No. 16914. The investigation by Suitt (2004) showed that the main trace of the San Andreas fault is located below the toe of the hillsides which descend toward the site. Near the mouth of Oak Creek, which generally separates Tract No. 16914 and Tract No. 14326, the fault apparently steps up into the bottom portion of the local mountains as this is the location that the San Andreas fault was identified by the work done by both Escandon (2005) and by Rasmussen (1990) and CHJ (1997). The approximate locations of the fault as identified by the above authors is presented on Enclosure A-3 within Appendix A.

SITE DESCRIPTION

The irregularly shaped, approximately 25-acre site is mostly located at 30976 Greenspot Road in the southeastern portion of East Highlands, San Bernardino County, California, and includes an approximately 250 foot wide addition to this address along its eastern boundary. The property is situated on the north side of Greenspot Road at the base of the San Bernardino Mountains (See Index Map, Enclosure A-1). The property is flanked by an existing tract of single-family residences on the west, the San Bernardino Mountains to the north and by citrus groves on the east and southeast. The southeastern portion of the site includes a 'not-a-part' (NAP) area that consists of a single-family residence and related improvements.

Topographically, the site ranges from the lowermost portion of the steep and rugged hillsides of the San Bernardino Mountains in the northern areas to relatively flat, gently sloping ground of the Santa Ana River Basin along the area north of Greenspot Road and the majority of the site. Areas currently proposed for development are limited to those areas south of the toe of the slope which defines the separation beneath these two distinctly different topographic areas. Drainage across the site has been greatly modified through past use but is directed to the southwest overall.

Based upon our review of historic aerial photographs, much of the lower, flatter portions of the property were previously utilized for agricultural purposes (mainly citrus) and much of the grove area remained onsite until the early to mid 2000's. Early development of the property also included a couple of residences and several out-buildings. One older building remains onsite and consists of a barn/warehouse type building in the northeastern portion. In addition, a single-wide mobile home is currently situated within the south-central, western portion of the property and a residence is located within an area of citrus grove in the eastern portion.

Our research and observations indicate that a moderate amount of grading may have taken place in the early stages of site development with fill placed within the southwest portion in the vicinity of a former residence and lesser fills placed in other areas to create roads, grove areas, drainage paths, etc. Hydraulic mining of the local hillside areas to create smooth areas for the groves below also may have taken place.

The majority of the onsite fill materials appear to have been generated during grading of the site in the mid-2000's for a then proposed church facility. In addition, fill material was created during subsurface trenching for the onsite fault investigation conducted in 2005 by Richard Escandon. The fault investigation trench backfill is believed to have been placed back in the trenches without compaction. In addition, although we understand that the fills placed during grading for the church site were placed under the observation and testing of a local geotechnical firm, we also understand that no report addressing those operations has been prepared or is scheduled for preparation. Therefore, all of the onsite fill materials are considered to be non-structural and non-engineered.

Other existing improvements include the North Fork Canal which traverses the central portion of the site from east to west and was recently transferred to a new, 39-inch diameter concrete pipe system. Mining of the onsite materials for decorative rock and construction materials appears to have taken place off and on in the past and is apparently still being conducted. Sorted rocks of different sizes and piles of miscellaneous rock materials are located in the east portion of the site, north of the NAP residence, and a 5 to 15 foot deep excavation has recently been created, apparently for mining soil and/or rock, in the northern portion of the alluvial portion of the site. In addition, a large aggregation of boulders is located in the northwest portion of the property, just below the break in slope.

A forest service road that traverses the central portion of the property was fairly recently built and it provides access to the nearby Santa Ana River, Seven Oaks dam and areas of the San Bernardino Mountains to the north.

AERIAL PHOTOGRAPH ANALYSIS

During the course of this study, time-sequential stereoscopic aerial photograph pairs of the site and surrounding region, on file at the San Bernardino County Flood Control and Water Conservation District, were reviewed and analysis was conducted. Stereoscopic aerial photograph pairs of the site and surrounding regions dating from 1938 through 2005 were examined. Information derived from review of the aerial photographs aided in the geologic mapping of the various onsite earth units and the identification of photo-lineaments as noted on our Fault and Photo-lineament Map, Enclosure A-3. A complete list of the photographs studied is given in the references at the back of this report.

SEISMIC REFRACTION STUDY

During 2013, we conducted a seismic refraction survey of land within Arnott Ranch, located adjacent to and southeast of Phase 1 of Preliminary Tract 18893, to assist in the identification of features that may suggest the possible presence of subsurface faults in that area (LOR, 2013a). Although the geophysical methods employed may not be solely utilized in the determination of the possible presence of subsurface faults, no evidence for such features was observed or interpreted as possibly being present within the area of investigation. This work was done in order to potentially reduce the amount of subsurface investigation that may be needed to satisfactorily

complete our fault investigation work within the applicable areas. The locations of the four seismic refraction lines conducted during our geophysical investigation are shown on Enclosure A-3.

GEOLOGIC CONDITIONS

Regional Geologic Setting

The site is located along the margin of two large tectonic plates with the Pacific Plate on the south-southwest and North American Plate on the north-northeast separated by the through-going San Andreas fault. The site is located along the northeastern boundary of a local structural portion of the earth's crust known as the Bunker Hill - San Timoteo Basin. This basin formed as a rift zone between the active San Andreas fault on the northeast and the active San Jacinto fault on the southwest. The southern boundary of the basin is less well defined, but is generally believed to coincide with the Banning fault zone. The basin is infilled with Quaternary age younger and older alluvial deposits. There are also topographic highs within the basin which expose pre-Cambrian age metamorphic rocks.

The relatively steep hillside areas to the north are along the southern edge of the San Bernardino Mountains. The San Bernardino Mountain range has an extensive upland plateau area that is being cut into by headward erosion of deep, narrow canyons, particularly along the southwestern flanks. The mountains are bounded on the southwest by Cajon Pass and San Andreas fault, on the north by the Mojave Desert, on the east by Twentynine Palms Valley, and on the southeast by Morongo Valley. Cretaceous quartz monzonite makes up the bulk of these mountains while older gneisses and schists occur locally. Uplift of this mountain range has taken place recently, mainly during the last two million years, and historical tectonic activity suggests that the mountains are still being uplifted.

As discussed below, there are active faults other than the San Andreas fault that are in the vicinity of the site. These include the San Jacinto fault zone located approximately 14.5 kilometers (9.0 miles) to the southwest, the Cleghorn fault located approximately 21.0 kilometers (12.5 miles) to the northwest, and the Cucamonga fault located approximately 29.0 kilometers (18.0 miles) to the northwest.

The site and the regional geologic setting are shown on Enclosure A-4 within Appendix A. A description of the geologic units shown on Enclosure A-4 is presented on Enclosure A-4a, within Appendix A.

Site Geologic Conditions

Data from our research, observations, and subsurface investigation indicate that the site is mainly underlain by fill soils, younger alluvial fan deposits, and younger alluvial river deposits. These materials comprise those which are located within the area currently proposed for development. To the north of the proposed development area are deposits of very old alluvium located north of the San Andreas fault with intrusive and metamorphic rocks located below the very old alluvium and comprising the majority of the materials present within the elevated northern portions of the site. The various earth materials are generally described below and their approximate distribution is shown on the attached Geologic Map, Enclosure A-2.

Fill (Unit not mapped)

Virtually all of the area currently proposed for development has been modified through grading, use as a borrow site or soil storage area, or otherwise disturbed at one or more times in the past. Although clear evidence is lacking, minor amounts and perhaps significant quantities of hydraulically placed fills may have been generated during initial site development for use as a citrus grove. Fills were also placed to create pad areas below and around the previously existing residences and structures within the central and southwestern portions of the site. Fill soil was placed in an apparently non-engineered fashion during backfilling of the onsite fault investigation trenching work and these fills range from approximately 5 to 16 feet in thickness. The most significant quantities of fill appear to have been placed during site grading for the then proposed church facility in the mid 2,000's. However, as previously discussed, no reports documenting these grading operations exist. Therefore, all fill materials present onsite are considered to be non-structural and not suitable for incorporation in proposed development areas.

Very Young Alluvial Fan Deposits (Map Symbol Qvyf): These materials are limited to the far eastern edge of Phase 1 but are extensive across areas further to the east of Phase 1. As encountered during our earlier investigation work in areas to the east, these materials generally consist of silty sand with lesser poorly graded sands, sand

with gravels, and occasional layers containing cobbles and boulders. The very young alluvial fan deposits are typically loose to medium dense in the upper 3 to 7 feet, becoming medium dense to dense below these depths.

Young Alluvial Fan Deposits (Map Symbol Qyf_3): The northern portion of the relatively flat area of the site that is proposed for development consists mainly of young alluvial fan deposits. These deposits are thought to be of Holocene age and were observed to consist of brown silty sands and sands with minor angular to sub-angular gravel. As encountered within our exploratory preliminary geotechnical investigation trenches, the young alluvial fan deposits are fairly massive and loose. Some of the areas mapped as alluvial fan deposits may be hydraulically placed fill soils. Given that both of these materials were derived from the nearby hills and are massive to crudely stratified, they can be difficult to differentiate.

Young Alluvial - Valley Deposits (Map Symbol Qya_3): The young alluvial-valley deposits are present across the southern half of the proposed development area of the site. As encountered within our exploratory preliminary geotechnical investigation trenches, these are typically clast supported deposits consisting of dense sandy gravel with abundant subrounded cobbles and boulders (to about 4 feet in diameter). Due to the density and high percentage of rock materials, locally with boulder quantities exceeding 20 percent, excavation with standard backhoe excavation equipment was found to be difficult. Being derived from the mouth of the Santa Ana River to the east, the young alluvial valley deposits form relatively flat ground that slopes gently to the south and west.

Very Old Surficial Deposits (Map Symbol Qvos): Old surficial deposits within the site boundaries are restricted to a large lobe in the central portion, on the north side of the San Andreas fault and outside of the area proposed for development. As observed during site mapping, this unit consists of dense silty sand to gravelly sand with minor to abundant, subrounded cobble to boulder sized clasts. Boulders consisting of granite and gneiss are common at the surface of this unit which is late to middle Pleistocene in age. Though not mapped, slope wash soils and younger alluvial fan materials locally drape the surface of these deposits.

Gneissose Granitoid Rock and Gneiss (Map Symbol gg): Metamorphic rocks consisting of layered granodiorite to tonalite are located on the south side of the San Andreas fault and along the lower, southern portion of site hillsides. These rocks are considered to be Mesozoic and Paleozoic and Proterozoic in age and are moderately to highly sheared locally and also locally highly fractured, particularly in the near surface. In the site area, these bedrock materials are often covered by slope wash soils and alluvial materials.

GROUNDWATER HYDROLOGY

Depth to groundwater records available from the Department of Water Resources provide information for two water wells located about one quarter to one half mile to the southeast that have recently been abandoned. State Well No. O1S02W08C0D1S has sporadic readings from 1959 to 1988 that indicate that the depth to groundwater in this well has been greater than 65 feet for all readings, except for one anomalously shallow reading in 1978 at which time the depth was 18.9 feet. State Well No. O1S02W08C0O2S, located just to the northwest of the previously mentioned well, has extensive records listed from as early as 1928 and as recent as April, 2003. In general, the Department of Water Resources data for this well indicates the depth to groundwater was typically greater than 50 feet with depths as shallow as 30 to 40 feet, recorded during wet years. The shallowest reading was 19.7 feet, again recorded in 1978.

In their response to review comments, Soils Southwest (2006b) presented data for two additional wells that are located near the site. One of these, State Well No. 01S/02W-07B001S, is located approximately one-third of a mile to the west and it had a recorded depth to groundwater of 148.44 feet in 2005. Also in 2005, State Well No. 01S/03W-01H001S, located approximately one-half to three-quarters of a mile to the south of the site, had a measured depth to groundwater of 165.78 feet.

A report and map by Matti and Carson (1986) indicate that the minimum depth to groundwater in the area of the site for the time period of 1973 to 1983 was on the order of 30 feet or less. However, contour lines shown on the map that they produced were based upon widely spaced well data that was sometimes significantly extrapolated. Nonetheless, their findings placed the site area are being situated within a zone of high liquefaction susceptibility as based upon their well data. As outlined above, it appears that the depth to groundwater in the site vicinity has lowered a great

deal in recent times and it is our opinion that the depth to static groundwater is at least 50 feet below the ground surface within the proposed development area of the site. In addition, it is our opinion that the coarseness of the underlying alluvial materials greatly reduces the liquefaction potential and that, overall, the potential for liquefaction occurring at the site is low.

Low lying canyon areas on the north side of the San Andreas fault, however, are likely to have groundwater relatively close to the surface. This is evidenced by the presence of at least two areas of springs that are located in the eastern portion of the site, and along the San Andreas fault. Faults often act as natural barriers to groundwater and this is the case not only at the location described but at numerous other location along this fault and other faults in the region.

FAULTING

As indicated on attached Enclosure A-3, nearly all of the proposed development area of the site lies within an Alquist-Priolo Earthquake Fault Zone (formerly Special Studies Zone) designated by the State of California and associated with the San Andreas Fault Zone (Hart and Bryant, 1997). In terms of seismic shaking, the San Andreas fault is the most important to the site.

Recent mapping by Matti, et al. (2003), shows the San Andreas fault as one continuous fault strand, extending across the south-central portion of the property from southeast to northwest. This same map shows the Mission Creek strand as an older portion of the San Andreas fault and as located approximately 400 feet to the southwest. Per the Alquist-Priolo Earthquake Fault Zone Map by the State of California, the San Andreas fault at the site consists of several discontinuous and sometimes parallel strands.

Our observations and review of aerial photographs lead us to concur with Matti, et al. (2003) that the San Andreas fault appears to cross the northern portion of the site, north of the proposed development area, as one major break as indicated their recent map, a portion of which is included as Enclosure A-3. This is also the conclusion of fault investigation work that was previously conducted by Richard Escandon (2005) for the area of his investigation which included the majority of Phase 1 of Preliminary Tract 18893. The findings from earlier work by Rasmussen (1990) and CHJ (1997)

for Tract No. 14326 and investigation by Suitt (2004) for Tract No. 16914 also generally support this trend.

Several other active and potentially active faults lie within close proximity to the site. The northeast trending Crafton fault or Reservoir Canyon fault is located approximately 2.5 miles to the south. Ziony and Jones (1989) and Jennings (1994) show the Crafton fault as a potentially active fault.

The northwest trending Greenspot fault is located to the southeast of the site and may join with the San Andreas fault about one-half mile to the southeast. It was first mapped by Burnham and Dutcher (1960) and later by Morton (1974) and Ziony and Jones (1989). The Greenspot fault is an effective groundwater barrier that is locally buried by younger alluvial soils. Ziony and Jones (1989) showed the Greenspot fault as a potentially active fault.

The southeastern boundary of the Crafton Hills is formed by the Western Heights fault, located approximately 4 miles to the southeast. Work by Gary S. Rasmussen & Associates (1992) has established that the Western Heights fault is active in the Yucaipa area.

The northeast trending Redlands fault, located approximately 2.5 miles to the southeast, has been classified as a potentially active fault and acts as a barrier to the subsurface movement of water in this area.

Another barrier to the subsurface movement of groundwater is the Chicken Hill fault, located approximately 4 miles to the southeast of the site. This fault reportedly offsets bedrock materials at least 900 feet, (Burnham and Dutcher 1960). Bortugno (1986), and Jennings (1994), showed this fault to be potentially active and portions of the Chicken Hill fault are located within an Alquist-Priolo Earthquake Fault Zone as designated by the State of California.

The northeast trending Oak Glen fault is located approximately 5 miles to the southeast (Burnham and Dutcher 1960, Dibblee 1974, Morton 1974, Matti and Carson 1991, Matti et al 2003a). The Oak Glen fault generally parallels and is likely structurally related to the San Andreas fault. This fault is considered to be potentially active (Bortugno 1986, Ziony and Jones 1989, and Jennings 1994). It has been postulated that motion along the Oak Glen fault may have transferred *en echelon*

along the Greenspot fault to the San Andreas fault (Rasmussen, Gary S. & Associates, 1999).

The San Jacinto fault zone is a sub-parallel branch of the San Andreas fault zone, extending from the northwestern San Bernardino area, southward into the El Centro region. This right-lateral, strike-slip fault is located approximately 8.5 miles to the southwest. The San Jacinto fault has been active in recent times with several large magnitude events. It is believed that the San Jacinto fault is capable of providing an earthquake magnitude on the order of 6.5 or greater.

Past standards of practice included a discussion of all potential earthquake sources within a 100 kilometer (62 mile) radius. However, while there are other large earthquake faults within a 100 kilometer (62 mile) radius of the site, none of these are considered as relevant to the site as the faults described above, due to their greater distance and/or smaller anticipated magnitudes.

FAULT INVESTIGATION TRENCH FT-1

In 2005, we excavated our subsurface fault investigation trench, FT-1, at the approximate location shown on Enclosure A-5. The trench was excavated to an average depth of 20 feet and exposed bouldery alluvial units as described in the unit descriptions that accompanying our log of this trench (Enclosure A-5). Based upon her examination of the soils within the lower units of this trench, at a depth of 17 feet and in the vicinity of Station 2+50, Ms. Katherine Kendrick of the United States Geological Survey determined that the soils in that area, at 17 feet deep and more, were on the order of several thousands of years old or up to about mid-Holocene age. This unit is designated 'D' on the trench log and is a subunit of the Young Axial Valley Deposits, Qya_3. Other subunits of Qya_3 are slightly younger in age and the earth materials become much younger in the units above Qya_3.

No evidence for faulting was observed in this trench by us or by Mr. Wessly Reeder, Geologist for the County of San Bernardino during his visit to the site in November of 2005 to examine this trench and several other fault investigation trenches we had open at the time in areas further to the east. FT-1, as well as the other trenches open at the time, was subsequently backfilled.

CONCLUSIONS

We have found no evidence to indicate that active faults traverse through the property that includes Phase 1 of Preliminary Tract 18893. Our review of aerial photographs of the site and vicinity did not identify any photo-lineaments that project toward or through the proposed areas of development and seismic refraction investigation work conducted in areas southeast of the site did not reveal any anomalies that may be indicative of subsurface faulting. Field mapping and review of photographs as well as review of reports by others, indicates that the main active strand of the South Branch of the San Andreas fault is located within the hillside above the proposed development as depicted on our Geologic Map, Enclosure A-2. Offset stream channels, linear drainages and the presence of springs are the main lines of evidence for location of the fault in its mapped location. Our subsurface fault investigation trench, FT-1, conducted in 2005 approximately 2,000 feet to the east-southeast, did not show any evidence for faulting in that area. In addition, fault investigation work previously conducted by others for existing developments located to the northwest of Phase 1 of Preliminary Tract 18893 indicate that the San Andreas fault is located in the lower portion of the foothills that extend northwest of the site and along the northern side of the site.

As shown on Enclosure A-2, Geologic Map, the Restricted Use Zone established as a result of the work by Escandon (2005) has been plotted on Tentative Tract Map No. 18893. This transfer of data was completed by Sitetech, Inc., with the survey information provided by the original engineering firm that worked with Mr. Escandon (Walden and Associates). Sitetech also shows a 5 degree bend in this zone boundary toward the development area and away from the last trench data point established during the subsurface fault investigation conducted by Mr. Escandon, beginning at a point 50 feet from the northern end of Trench T-2 and extending to the southeast. This Restricted Use Zone line extends well north of the areas proposed for development.

The eastern portions of proposed Phase of Tentative Tract Map No. 18893 locally exceed the maximum recommended data extrapolation distance of 600 feet defined by the County of San Bernardino Standard Procedure No. A-146 (2007). In order to cover the area of Phase 1 completely, extrapolation of the data obtained by Escandon (2005) would need to extend approximately 700 feet locally. We are of the opinion that extrapolation of the data, and thereby extension of the area of coverage, obtained by Escandon (2005) is acceptable considering the information available.

As outlined within our referenced geotechnical investigation report which addresses the bulk of the area of proposed Phase 1 (LOR, 2013a), we have recommended that all structures for human occupancy be setback from the toe of the hillside along the northern side of the proposed development area a minimum distance of 50 feet. This recommendation is related solely to slope stability considerations but will effectively increase the Restricted Use Zone width established for possible fault hazards in virtually all areas.

REMAINING FAULT INVESTIGATION WORK FOR FUTURE PHASES

We understand that you wish to proceed with development of Phase 1 of Preliminary Tract 18893 at this time and have the tentative tract map processed with the City of Highland. The available data that we have accumulated to date indicates no evidence that any active faults traverse the development area. Although it is evident that subsurface investigation work is not required for the approval of Phase 1 of Preliminary Tract 18893 for development, additional investigation work will be needed prior to development of any additional phases tentatively proposed to the east of Phase 1. The additional investigation work will likely include excavation, logging and backfilling of exploratory trenches.

CLOSURE

It has been a pleasure to assist you with this project. We look forward to being of further assistance to you as planning continues. Should you have any questions regarding this report, please do not hesitate to contact us as your convenience.

Respectfully submitted,
LOR Geotechnical Group, Inc.

Robert M Markoff, CEG 2073
Engineering Geologist

John P. Leuer, GE 2030
President

RMM:JPL:ejt

Distribution: Addressee (4)
Email: cbahri@charter.net

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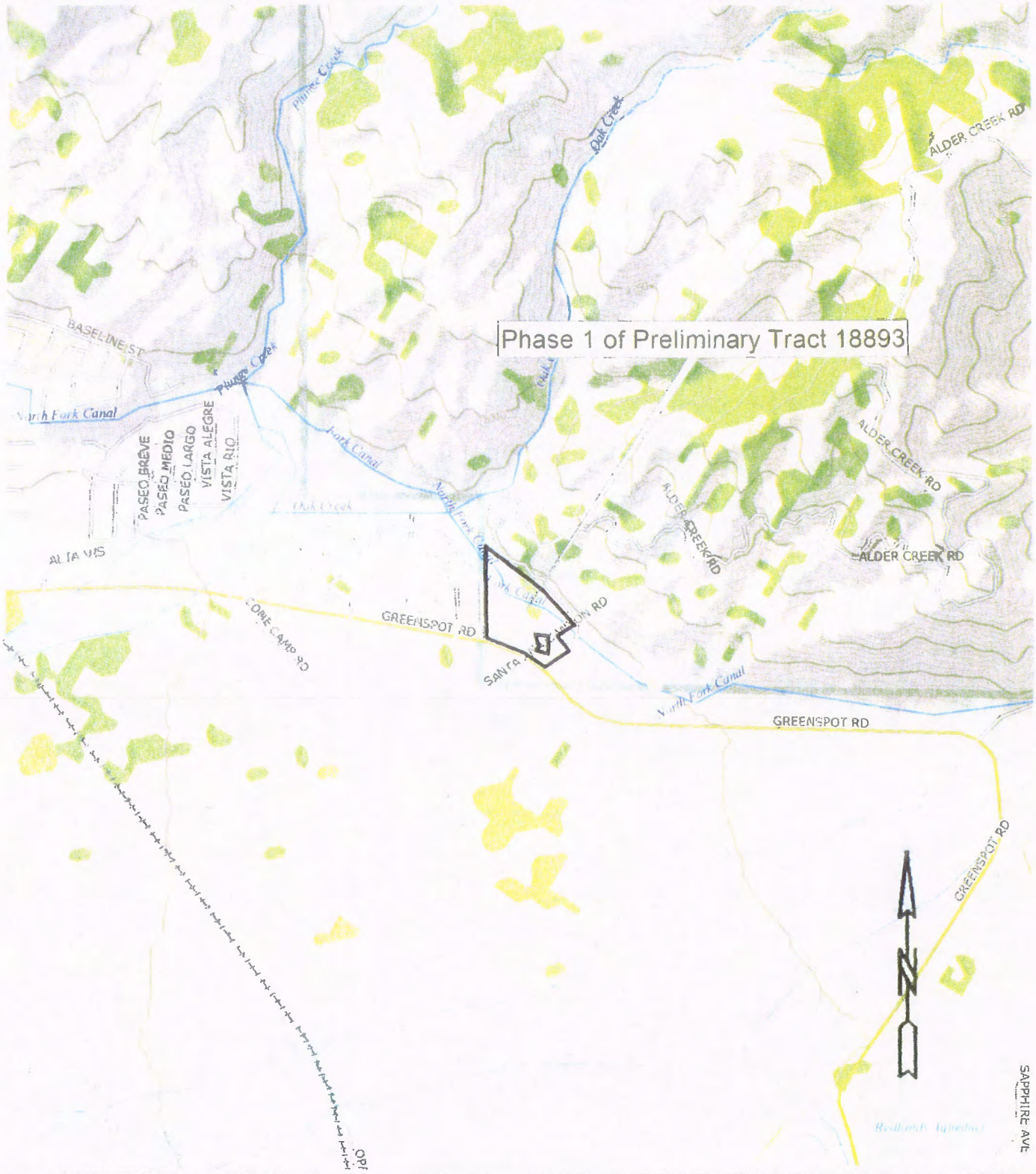
AERIAL PHOTOGRAPHS

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT			
DATE	FLIGHT NO.	PHOTO NO(S).	SCALE 1" =
1938	W-80	N-2-14, N-2-15	1,000'
November 9, 1955	F-35	4-73, 74	1,200'
January 31, 1969	C-293	67, 68 & 73	2,000'
December 10, 1964	C-92	42, 43	1,000'
February 25, 1986	C-450	116, 117	2,000'
July 1, 1991	C-487	131, 132 & 133	2,000'
May 31, 1996	C-528	160, 161 & 162	2,000'
June 15, 2001	C-541	174, 175 & 176	2,000'
January 18, 2005	C-553	13-52, 53	1,000'

APPENDIX A

Index Map, Geologic Map, Fault and Photo-lineament Map, Regional Geologic Map and Fault Investigation Trench FT-1



INDEX MAP

PROJECT:	PHASE I OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	PROJECT NO.:	32126A.33
CLIENT:	SUNLAND COMMUNITIES	ENCLOSURE:	A-1
LOR Geotechnical Group, Inc.		DATE:	SEPTEMBER 2014
		SCALE:	1" = 2,000'

IN THE CITY OF HIGHLAND

TENTATIVE

TRACT MAP NO. 18893

BEING A SUBDIVISION OF A PORTION OF THE WEST 1/2 OF THE SOUTHEAST 1/4 OF SECTION 3, TOWNSHIP 1 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE & MERIDIAN , IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA.

SITETECH, INC. — AUGUST, 2014

OWNERS:
GREENSPOT CORRIDOR, LLC
CALVARY CHAPEL OF SAN BERNARDINO

APPLICANT:
SUNLAND COMMUNITIES, LLC
CAMILLE BAHRI
10575 OAKDALE DRIVE
RANCHO CUCAMONGA, CA 91730
PH: (949) 484-2829

ENGINEER/MAP PREPARER:
SITETECH, INC.
38248 POTATO CANYON RD.
OAK GLEN, CA. 92399
PH: (909) 864-3180

NOTES:

1. ASSESSOR'S PARCEL NUMBERS: 0297-021-18, 0297-021-26, 0297-051-16, 0297-061-04 0297-061-05, 0297-061-06, 0297-061-07, 0297-061-09, 0297-061-13 0297-061-20, 0297-061-25, 0297-061-26, 0297-061-29, 0297-201-05 & 0297-101-22
2. EXISTING LAND USE DESIGNATION/ZONING IS AG/EQ (AGRICULTURAL/EQUESTRIAN RESIDENTIAL).
3. PROPOSED LAND USE DESIGNATION IS PLANNED DEVELOPMENT.
4. THERE ARE 277 LOTS (202 PROPOSED & APPROXIMATELY 75 FUTURE LOTS) FOR PHASE IV & 3 LETTERED LOTS WITHIN THIS DEVELOPMENT THAT CONTAINS APPROXIMATELY 176 GROSS ACRES FOR AN OVERALL RESIDENTIAL LOT DENSITY OF 1.57 LOTS PER GROSS ACRE. MINIMUM LOT AREA IS 5,000 S.F.
5. THERE ARE APPROXIMATELY 10,500 LINEAL FEET OF STREET PROPOSED WITHIN THIS DEVELOPMENT
6. CITRUS GROVES TO BE REMOVED AS A PART OF THIS PROJECT. NO NATIVE TREES EXIST.
7. THERE ARE 3 EXISTING STRUCTURES ON SITE, 1 TO REMAIN AND 2 TO BE REMOVED.
8. AS DESIGNATED BY THE CITY, AT THE TIME OF FINAL MAP PREPARATION, SLOPE AREAS, TRAIL AREAS, AND OPEN SPACE AREAS WILL BE MAPPED AS LETTERED LOTS TO ALLOW THESE AREAS TO BE PROPERLY DESIGNATED FOR MAINTENANCE PURPOSES.

COMPANIES AND AGENCIES SERVICING THIS PROJECT ARE AS FOLLOWS:

WATER/SEWER:
EAST VALLEY WATER DISTRICT
3654 HIGHLAND AVE. SUITE 18
HIGHLAND, CA. 92346
PH: (909) 888-8986

POWER:
SOUTHERN CALIFORNIA EDISON CO.
287 TENNESSEE STREET
REDLANDS, CA. 92373
PH: (909) 307-6767

GAS:
SOUTHERN CALIFORNIA GAS CO.
155 SOUTH "C" STREET
SAN BERNARDINO, CA. 92401
PH: (909) 335-7928

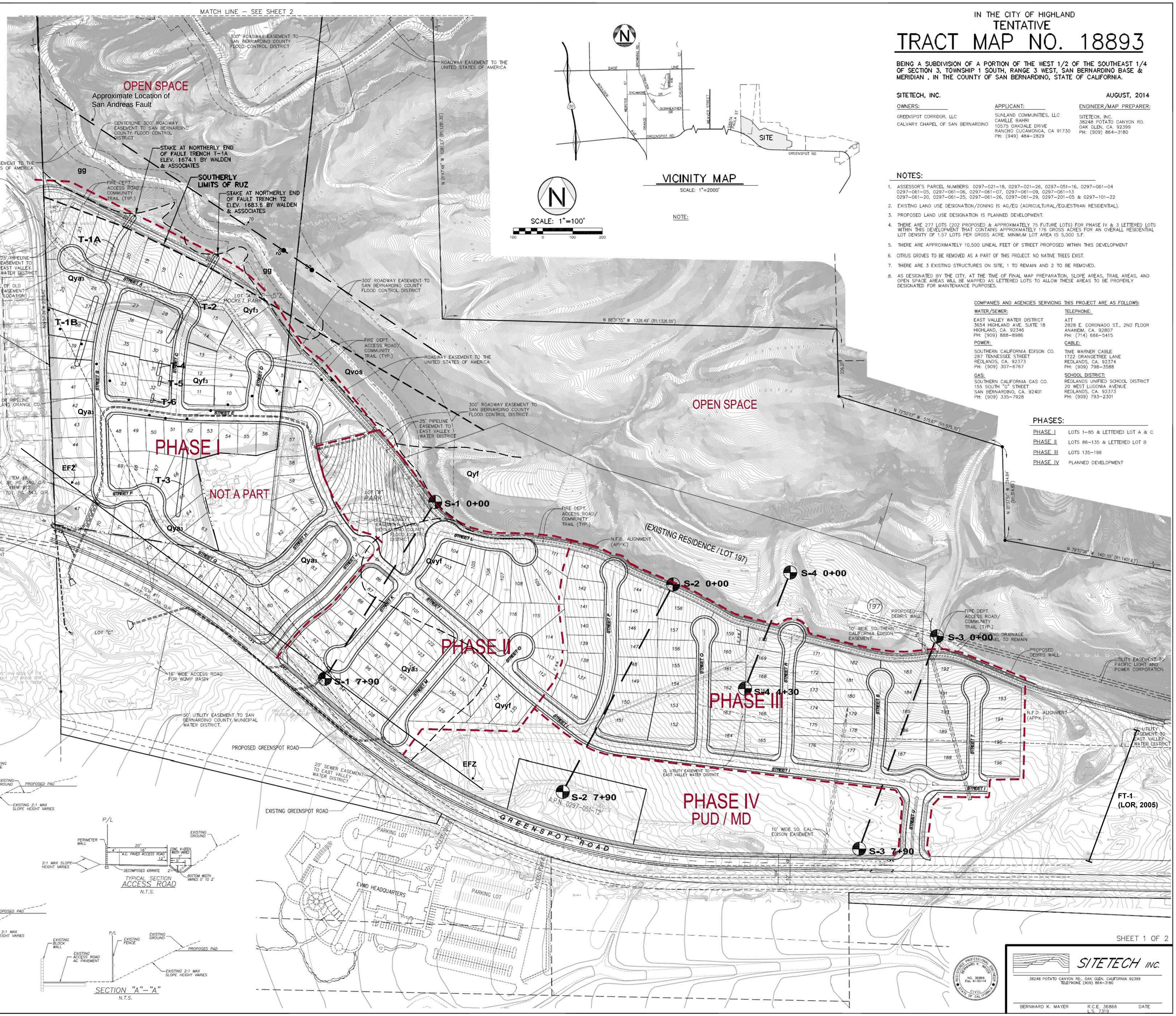
TELEPHONE:
AIT
2828 E. CORONADO ST., 2ND FLOOR
ANAHEIM, CA. 92807
PH: (714) 666-5415

CABLE:
TIME WARNER CABLE
1722 ORANGETREE LANE
REDLANDS, CA. 92374
PH: (909) 798-3588

SCHOOL DISTRICT:
REDLANDS UNIFIED SCHOOL DISTRICT
20 WEST LUGONIA AVENUE
REDLANDS, CA. 92373
PH: (909) 793-2301

PHASES:

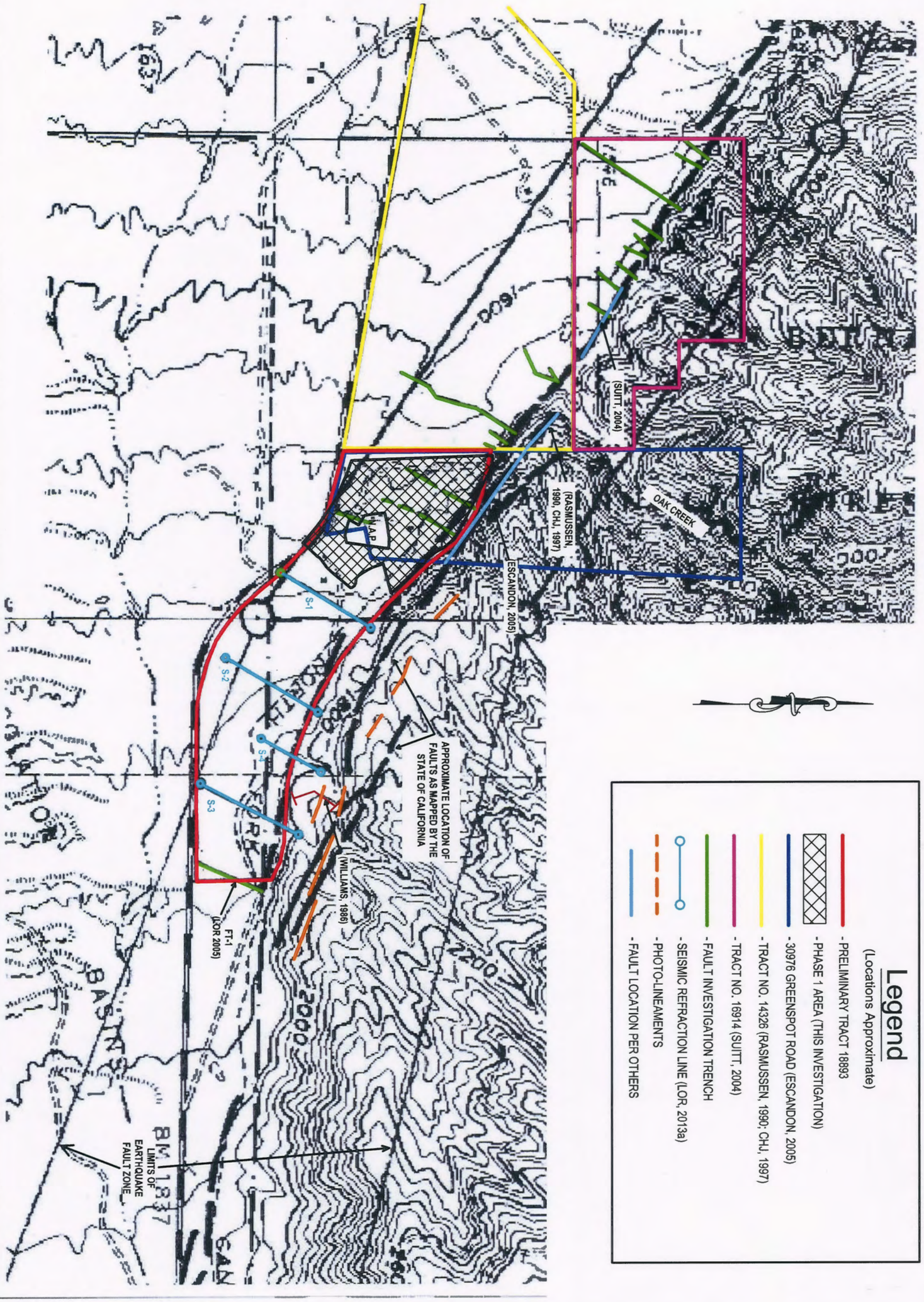
PHASE I	LOTS 1-85 & LETTERED LOT A & C
PHASE II	LOTS 86-135 & LETTERED LOT B
PHASE III	LOTS 135-196
PHASE IV	PLANNED DEVELOPMENT



SHEET 1 OF 2

SITETECH INC.
38248 POTATO CANYON RD., OAK GLEN, CALIFORNIA 92399
TELEPHONE (909) 864-3180

BERNHARD K. MAYER — R.C.E. 36866 L.S. 7319 — DATE



FAULT AND PHOTO-LINEAMENT MAP

PROJECT:	PHASE 1 OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	**PROJECT NO:**	32126A.3
CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-3
LOR Geotechnical Group, Inc.		**DATE:**	FEBRUARY, 2014
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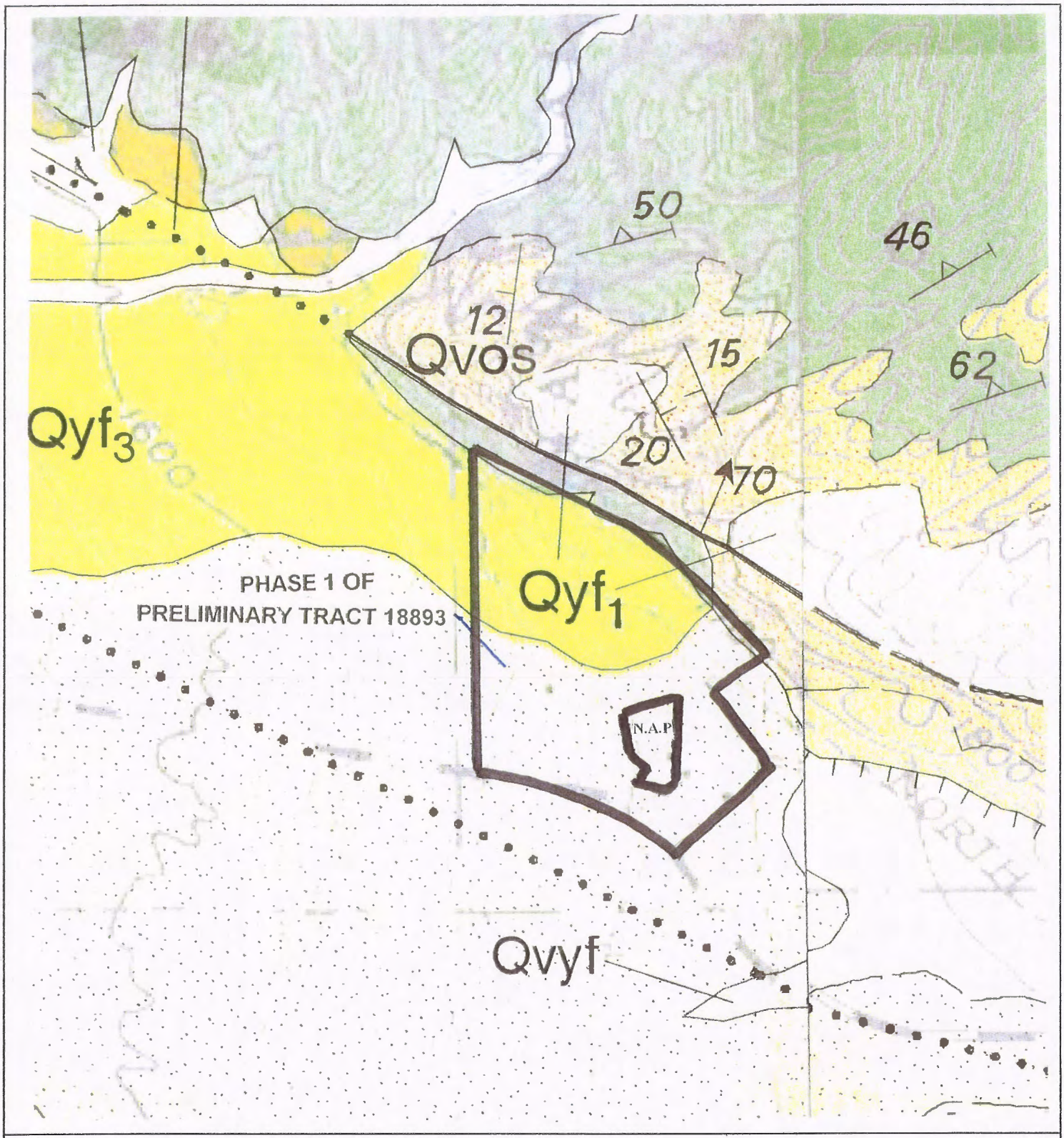

REGIONAL GEOLOGIC MAP (Matti et al, 2003)

PROJECT:	PHASE I OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	PROJECT NO.:	32126A.33
CLIENT:	SUNLAND COMMUNITIES	ENCLOSURE:	A-4
LOR Geotechnical Group, Inc.		DATE:	SEPTEMBER 2014
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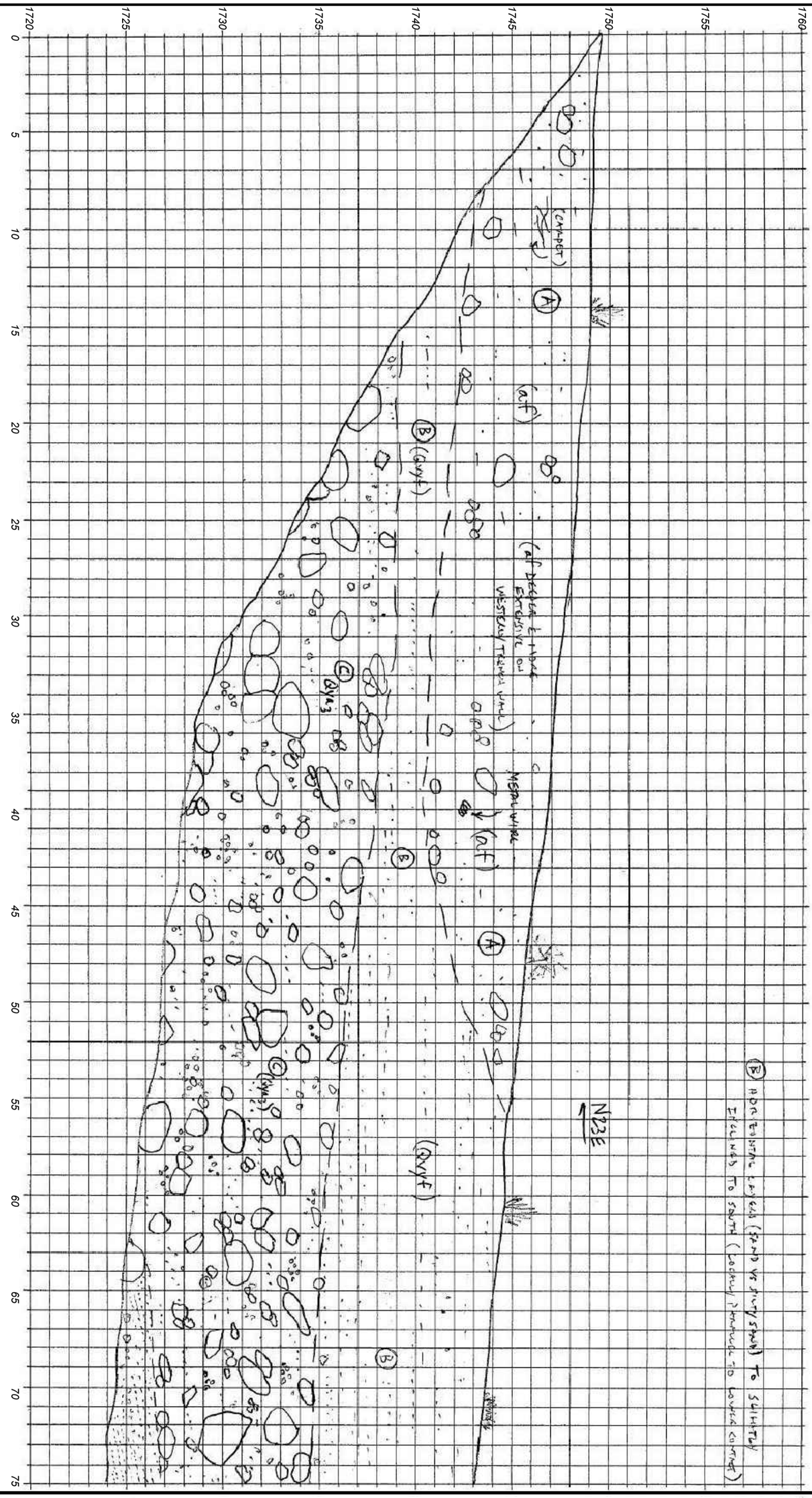

FAULT TRENCH FT-1

PROJECT:	PHASE 1 OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	**PROJECT NO:**	32126A.31
CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5a
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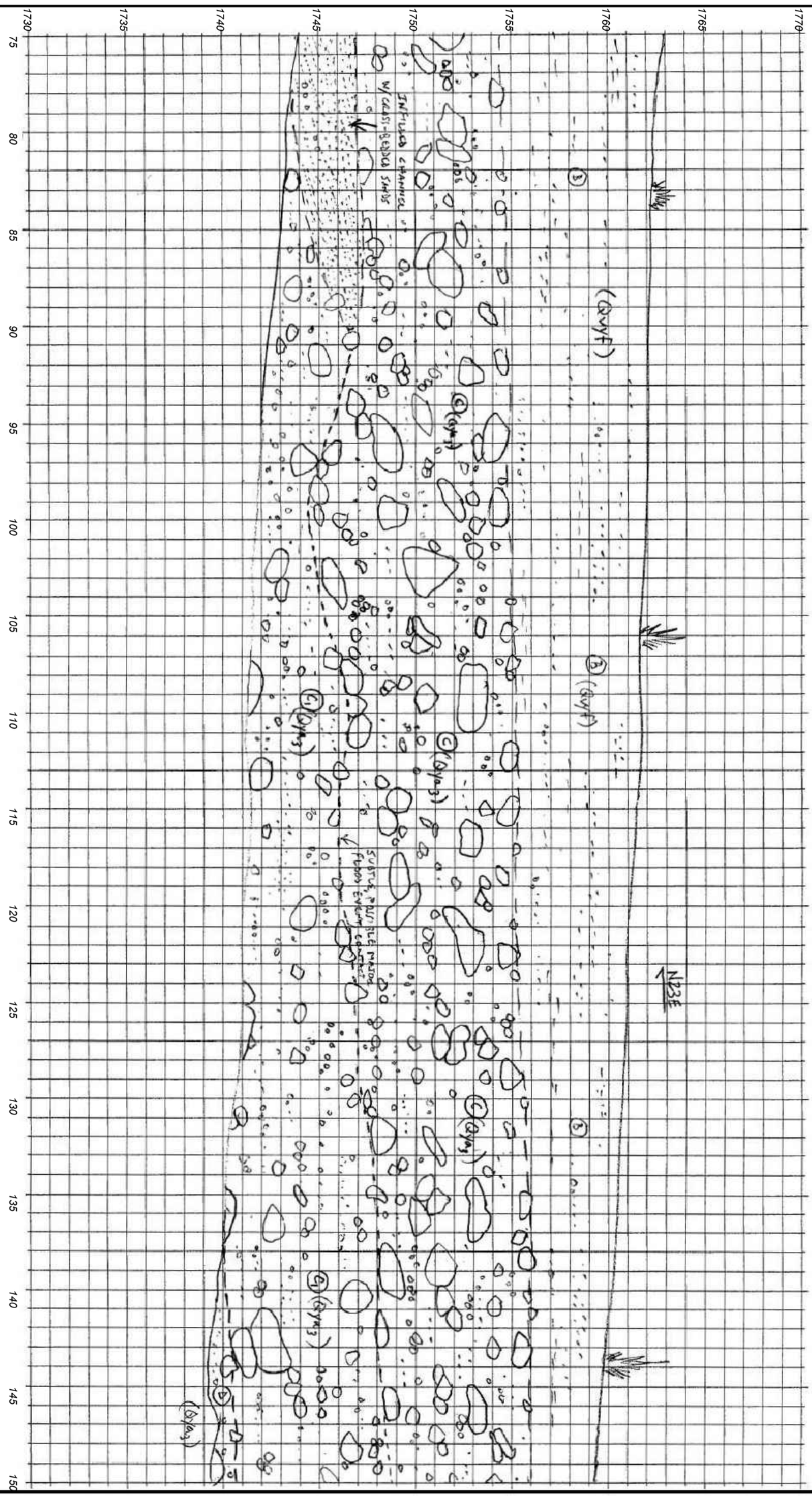

FAULT TRENCH FT-1

PROJECT:	PHASE 1 OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	**PROJECT NO:**	32126A.31
CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5b
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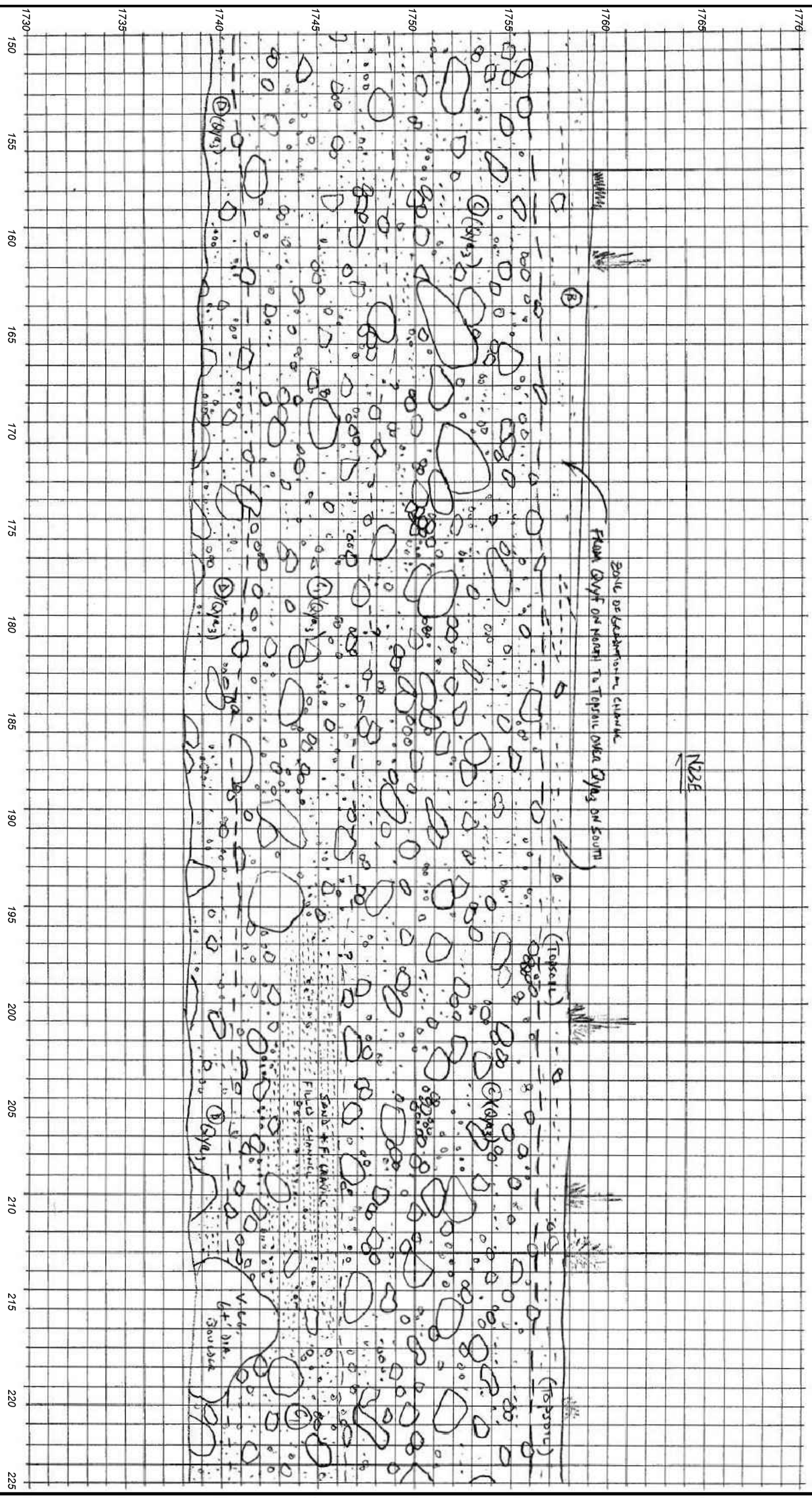
		SCALE:	1" = 5'



FAULT TRENCH FT-1

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CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5c
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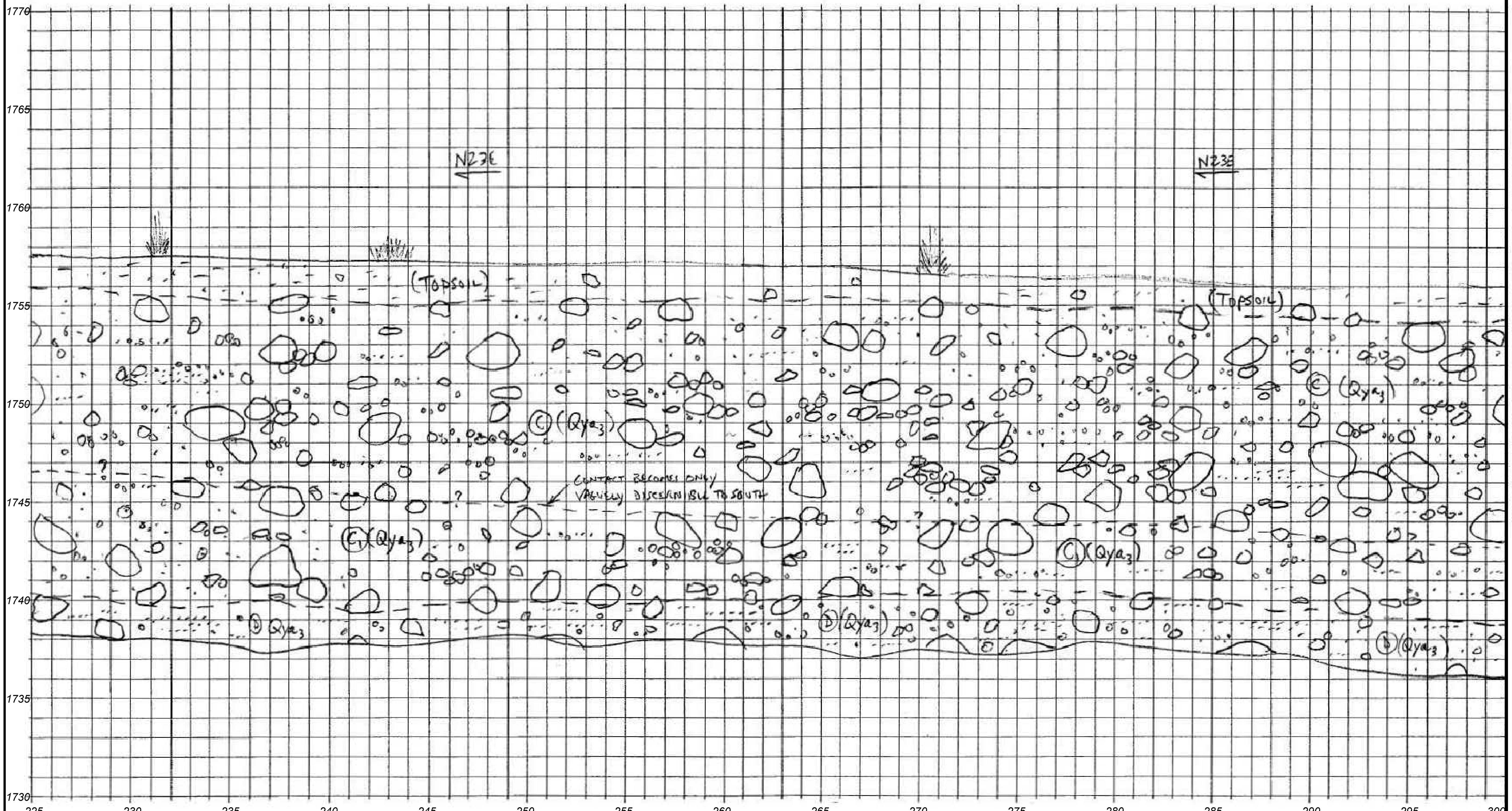


FAULT TRENCH FT-1

PROJECT: PHASE 1 OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA

CLIENT: SUNLAND COMMUNITIES

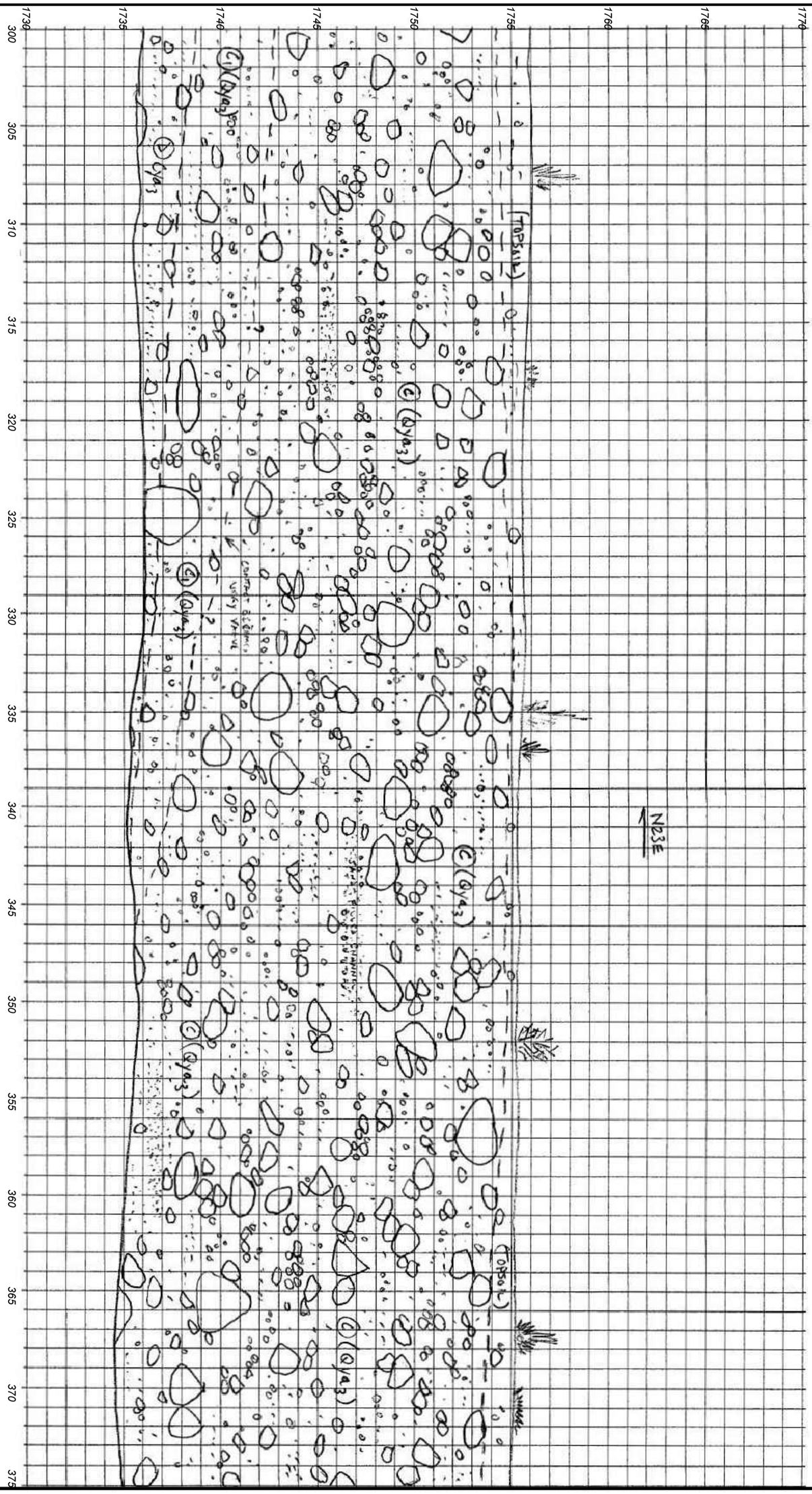
LOR Geotechnical Group, Inc.

PROJECT NO: 32126A.31

ENCLOSURE: A-5d

DATE: FEBRUARY, 2014

SCALE: 1" = 5'



FAULT TRENCH FT-1

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CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5e
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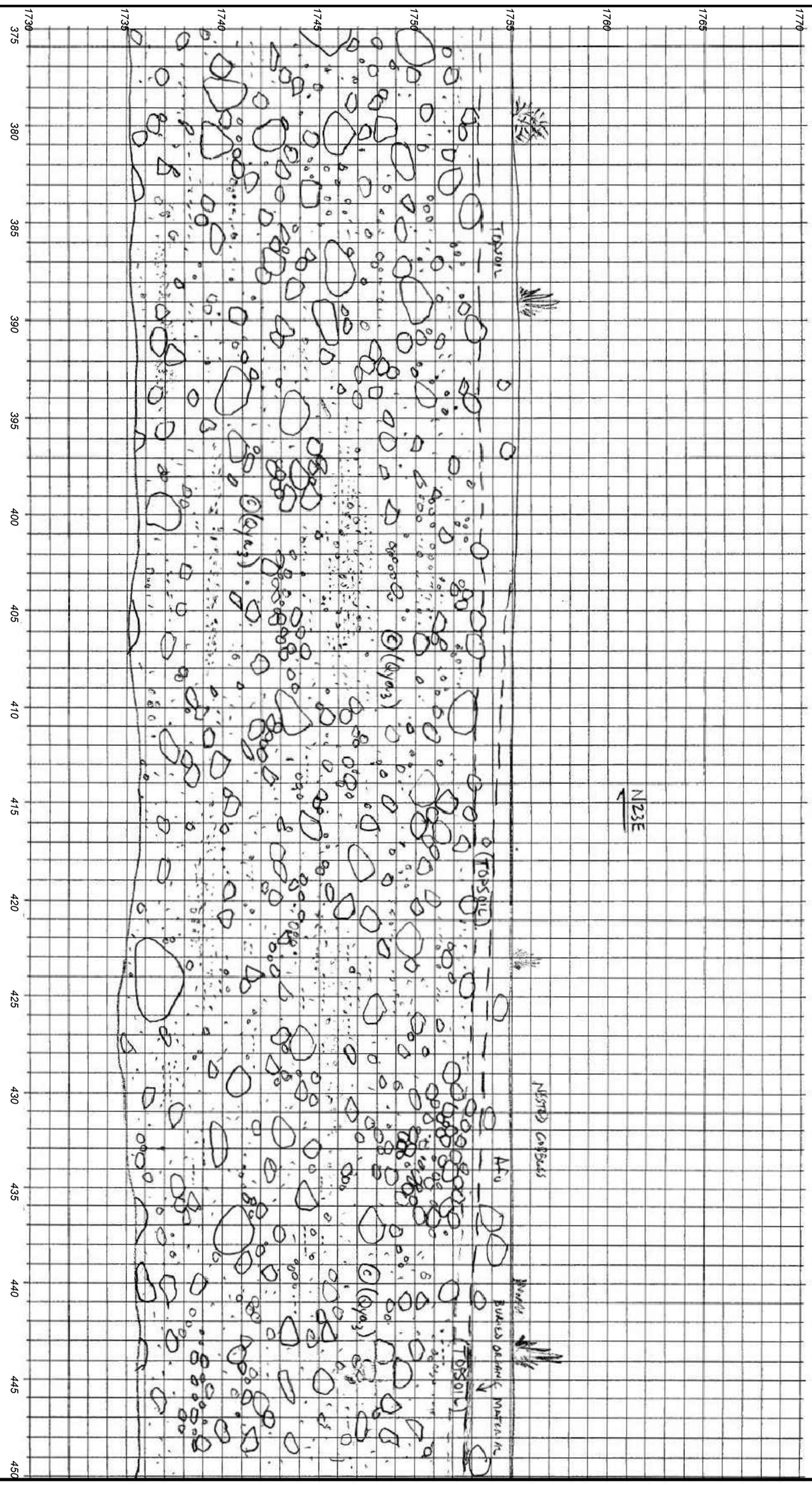

FAULT TRENCH FT-1

PROJECT:	PHASE 1 OF PRELIMINARY TRACT 18893, HIGHLAND, CALIFORNIA	**PROJECT NO:**	32126A.31
CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5f
LOR Geotechnical Group, Inc.		**DATE:**	FEBRUARY, 2014
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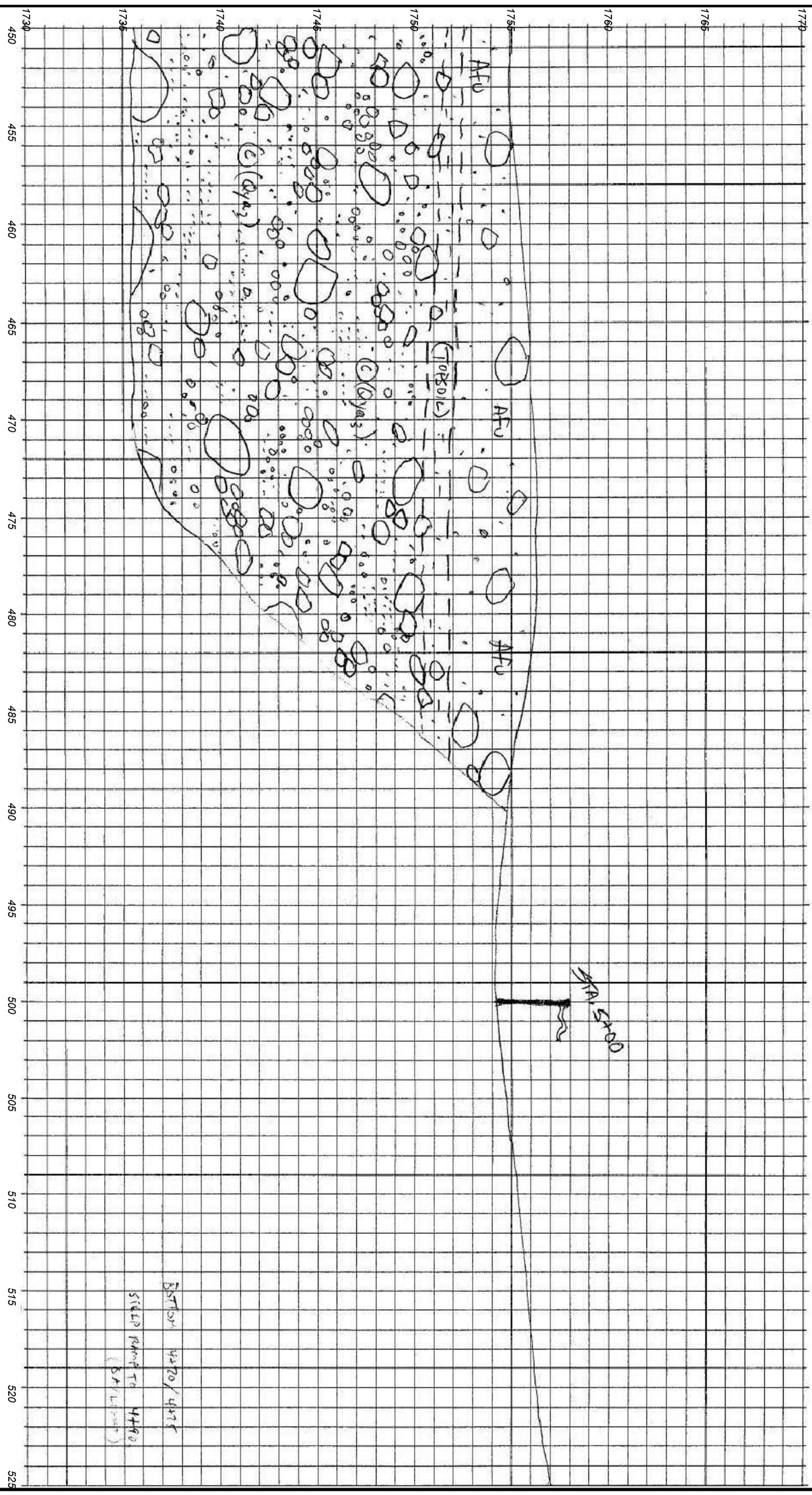

FAULT TRENCH FT-1

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CLIENT:	SUNLAND COMMUNITIES	**ENCLOSURE:**	A-5g
LOR Geotechnical Group, Inc.		**DATE:**	FEBRUARY, 2014
		SCALE:	1" = 5'

APPENDIX 6a

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

PHASE I ENVIRONMENT SITE ASSESSMENT AND LIMITED SITE CHARACTERIZATION ARNOTT RANCH EAST HIGHLANDS RANCH AREA HIGHLAND, CALIFORNIA

PROJECT NO. 32126.2
JULY 28, 2005

Prepared For:

Centex Homes
1265 Corona Pointe Court
Corona, California 92879

Attention: Ms. Debra Meier

RECEIVED
AUG 10 2005
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July 28, 2005

Centex Homes
1265 Corona Pointe Court
Corona, California 92878

Project No. 32126.2

Attention: Ms, Debra Meier

Subject: Phase I Environmental Site Assessment and Limited Site Characterization for the Arnott Ranch, 200 ± Acres, Located in the East Highlands Ranch Area of Highland, California.

Attached herewith is the Phase I Environmental Site Assessment and Limited Site Characterization for the Arnott Ranch, located in the East Highlands Ranch area of Highland, California.

This report was planned and executed based upon a scope of services generally outlined in our proposal letter, dated May 5, 2005.

We appreciate the opportunity to provide these services for this property. If you have any questions or comments regarding this evaluation, please do not hesitate to contact this firm at your convenience.

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EXECUTIVE SUMMARY

The site consists of approximately 200± acres of largely vacant land and citrus groves located in the East Highland Ranch area of Highland, California. The subject property has been largely vacant land and citrus groves throughout its researched history. Structures on the site include two residences, water wells, and irrigation structures.

Household trash and debris, old farm equipment, including an above ground diesel tank and water tanks, are located west of the newer residence on this site and in the northwest corner of the property. Located near the center of the site is an area of buried trash and debris. This area currently has about 10 feet of fill over it. The exact composition of this trash and debris is unknown, however, no 55 gallon drums are purported to be present. Because of the depth of fill (10 feet) over the trash, a large piece of equipment, such as an excavator, may be necessary to investigate this dump area. As this equipment becomes available, then the dump area should be investigated to determine if any adverse environmental conditions, such as chemical containers, have been buried in the area.

Three groundwater wells are known to be present on the site. If these wells are to be abandoned, they should be abandoned in accordance with current regulatory requirements. Other subsurface structures, such as irrigation lines, septic systems, and underground utilities should be anticipated during site development.

A Limited Site Characterization was conducted during this Phase I Environmental Site Assessment in order to determined if the past agricultural use of the site included organochlorine pesticides. The Limited Site Characterization indicated no levels of organochlorine pesticides were found to be above the EPA PRG's for residential soil at the locations samples. No pesticide storage facilities, which would be considered "hot spots" for high concentrations of pesticides, were indicated during our site reconnaissance. One sample (C-13) had total DDT above the State level of 1.0 mg/kg, which characterizes that soil as a California Hazardous Waste, and requires that the soil in that location is not exported off-site. Our experience indicates that once grading of the site is finished, all the levels of organochlorine pesticides will be reduced to well below the 1.0 mg/kg level and unrestricted use of the property appears warranted.

No local or regional groundwater contamination problems are known to exist in the immediate vicinity of the site.

Based on the findings of the Phase I Environmental Site Assessment and with consideration given to the recommendations contained herein, (1) the subject property exhibits no evidence of recognized environmental conditions that would prohibit its intended use as a residential development, and (2) no further investigations or tests are recommended, except as expressly stated in this report.

INTRODUCTION

During June and July of 2005, a Phase I Environmental Site Assessment (ESA) was performed by this firm for the Arnott Ranch, consisting of 200± acres of vacant land and citrus groves located in the East Highlands Ranch area, City of Highland, San Bernardino County, California. This Phase I ESA was conducted for Centex Homes, Inc. ("Centex") and their designates, in general accordance with the standard practices for Environmental Site Assessments, ASTM Standard E 1527-00 and all appropriate inquiries as set forth in 40 CFR Part 312 (proposed). The purpose of this Phase I Environmental Site Assessment was to identify, to the extent feasible, and pursuant to the processes described within, recognized environmental conditions indicative of a release or threatened release of hazardous substances on, at, in, or to the subject site.

The findings of our Phase I ESA as well as our conclusions and recommendations are presented in the following sections of this report.

NON-SCOPE CONSIDERATIONS

The following environmental issues are outside the scope of ASTM E 1527-00 and were not addressed in this report.

- Radon
- Lead in Drinking Water
- Wetlands
- Cultural Land Historical Resources

- Industrial Hygiene
- Health and Safety
- Ecological Resources
- Endangered Species
- Indoor Air Quality
- Mold and Mildew

METHODOLOGY AND PROCEDURES

During our research for this Phase I Environmental Site Assessment, various public agencies and individuals were contacted in order to provide insight into the previous and current uses of the site with respect to hazardous materials and/or waste. Aerial photographs from 1930 through 2005 were also reviewed to provide insight into the past history of the site. In addition, Federal and State databases were reviewed to ascertain the presence of known environmentally impaired sites within one mile of the property and to determine their impact to the site, if any.

Concurrent with our governmental agency interviews and literature research, an on-site reconnaissance of the property was conducted. The site reconnaissance was conducted in order to determine the current use of the site and the potential for soil and/or possible groundwater contamination based on above ground visual observation.

A Limited Site Characterization was conducted to determine if pesticide use at the site had included organochlorine pesticides, which are persistent in the environment.

CONCURRENT INVESTIGATIONS

Concurrent with this Phase I ESA, a preliminary Geotechnical Investigation (PGI) was conducted for the site by this firm. The PGI documents the placement of 22 exploratory trenches to a maximum of 15 feet deep and five exploratory borings to a maximum depth of 38 feet. Although done to specifically address the engineering properties of the soils, no unusual odors, colorations, or subsurface structures were encountered. Groundwater was encountered in one boring (B-1) located on the southeast portion of the site, upgradient from the San Andreas fault, at a depth of 21 feet below the ground surface.

GEOLOGIC AND HYDROLOGIC SETTING

Regional Geologic Setting

The site is located along the margin of two large tectonic plates with the Pacific Plate on the south-southwest and American Plate on the north-northeast separated by the through-going San Andreas fault. The southern and southwestern generally lower-lying areas of the site are located along the northeastern boundary of the Bunker Hill - San Timoteo Basin. This basin formed as a rift zone between the active San Andreas fault on the northeast and the active San Jacinto fault on the southwest. The southern boundary of the basin is less well defined, but is generally believed to coincide with the Banning fault zone. The basin is infilled with Quaternary age younger and older alluvial deposits. There are also topographic highs within the basin which expose pre-Cambrian age metamorphic rocks.

The relatively steep hillside areas to the north-northeast are along the southern edge of the San Bernardino Mountains. Cretaceous quartz monzonite makes up the bulk of these mountains while older gneisses and schists occur locally.

The nearest known active fault to the site is the San Andreas fault.

Site Geologic Conditions

Data from exploratory trenches placed at the site indicate that the site is underlain by various alluvial materials which are locally covered by artificial fills primarily placed within the central and northeastern portions of the site. Beneath the fills and at the ground surface within the remaining portions of the site, alluvial materials were encountered. Bedrock consisting mainly of granite and gneiss exists within the upper northerly portions of the property.

Groundwater Hydrology

Groundwater was encountered in one geotechnical exploratory boring at a depth of 21 feet deep. This boring apparently was located upgradient from an on-site fault zone.

Groundwater records available from the Department of Water Resources, provided information for two on-site water wells that have recently been abandoned. Both of these wells are located in the central portion of the site, near the small earthen basin. State Well No. 01S02W08C0D1S, located on the east side of the basin, has sporadic readings from 1959 to 1988 that indicate that the depth to groundwater in this well has been greater than 65 feet for all readings, except for one anomalously shallow reading in 1978, at which time the dept was 18.9 feet. State Well No. 01S02W08C002S, located just northwest of the basin, has extensive records listed from as early as 1928 and as recent as April, 2003. In general, the Department of Water Resources data for this well indicates the depth to groundwater was typically greater than 50 feet with depths as shallow as 30 to 40 feet, recorded during the wet years. The shallowest reading was 19.7 feet, again, recorded in 1978.

HISTORY OF SITE USAGE

To obtain a history of site usage, an aerial photograph review was conducted of aerial photographs on file at the San Bernardino County Flood Control and Water Conservation District and at Whittier College. Environmental Data Resources, Inc. (EDR) was contracted to conduct a Sanborn Map and City Directory Search for the site. In addition, a telephone interview was also conducted with Mr. Ron Arnott, the current property owner.

Property Owner Interview

Mr. Ron Arnott indicated he had owned the site since 1980. It was previously owned by an individual and has been planted in citrus since the early 1900's as a part of East Highlands Ranch. He indicated that there were three groundwater wells on the site, two for irrigation and one for domestic use. The two irrigation wells have never been operated by him and he thought they had not been used since the 1960's. When they purchased the site, there was an existing residence and barn on the west side of the property. The other residence was built in 1989. This new residence has a domestic well and water tank located northeast of the residence. The only other structures on the site are irrigation structures, the San Bernardino Valley Water District (SBVWD) facility and the North Fork Canal water structures.

Mr. Arnott did not know of any historical underground storage tanks (UST's) on the site and he did not place any on the site. The one diesel aboveground storage tank (AST) on the site came from their chicken ranch when that property was sold. It was brought over and stored on the site. The two other large tanks on the site were used by them for spraying water. No smudge pots were ever used by them due to the natural frost protection in that area and no wind machines were needed. All fuel for the grove equipment is taken from fuel tanks mounted on a pick-up truck.

Mr. Arnott only knows of one grove dump area, which is located in the area where currently there are soil removal operations taking place. The trash and debris in this dump area was from the prior owner. Mr. Arnott indicated no 55-gallon drums were present in the trash, although there were rusted gallon size containers. In 1993,flooding in that area started taking place as a result of work done on a drainage area north of the site. This deposited a lot of soil from the upper canyon onto the trash area. Mr. Arnott estimated the trash area was about 50 to 60 feet long by 50 feet wide and is currently covered with about 10 feet of washed in soil.

Sanborn Map/City Directory

A search of the Sanborn Map collection by EDR determined there was no Sanborn Map coverage for the site. The City Directory information indicated no listing for the site address of 31019 Greenspot Road with residential properties listed as adjacent addresses. A copy of the Sanborn Map and City Directory report is provided within Appendix C.

Aerial Photograph Review

To obtain a history of previous site usage, a search was conducted for available aerial photographs of the area on file at the San Bernardino County Flood Control and Water Conservation District and at Whittier College. The search reviewed aerial photographs taken of the site and surrounding area in 1930, 1938, 1955, 1969, 1970, 1972, 1978, 1986, 1991, 1996, 2001, and 2005 the latest photograph available.

The aerial photographs reviewed consisted of vertical aerial stereographic photograph pairs of varying scales. These photographs were viewed using stereoscopes with magnifications of 2X, and 4X for three-dimensional enhancement. Due to the

relatively large photographic scales involved, the analysis and subsequent interpretation of detail from aerial photographs sometimes required a degree of subjected judgement. The degree certainty on the interpretation of details depends upon such factors as the scale and the quality of the photograph. However, an analysis of aerial photographs will reveal the general site history as to the relative use of the land, possible ground disturbance, activities, etc.

A summary of the site and surround conditions during the various times, as reflected in the photographs is given below:

1. **1930, From Whitter Fairchild Collection, Scale 1" = 700"**

In this early aerial photograph, the site is citrus grove-with basically the same grove coverage as today. The south center portion, along Greenspot Road, is largely natural ground, river braided deposits. Santa Ana Canyon Road traverses the site as a dirt road and the North Fork Canal is apparent across portions of the site and adjacent areas. Groves of mature native trees exist along a trail or traces of the San Andreas fault in the eastern portion of the site. Several small dirt roads cross ths site mainly for providing access to the widespread citrus trees. A residence with two barns exists in the west portion of the site with a few other barns/sheds (presumably related to citrus packing) located on the east side of the large westerly grove and in the west -central portion of the property.

A scar/depression is located just west-northwest of the merger of Santa Ana Canyon Road and Greenspot Road. It measures about 40'x80' and may be a small retention basin. Several scars exist on the mountainside just north of the planted citrus groves in the eastern and center portions of the site. These could be scars from leftover hydraulic mining/grading of the local lower mountain ridge lines to provide soils for creating relatively flat areas for the citrus trees to be planted. Drainage courses in the northwest portion of the site appear to have been lightly modified and/or redirected to provide supplemental irrigation water for the adjacent groves.

Citrus groves with a small ranch exist northwest of the site while vacant mountain hillsides with fairly new firebreaks along the ridge lines exist north of the site. South and east of the site is the active Santa Ana River Wash. Percolation basins have been created in the wash area south of the site.

2. **1938, W-2, Photo Nos. N-3-3, N-2-1, N-2-14 and N-2-15, Scale 1" = 1,000'**

The site and surrounding areas are essentially the same as in the previous photographs.

3. **November 9, 1955, F-35, Photo Nos. 4-71, 72, 73, Scale 1" = 1,200'**

The structures in the west central portion of the site that may have been associated with grove operations are no longer present. Additional irrigation ditches/canals appear to have been added to the hillside areas just north of the groves in the western portion of the property. The area of "natural" (non-grove) land between the groves of indigenous trees and the merger of Santa Ana Canyon Road with Greenspot Road appears to have been recently disturbed locally. The disturbed ground appears to be installation of a subsurface utility (likely a water line) that trends east-southeast to west-northwest roughly parallel to Santa Ana Canyon Road. The depression/retention basin area is returning to natural conditions.

4. **January 31, 1969, C-293, Photo Nos. 67, 68, 73, Scale 1" = 2,000'**

The site and surrounding areas appear much as previously described.

5. **February, 1969, Photo Nos. 44 and 60, Scale 1" = 2,000'**

Another apparent trenching scar (possibly for water installation) again appears in the photos-this time it is just north of and parallel to the scars seen in the 1955 photos. Some of the land south and southwest of these trenched areas (between the groves and Santa Ana Canyon Road) appears disturbed, as if used for borrow and/or stockpiling of soils in the past. The onsite retention basin and adjacent offsite basins (south of Greenspot Road) contain water from recent rains.

6. **February 7, 1970, C-297, Photo Nos. 53 and 54, Scale 1" = 2,000'**

Aside form the recent construction of Government Canyon Road north of the site, the site and adjacent areas generally appear as previously described.

7. **October 15, 1972, C-194, Photo Nos. 40 and 41, Scale 1" = 2,000'**

Three large sections of citrus grove have been removed and replanted in the western portion of the site and a small packing facility may now exist in the area, south of the existing residence.

8. **January 21, 1978, C-279, Photo Nos. 113 and 115, Scale 1" = 2,000'**

Virtually all of the groves have been recently removed and replanted. A fairly large area of ground has been disturbed in the area including and just north of the merge point for Greenspot Road and Santa Ana Canyon Road.

9. **February 25, 1986, C-450, Photo Nos. 116 and 177, Scale 1" = 2,000'**

The same area is disturbed again and a linear trench scar leads to it from offsite and southeast. A fenced in areas for the SBVWD facility now exists onsite in this same general area-northeast of the Santa Ana Canyon Road/Greenspot Road connection. An additional small area of cleared ground (about 50' in diameter) exists north of Greenspot Road a few hundred feet east of this area. Also, one of the two barns located in the far western portion of the property has been removed.

10. **July 1, 1991, C-487, Photo Nos. 131, 132, and 135, Scale 1" = 2,000'**

A residence has been built upon a low ridge within a grove area in the west-central portion of the property. Land in the far southeast portion of the site north of Greenspot Road appears cleared/disturbed and this may be related to the start of construction of the nearby Seven Oaks Dam. Otherwise, the site and vicinity appear much as previously described.

11. **May 31, 1996, C-528, Photo Nos. 160-162, Scale 1" = 2,000'**

A 100± diameter area has been cleared of vegetation (not former grove area) in the far northwest part of the site, west of Government Canyon Road and north of the existing residence. A canyon area northeast and southeast of the residence that was recently built onsite has been channelized/modified. A sand and gravel operation

within the far southeast portion of the site south of Greenspot Road has heavily altered the surface in the area.

12. June 15, 2001, C-541, Photo Nos. 174 -176, Scale 1" = 2,000'

The site appears much as it does today. The sand and gravel operation has been removed from the southeast portion of the site.

13. January 18, 2005, C-553, Photo Nos. 13-52, 52, and 54 Scale 1" = 1,000'

The site appears basically unchanged from the time of the previous photographs and virtually the same at present.

Electronic copies of single aerial photographs of the site and surrounding areas were provided by Environmental Data Resources (EDR) for the years 1938, 1953, 1967, 1972, 1989, 1994, and 2002 for inclusion to the subject as a historical reference. Copies of these ariel photographs with the approximate site boundaries and scale are provided within Appendix B.

SITE RECONNAISSANCE

A site reconnaissance was conducted on June 28, 2005 by a representative of this firm. An aerial photographic map overlaid with the approximate site boundaries and Assessor's Parcels were provided for our reference during this assessment. A copy of this map is presented within Appendix A.

The site consists of 200 ± acres and is generally bounded by Greenspot Road on the south and the Santa Ana River on the east, San Bernardino mountains on the north, and scattered rural residences and a residential tract to the west. The site is topographically diverse with a portion of the north part of the site on the relatively steep flanks of the San Bernardino mountains and the south portion within the relatively planar alluvial plain of the Santa Ana Wash. The majority of the site is planted in citrus crops. Site drainage is to the south towards the Santa Ana Wash.

There are two residences on the site, one on the west end of the site and one in the northwest portion of the site. The residence on the west end of the site was built in 1910, while the residence in the northwest portion of the site was built in 1989 by Mr. Arnott, the current owner. Associated with the 1910 residence is an old barn on the west property line and some small outbuildings/sheds on the east side of the residence. In the area of the old barn on the west property line are some old pieces of farm equipment and an empty rusted 55 gallon drum. No soil staining was noted in this area. A small canyon area to the northwest of the old residences has a hummocky topography which may be the large rocks noted on the surface or buried trash and debris.

The newer (1989) residence has a small water well and holding tank located on the hill just to the northeast. A pickup truck, sprayer, wood and other debris was present just off the driveway of the newer residence.

In the canyon immediately west of the newer residence is a storage area. This storage area contains two metal storage containers, old feed tanks, sprayers, 8,000 ± gallon water tanks, metal culverts, storage shed with PVC pipe and fittings and an empty 1,000 gallon diesel above ground storage tank. No soil staining was noted in this area.

Other structures on the site included two old water wells located in the south-center portion of the site; a San Bernardino Valley Municipal Water District (SBVMWD) distribution/pump facility on the east-center side of the site, a water distribution/pump house for grove irrigation in the north-center of the site, and several irrigation related structures such as aboveground fertilizer additive and water filter tanks. Water for the site irrigation is from the North Fork Canal which runs through the site. Miscellaneous trash and debris scattered throughout the site included green waste, tires, and two empty 55 gallon drums that appeared to be for water usage.

At the time of our site visit, a loader was removing soil washed down from a canyon in the west-center portion of the site. This is also the area where Mr. Arnott indicated a 50- to 60-foot long by 20 feet wide area of trash and debris, from the previous owner, was located. He indicated it was 150 to 200 feet south of the grouted drainage that carries soil down onto the site in times of heavy rain. We did not see

any indication of this trash disposal area due to the washed in material (approximately 10 feet) over it.

An old rock foundation for a building is located in the southwest portion of the site either on the property or just off the site on the 2.6 acre parcel of land owned by SBVMWD. This old foundation measured about 10 by 15 feet.

No other significant features were noted on the site.

ADJACENT PROPERTIES

The site is bordered by vacant mountainous terrain to the north and vacant alluvial wash terrain to the south. To the west are single family residential ranches followed by a residential tract. To the east is the Seven Oaks Dam facility with associated structures and maintenance facilities. Drive by observations of these properties did not indicate any source of potential contamination, such as aboveground drums or tanks.

Color photographs of the site and adjacent properties are presented within Appendix A.

REGULATORY AGENCY REVIEW

County and State agencies were contacted and a records search was performed in an effort to identify any known environmentally impaired (hazardous waste/substance) site or incidents or hazardous waste storage or disposal violations within the immediate area of the subject property.

For records relating to environmental compliance and hazardous materials/waste within the County of San Bernardino Fire Department, Hazardous Materials Division (CSBFD-HMD), generally is the lead agency. The Regional Water Quality Control Board (RWQCB), Santa Ana region, generally is the lead agency for groundwater investigations and remediation and wastewater discharge regulations.

The County of Riverside Health Services Agency, Department of Environmental Health Services, (DEHS) was contacted and has not responded to our request for records. We do not anticipate any records will be found for the site. However, if records are provided, we will forward them under separate cover.

ENVIRONMENTAL DATABASE REVIEW

LOR Geotechnical Group, Inc. contracted with Environmental Data Resources, Inc. (EDR) to provide an environmental database search for information regarding landfills, underground storage tanks, and hazardous waste sites. Because of the size of the site, the search radius was extended an additional mile. No significant mapped sites were found in EDR's search of ASTM Standard governmental records within the extended search radius. An overview of the ASTM database listings are presented below with a copy of the EDR report provided within Appendix D.

FEDERAL DATABASES		
Database Abbreviation	**Search Distance (miles)**	**Results**
NPL	2.0	None
Proposed NPL	2.0	None
CERCLIS	2.0	None
NFRAP	2.0	None
CORRACTS	2.0	None
RCRIS - TSD	2.0	None
RCRIS - Lg. Quantity Generator	0.75	None
RCRIS - Sm. Quantity Generator	0.75	None
ERNS	.50	None
STATE DATABASES		
AWP	2.0	None
Cal-sites	2.0	None
CHMIRS	2.0	9 Sites, See Below
Cortese	2.0	None

Database Abbreviation	Search Distance (miles)	Results
Notify 65	2.0	None
Toxic Pits	2.0	None
State Landfills	2.0	None
WMUDS/SWAT	2.0	None
LUST	2.0	None
CA Bond Exp. Plan	2.0	None
UST	.25	None
VCP	2.0	None
Indian UST	1.0	None
CA FID UST	.75	None
Hist. UST	.75	None

California Hazardous Materials Incident Repair System

The California Office of Emergency Services maintains the California Hazardous Materials Incident Report System (CHMIRS) which contain information on reported hazardous material incidents. Odebrecht Contractors of California were listed nine times on the CHMIRS database. The address was 32330 Santa Ana Canyon Road. The incidents were all fuel leaks on construction equipment during the construction of the Seven Oaks Dam. All the incidents were reported and cleaned up. Odebrecht Contractors is also listed on the AQMD Emissions Inventory Data List for the large number of equipment (diesel) that they had working on the Seven Oaks Dam. There is no adverse environmental impact to the site anticipated from these CHMIRS incidents as they were small in nature and cleaned up.

Orphan Summary List

The Orphan Summary List is a list of sites without sufficient data to accurately plot them. A review of this list indicated the Seven Oaks Dam project, located approximately .25 miles east of the site had a leaking underground storage tank. No

information was provided regarding this leaking UST.

Division of Oil, Gas, and Geothermal Resources

The California Division of Oil, Gas, and Geothermal Resources maintains a list of all producing and abandoned oil and gas wells within the State of California. Maps of the area were reviewed, revealing that the subject site does not lie immediately within an area of abandoned or producing gas and/or oil wells.

Geotracker

The California State Water Resources Control Board maintains an online database, Geotracker, for UST (Underground Storage Tank), LUST (Leaking Underground Storage Tank), and SLIC (Spills, Leaks, Investigations, and Cleanups) sites. The subject site and immediate surrounding properties did not appear in the database as either a UST, LUST, or SLIC site.

LIMITED SITE CHARACTERIZATION

Our research indicates the site has been citrus groves since the early 1900's. Due to this agricultural history, we performed a Limited Site Characterization which involved sampling of the near surface soils for organochlorine pesticides. These types of pesticides can be highly persistent in the environment. The sampling was conducted over the site using a hand trowel to obtain samples at depths of 6 to 12 inches deep. The location of the samples taken is presented on the enclosed Soil Sample Location Map, within Appendix D.

Soil Sampling Methodology and Procedure

The field sampling equipment consisted of a clean hand trowel and clean glass jars.

To minimize the chance of cross-contamination between samples, all sampling equipment was decontaminated prior to its use.

A total of twenty soil samples were obtained from a depth of 6 to 12 inches deep by

collecting soil directing into a clean glass jar. The soil was examined for signs of staining, discoloration, or odors. The samples did not exhibit any noticeable staining, discoloration or odors. The glass jar was sealed with a Teflon lined cap and immediately placed in a cooler for transport to the laboratory. Chain-of-Custody (CoC) documentation was maintained and accompanied the samples to the laboratory.
All field work was documented in the following manner. The sample labels were filled out with the sample number, location, depth, and the date and time of sampling. Upon delivery of the samples to the laboratory for analysis, the CoC form was signed by authorized personnel and a copy was retained by LOR. The samples were tested by Centrum Analytical Laboratories, a State-Certified Hazardous Waste Testing laboratory.

The quality assurance/quality control (QA/QC) program in effect during the performance of all field activities included the following items:

1. Complete documentation of all field activities.
2. Use of appropriate CoC forms.
3. Use of clean sampling equipment.
4. Proper equipment decontamination according to accepted EPA Protocol.

Sample No.	Analytical Results (mg/kg)
C-1	0.035 DDT
C-2	0.011 DDT
C-3	ND
C-4	ND
C-5	ND
C-6	ND
C-7	ND
C-8	ND
C-9	ND

Sample No.	Analytical Results (mg/kg)
C-10	ND
C-11	ND
C-12	0.633 DDT 0.13 Toxaphene
C-13	1.16 DDT 0.28 Toxaphene
C-14	0.506 DDT 0.005 Dieldrin 0.17 Toxaphene
C-15	0.29 DDT 0.027 Dieldrin 0.14 Toxphene
C-16	0.027 DDT 0.068 Toxaphene
C-17	0.239 DDT 0.01 Dieldrin 0.044 Toxaphene
C-18	ND
C-19	ND
C-20	ND
mg/kg - parts per million ND - None Detected; DDT - Total of DDT, DDD, and DDE	

The results of this initial testing indicated no organochlorine pesticides above the EPA's Preliminary Recommendation Goals (PRG's) for residential areas were present in the soils tested. One sample, C-13, had a total DDT above the State of California's limit of 1.0 mg/kg (ppm), which would characterize the soil in that one location as a hazardous waste. The only restriction on the soil in the area of sample C-13 is that it can not be transported off-site. Our experience with organochlorine pesticides on other projects graded for residential development, has shown the final concentration of organochlorine pesticides will be reduced during the grading operation to well

below 1.0 mg/kg. Based on all sample test results being below the EPA PRG's for residential soil, no further testing for pesticides is deemed necessary and unrestricted (residential) use of the property is warranted.

A copy of the Centrum Analytical laboratory test results and Chain-of-Custody are presented within Appendix D.

CONCLUSION AND RECOMMENDATIONS

Based on our Limited Site Characterization, no levels of organochlorine pesticides were found to be above the EPA PRG's for residential soil at the locations sampled. No pesticide storage facilities were indicated during our site reconnaissance which would be considered "hot spots" for high concentrations of pesticides. One sample (C-13) had total DDT above the State level of 1.0 mg/kg, which characterizes that soil as a California Hazardous Waste, and requires that the soil in that location is not exported off-site. Based on the levels of organochlorine pesticides detected in the site soils, no further testing is necessary. Further, our experience indicates that once grading of the site is finished, all the levels of organochlorine pesticides will be reduced to non-detect levels. Based on these pesticide test results, unrestricted use of the property appears warranted.

Three groundwater wells are known to be present on the site. If these wells are to be abandoned, they should be abandoned in accordance with current regulatory requirements. Other subsurface structures, such as irrigation lines, septic systems, and underground utilities should be anticipated during site development.

Household trash and debris, old farm equipment, including an aboveground diesel tank and water tanks, are located west of the newer residence on the site and in the northwest corner of the property. Located near the center of the site is an area approximately 50 to 60 feet long and 50 feet wide of buried trash and debris. The area has approximately 10 feet of fill over it. The exact composition of this trash and debris is unknown, however, no 55-gallon drums were reported to be present. Because of the depth of fill (10 feet) over the trash area, a large piece of equipment, such as an excavator may be necessary to investigate this dump area. As this equipment becomes available, then the dump area should be investigated to

determine if any adverse environmental conditions, such as containers of chemicals have been buried in this area.

We have performed this Phase I Environmental Site Assessment in general conformance with ASTM 1527-00 and all appropriate inquiries set forth in 40 CFR Part 312 (proposed) for the Arnott property, a 200 ± acre property located in the East Highlands Ranch area of Highland, California. This assessment has revealed no evidence of adverse environmental conditions associated with the subject site.

Based on the findings of the site investigation and with consideration given to the recommendations contained herein, (1) the subject property exhibits no evidence of recognized environmental conditions that would prohibit its intended use as a residential development, and (2) no further tests or investigations are recommended, except as expressly stated in this report.

STATEMENT OF QUALIFICATIONS

Mr. M. Kevin Osmun has over 19 years experience in the environmental field. Mr. Osmun directs LOR Geotechnical Group's environmental operations and has conducted over 300 Phase I Environmental Site Assessments for the private and public sectors. The properties have ranged from agricultural to commercial/industrial. In addition to his experience with environmental assessments for property transfers, he has managed projects that require mitigation prior to and during development. Mr. Osmun is well versed in hazardous waste sampling and characterization methodologies in soil and groundwater regimes and risk assessments. Projects have ranged from leaking UST's, solid waste landfills, TSD facility closures to single spill response. LOR Geotechnical Group, Inc. is one of three firms that provides report review for underground storage tank closure for the County of San Bernardino, Fire Department Hazardous Materials Division.

Mr. Osmun has a B.S. in geology from Wayne State University, Detroit, Michigan. He is a Registered Professional Civil Engineer and Environmental Assessor II in the State of California.

LIMITATIONS

This report was prepared solely for the use and benefit of LOR's client, Centex Homes and their affiliates, they may release this information to third parties, who may use and rely upon this information at their discretion. However, any use of or reliance upon this information by a party other than Centex Homes and their affiliates, shall be solely at the risk of such third party and without legal recourse against LOR Geotechnical Group, Inc.; its subsidiaries and affiliates; or their respective employees, officers, or directors; regardless of whether the action in which recovery of damages is sought is based upon contract, statute, or otherwise. This information shall not be used or relied upon by a party which does not agree to be bound by the above statement.

The content and conclusions provided by LOR in this assessment are based on information collected during our investigation, which may include, but is not limited to, visual site inspections, interviews with the site owner, regulatory agencies and other pertinent individuals, a review of available public documents, subsurface exploration and laboratory testing of soil samples, and our professional judgement based on said information at the time of preparation of this document. Any subsurface samples results and observations presented herein are considered to be representative of the area of investigation; however, soil conditions may vary between sample locations and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which may vary from these findings, the newly-revealed conditions must be evaluated and may invalidate the conclusions of this report.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. LOR Geotechnical Group, Inc. (LOR) is not responsible for the accuracy of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report, and the interpretation of such data based upon our experience and background, and no warranty, either expressed or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

TIME LIMITATIONS

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc., verifying the suitability of the conclusions and recommendations.

CLOSURE

We declare that, to the best of our professional knowledge and belief, that we meet the definition of Environmental Professional as defined in §312.21 of 40 CFR Part 312 (proposed). We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting fo the subject property. We developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312 (proposed).

We appreciate the opportunity to be of service and trust that this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,
LOR Geotechnical Group, Inc.

M. Kevin Osmun, REA II 20058
Vice President

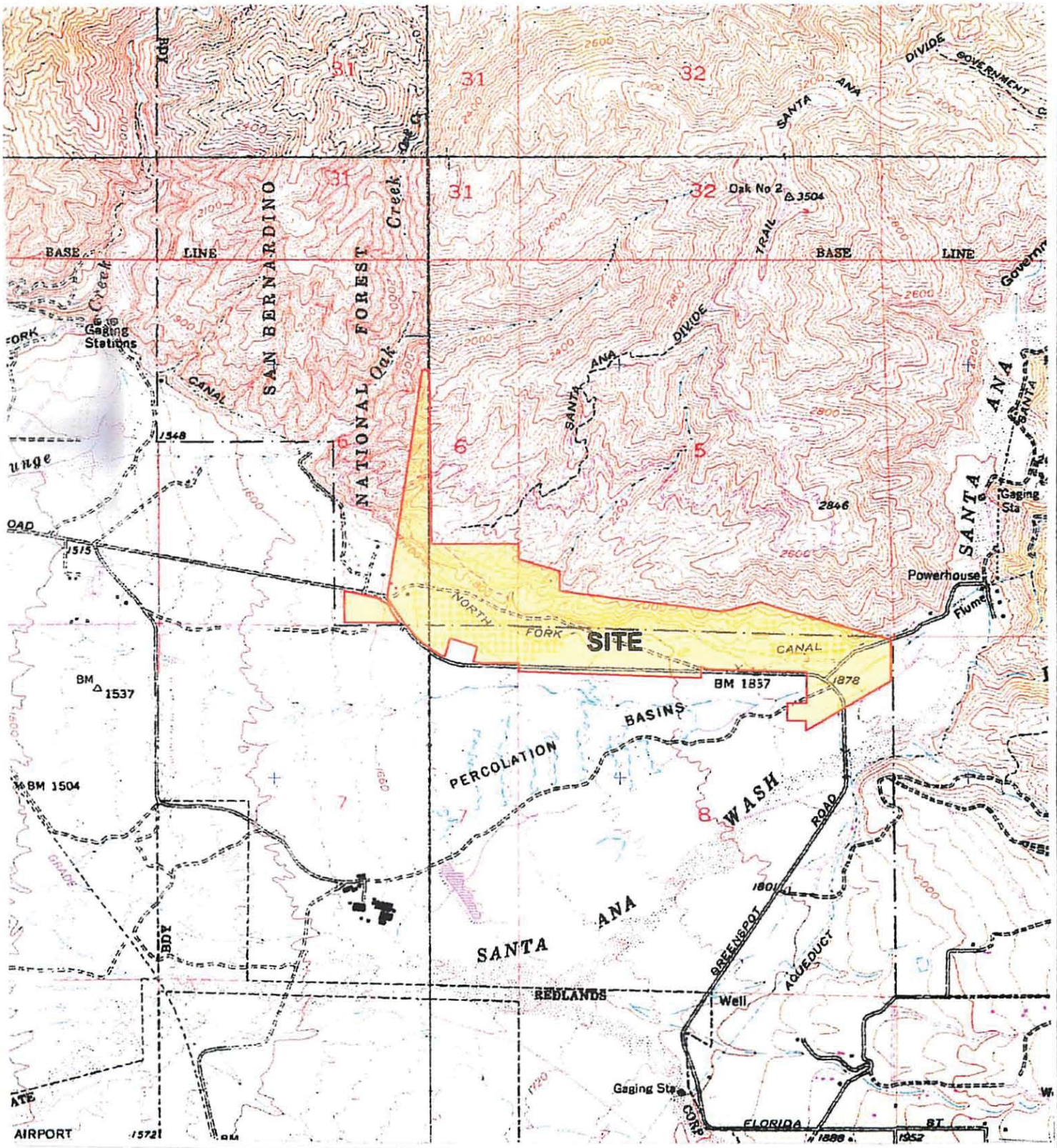
MKO/mmm

Distribution: Addressee (4)

REGISTERED ENVIRONMENTAL ASSESSOR - II
M. KEVIN OSMUN
No. 20058
Expires 9/30/05
STATE OF CALIFORNIA

APPENDIX A

Index Map, Site Map, and Color Photographs



INDEX MAP

PROJECT:	ARNOTT RANCH, EAST HIGHLANDS AREA, CALIFORNIA	PROJECT NO.:	32126.2
CLIENT:	CENTEX HOMES	ENCLOSURE:	A-1
LOR Geotechnical Group, Inc.		DATE:	AUGUST 2005
		SCALE:	1" = 2,000'

GREENSPOT

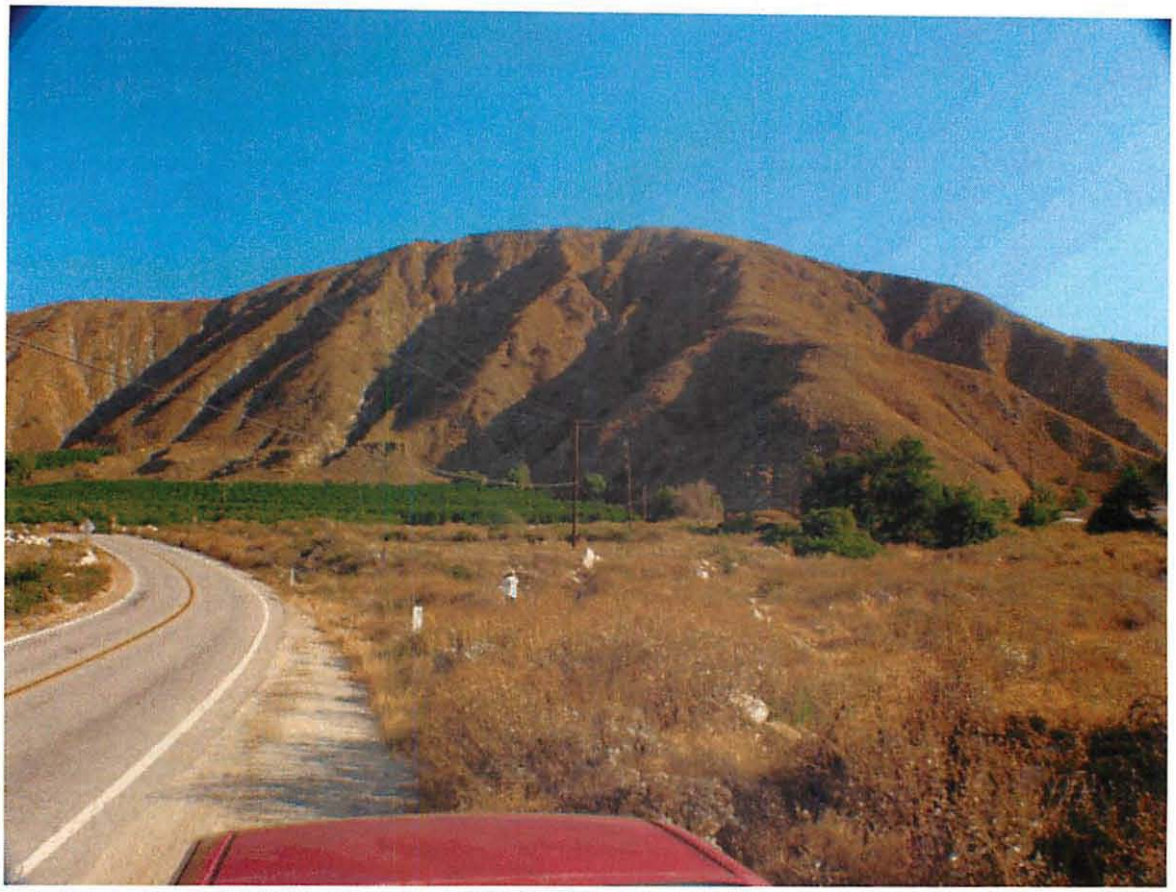


PHOTO 1 - VIEW FACING NORTH FROM GREEN SPOT ROAD SHOWING THE EAST PORTION OF THE SITE AND THE EXISTING GROVES AND NATURAL VEGATATION ON THIS PORTION OF THE SITE.

PHOTO 2 - VIEW FACING WEST FROM THE LOCATION OF THE ABOVE PHOTO SHOWING THE PORTION OF THE SITE IN THE WASH (BARE AREA) SOUTH OF GREENSPOT ROAD.

PHOTO 3 - VIEW FACING EAST SHOWING THE EAST PORTION OF THE SITE SOUTH OF GEENSPOT ROAD AND SANTA ANA CANYON. A ROCK COVERING OVER AN IRRIGATION LINE IS VISIBLE IN THE BOTTOM OF THE PHOTO.

PHOTO 4 - WITHIN THE EAST CENTRAL PORTION OF THE SITE IS A WATER DISTRIBUTION/PUMP SYSTEM VAULT OPERATED BY SAN BERNARDINO MUNICIPAL DISTRICT.

PHOTO 5 - VIEW OF THE ONE OF TWO OLD WATER WELLS AND SURROUNDING BUILDING FOUNDATION LOCATED IN THE EAST PORTION OF THE SITE, WEST OF THE SBMW FACILITY ANDNORTH OF GREENSPOT ROAD.

PHOTO 6 - WATER DISTRIBUTION/PUMP BUILDING LOCATED IN THE NORTHEAST PORTION OF THE SITE,

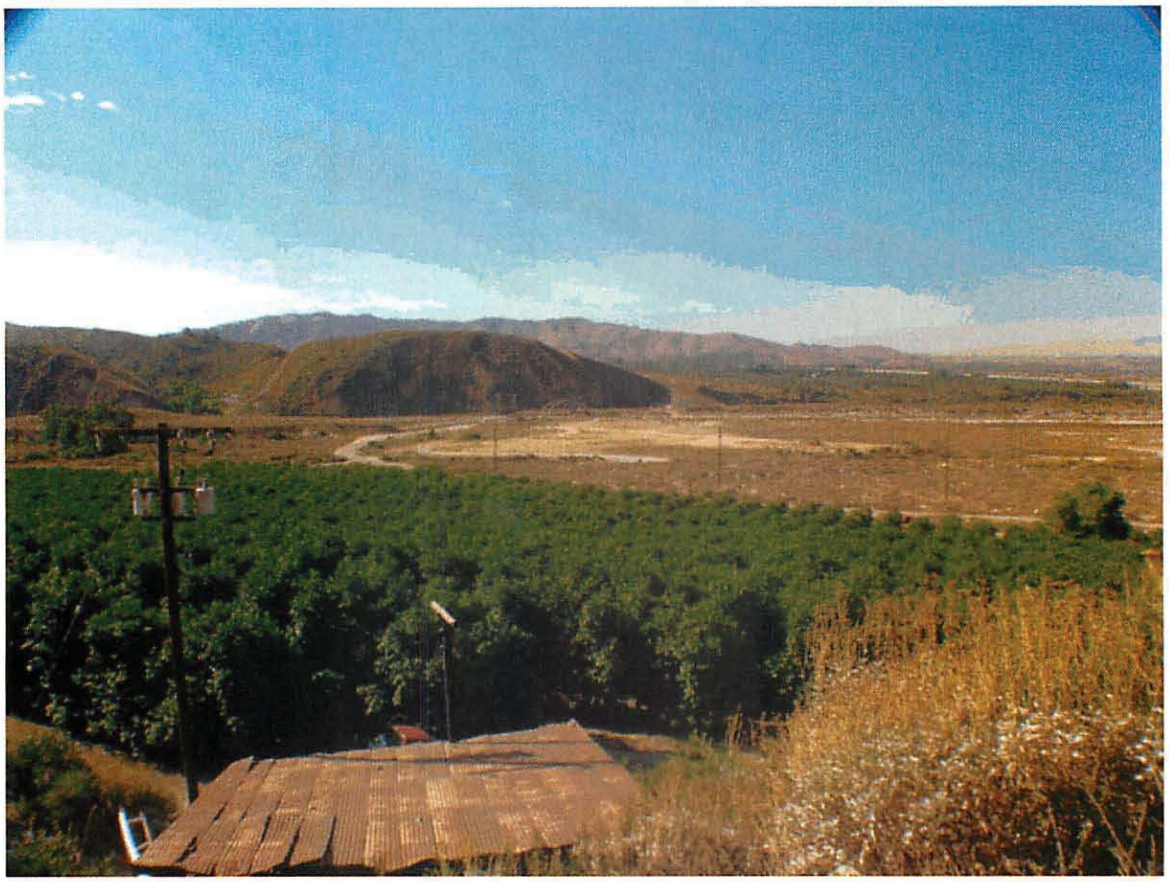


PHOTO 7 - PANORAMIC VIEW FACING SOUTHEASTERLY FROM ABOVE THE WATER DISTRIBUTION/PUMP BUILDING SHOWING THE EAST SIDE OF THE SITE. POWER POLES WITH TRANSFORMERS ARE ALSO VISIBLE.

PHOTO 8 - PANORAMIC VIEW OF THE EAST SIDE OF THE SITE WITH SETTLING PONDS OFF-SITE IN THE BACKGROUND. AN IRRIGATION FLUME IS VISIBLE IN THE FOREGROUND AND AN IRRIGATION DISTRIBUTION BOX IS VISIBLE TO THE LEFT.

PHOTO 9 - CLOSE UP OF THE IRRIGATION DISTRIBUTION BOX SHOWN IN THE PREVIOUS PHOTO.

PHOTO 10 - CHEMICAL ADDITIVE TANK FOR THE WATER IRRIGATION SYSTEM LOCATED IN ONE OF THE CANYONS ON THE SITE.

PHOTO 11 - WATER FILTER TANKS LOCATED NEAR THE CENTER OF THE SITE.

PHOTO 12 - VIEW OF THE SOIL REMOVAL OPERATION FROM THE ADJACENT DRAINAGE AREA IN THE CENTER PORTION OF THE SITE. IN THE AREA OF THE STOCKPILED SOIL IS ABOUT 10 FEET OF FILL OVER A TRASH AND DEBRIS DISPOSAL AREA.

PHOTO 13 - VIEW FACING EAST ON THE SOUTH-CENTRAL PORTION OF THE SITE SHOWING SOME TIRES DUMPED IN THIS AREA . IN THE BACKGROUND IS THE SOIL LOADING OPERATION SHOWN IN THE PREVIOUS PHOTO.

PHOTO 14 - VIEW OF AN OLD RESIDENTIAL FOUNDATION LOCATED EITHER JUST ON-SITE OR OFF-SITE AT THE SOUTHWEST PORTION OF THE SITE.

PHOTO 15 - VIEW FACING EAST SHOWING THE OLD RESIDENCE ON THE WEST SIDE OF THE SITE.

PHOTO 16 - VIEW OF THE REAR OF THE OLD RESIDENCE ON THE WEST SIDE OF THE SITE SHOWING SOME OF THE OUT BUILDINGS.

PHOTO 17 - VIEW OF SOME STORED OLD EQUIPMENT AND AN EMPTY 55 GALLON DRUM ON THE WEST SIDE OF THE SITE. IN THE BACKGROUND IS THE ADJACENT PROPERTY AND STRUCTURES.

PHOTO 18 - VIEW OF AN ABOVE GROUND VAULT FOR THE NORTH CANAL WATER LINE. THE VAULT IS LOCATED IN THE WEST-CENTER PORTION OF THE SITE.

PHOTO 19 - VIEW OF A STORAGE AREA LOCATED WEST OF THE NEWER RESIDENCE IN THE NORTHWEST PORTION OF THE SITE. TWO STORAGE CONTAINERS OLD FEED TANK AND EQUIPMENT ARE SHOWN. IN THE BACKGROUND ON THE HILL IS THE NEWER RESIDENCE.

PHOTO 20 - VIEW OF AN OLD ABOVE GROUND DIESEL FUEL STORAGE TANK THAT WAS BROUGHT ONTO THE SITE FROM ANOTHER PROPERTY. THE TANK AND ADJACENT SHED ARE LOCATED IN THE STORAGE AREA WEST OF THE NEWER RESIDENCE.

PHOTO 21 - VIEW OF THE INTERIOR OF THE SHED SHOWN IN THE PREVIOUS PHOTO WITH PVC AND OTHER IRRIGATION RELATED ITEMS.

PHOTO 22 - VIEW OF ONE OF TWO EMPTY STORAGE TANKS LOCATED IN THE STORAGE AREA WEST OF THE NEWER RESIDENCE. THESE TANKS WERE USED FOR WATER STORAGE. IN THE BACKGROUND IS METAL CULVERT

PHOTO 23 - ANOTHER EMPTY STORAGE TANK LOCATED IN THE STORAGE AREA WEST OF THE NEWER RESIDENCE. THIS TANK WAS ALSO USED FOR WATER.

PHOTO 24 - VIEW OF SOME PORTABLE TANKS/SPRAYERS LOCATED BY THE METAL STORAGE CONTAINERS IN THE STORAGE AREA WEST OF THE NEWER RESIDENCE. IN THE BACKGROUND ARE FEED TANKS.

PHOTO 25 - VIEW OF AN OLD TRUCK, SPRAYER WOOD AND SATELLITE DISH BY THE NEWER RESIDENCE.

PHOTO 26 - VIEW OF THE WEST SIDE OF THE SITE WITH THE OLD RESIDENCE TO THE LEFT AND THE ADJACENT PROPERTIES IN THE BACKGROUND.

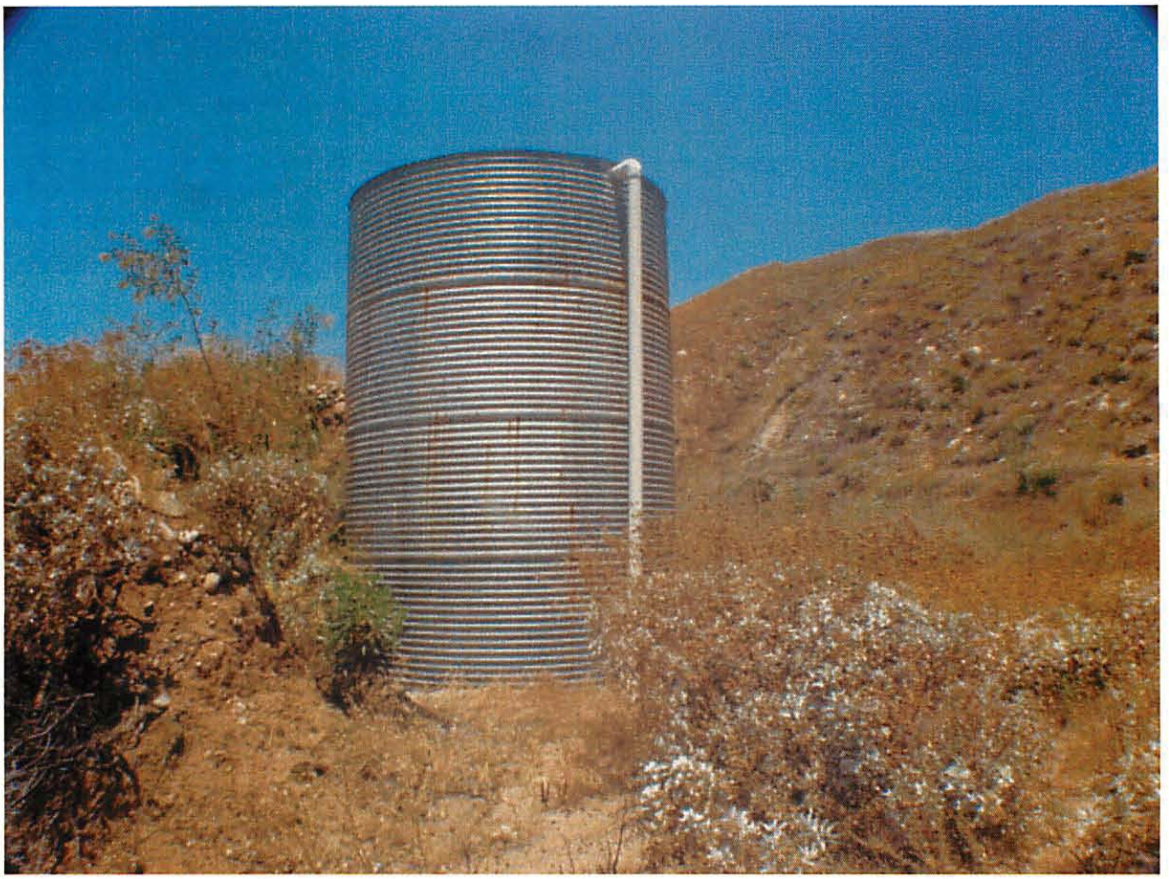


PHOTO 27 - VIEW OF THE DOMESTIC WATER TANK LOCATED IN THE NORTH-CENTRAL PORTION OF THE SITE, NORTHWEST OF THE NEWER RESIDENCE.

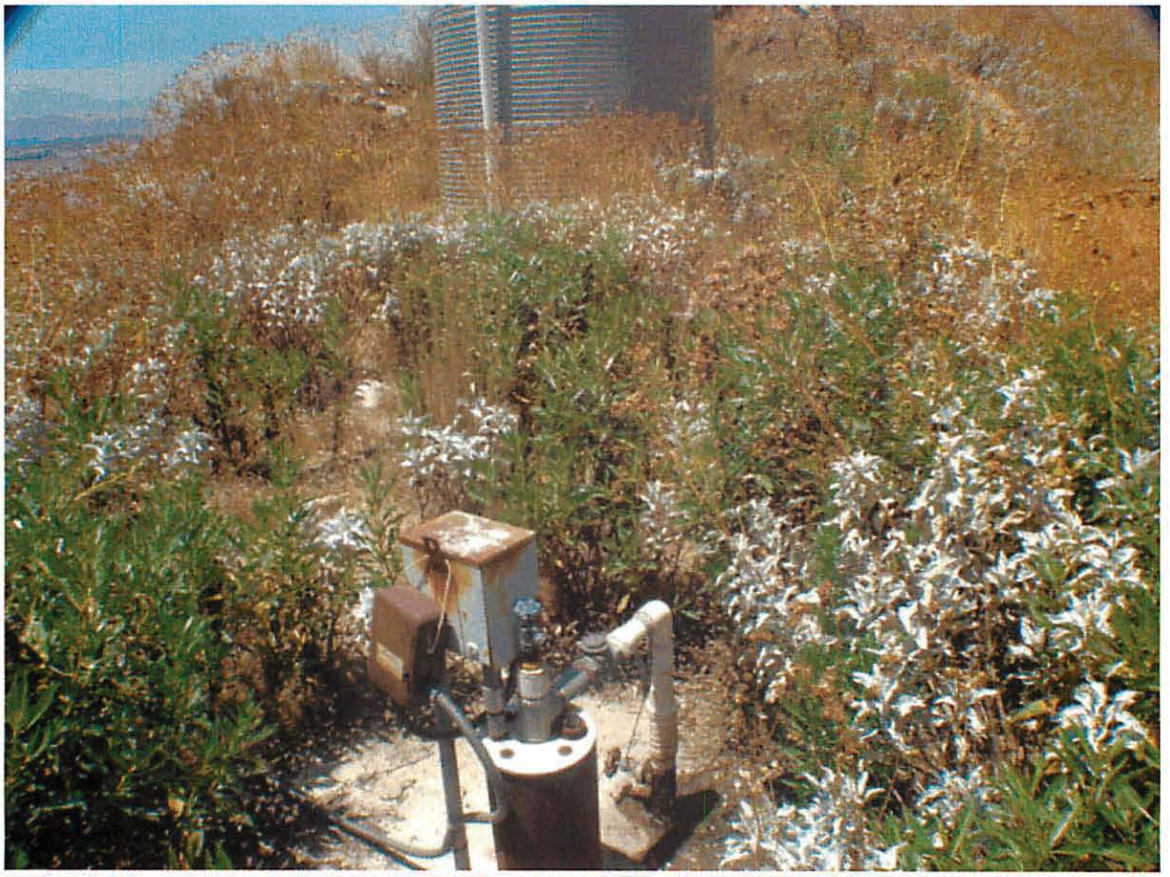


PHOTO 28 - VIEW OF THE WATER WELL LOCATED BY THE WATER TANK SHOWN IN THE PREVIOUS PHOTO.

PHOTO 29 - PANORAMIC VIEW OF THE WEST CENTER PORTION OF THE SITE WITH THE NEWER HOUSE AND THE GROVES SHOWN.

PHOTO 30 - ANOTHER PANORAMIC VIEW FACING SOUTH SHOWING THE CENTER PORTION OF THE SITE. IN THE BACKGROUND ARE THE SETTLING PONDS.

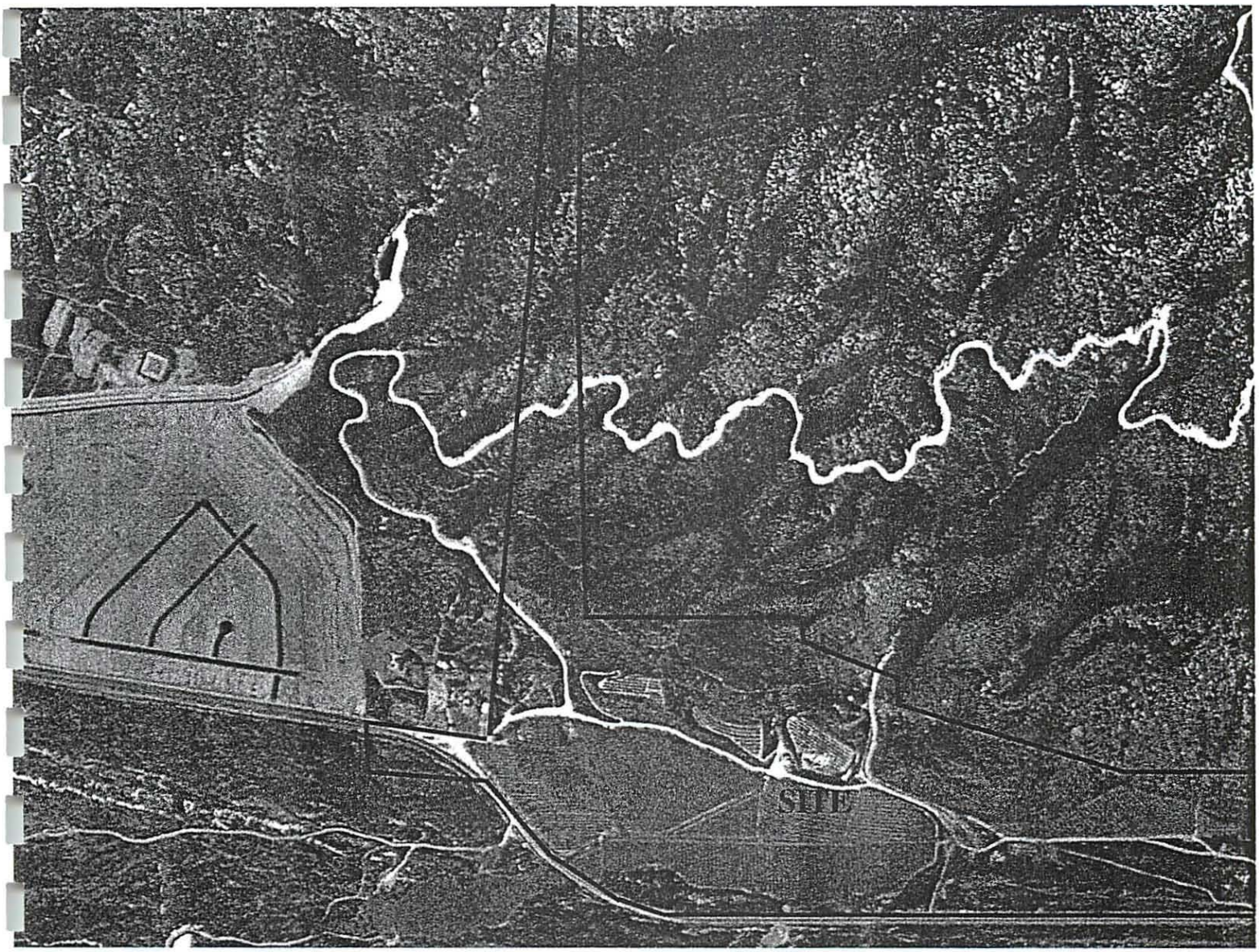
PHOTO 31 - VIEW OF THE DRAINAGE THAT HAS BEEN GROUTED AND CARRIES SOIL DOWN ONTO THE SITE WHICH HAS TO BE REGULARLY CLEANED OUT.

PHOTO 32 - VIEW LOOKING UP THE DRAINAGE SHOWN IN THE PREVIOUS PHOTO AND A WATER LINE THAT RUNS ACROSS IT.

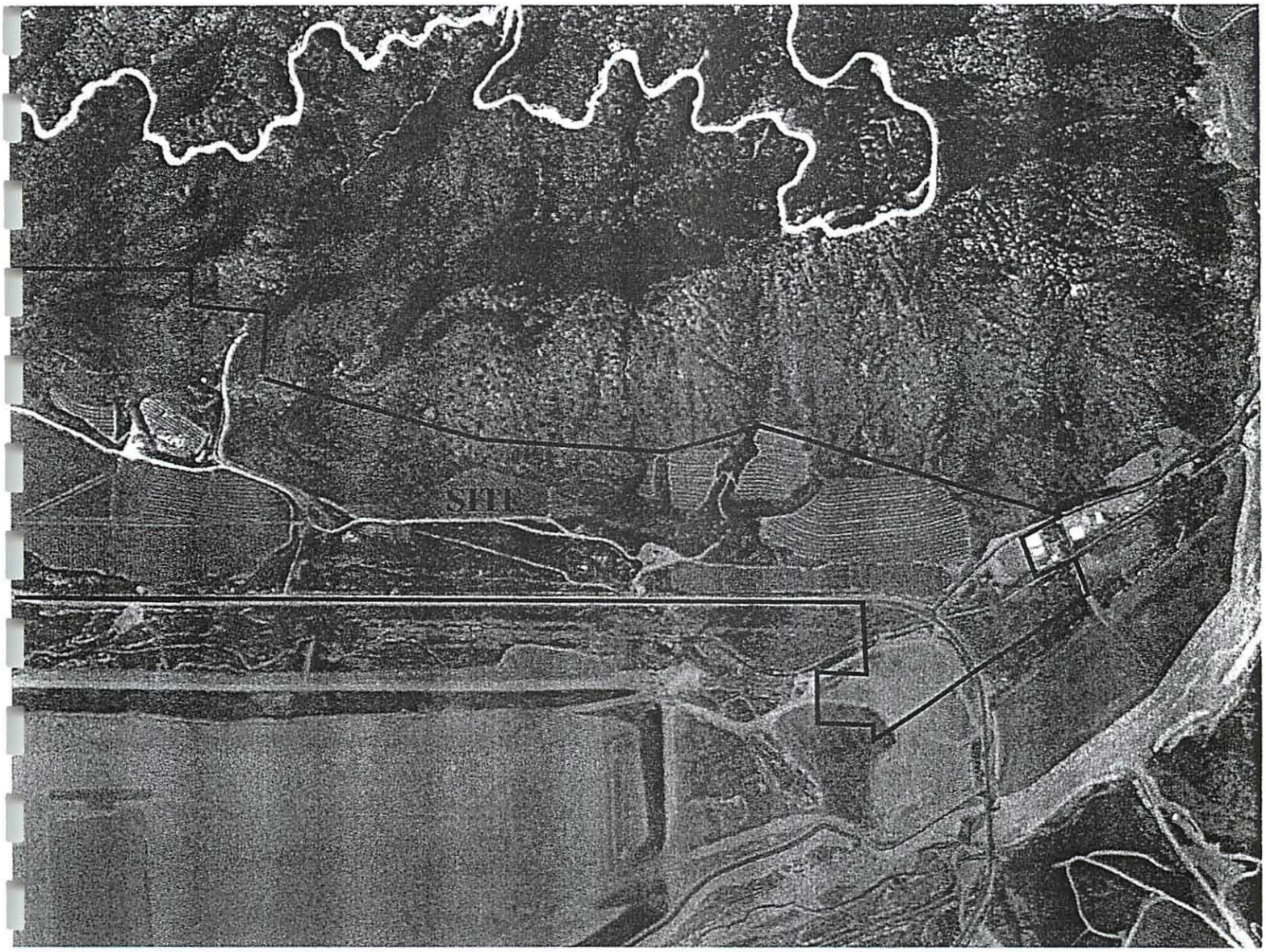
PHOTO 33 - PANORAMIC VIEW LOOKING SOUTHERLY OF THE SITE FROM THE UPPER GROVES ON THE EAST SIDE OF THE SITE

APPENDIX B

Historical Aerial Photographs

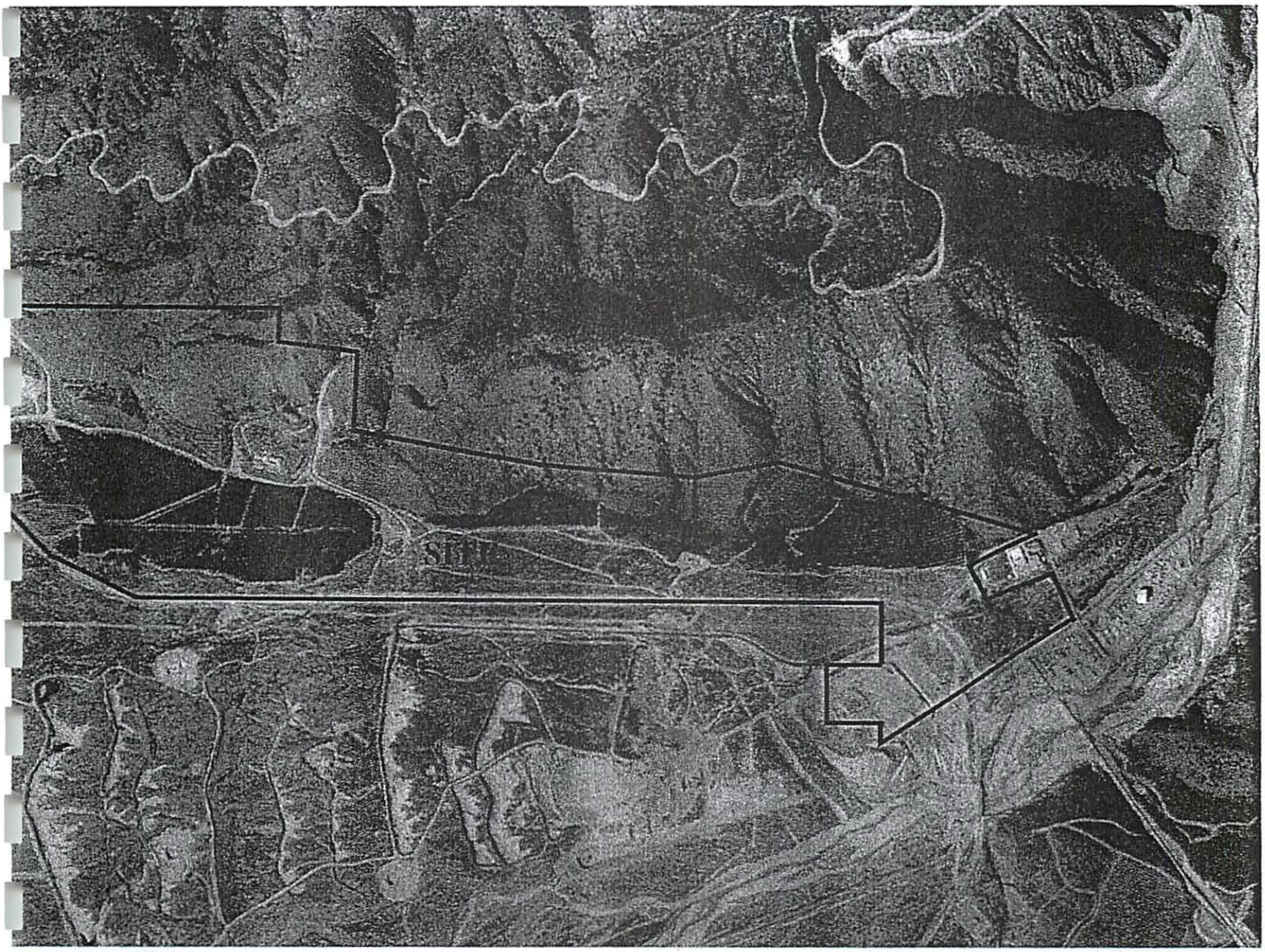


USGS, 2002 (1of2) Scale 1"= 666'

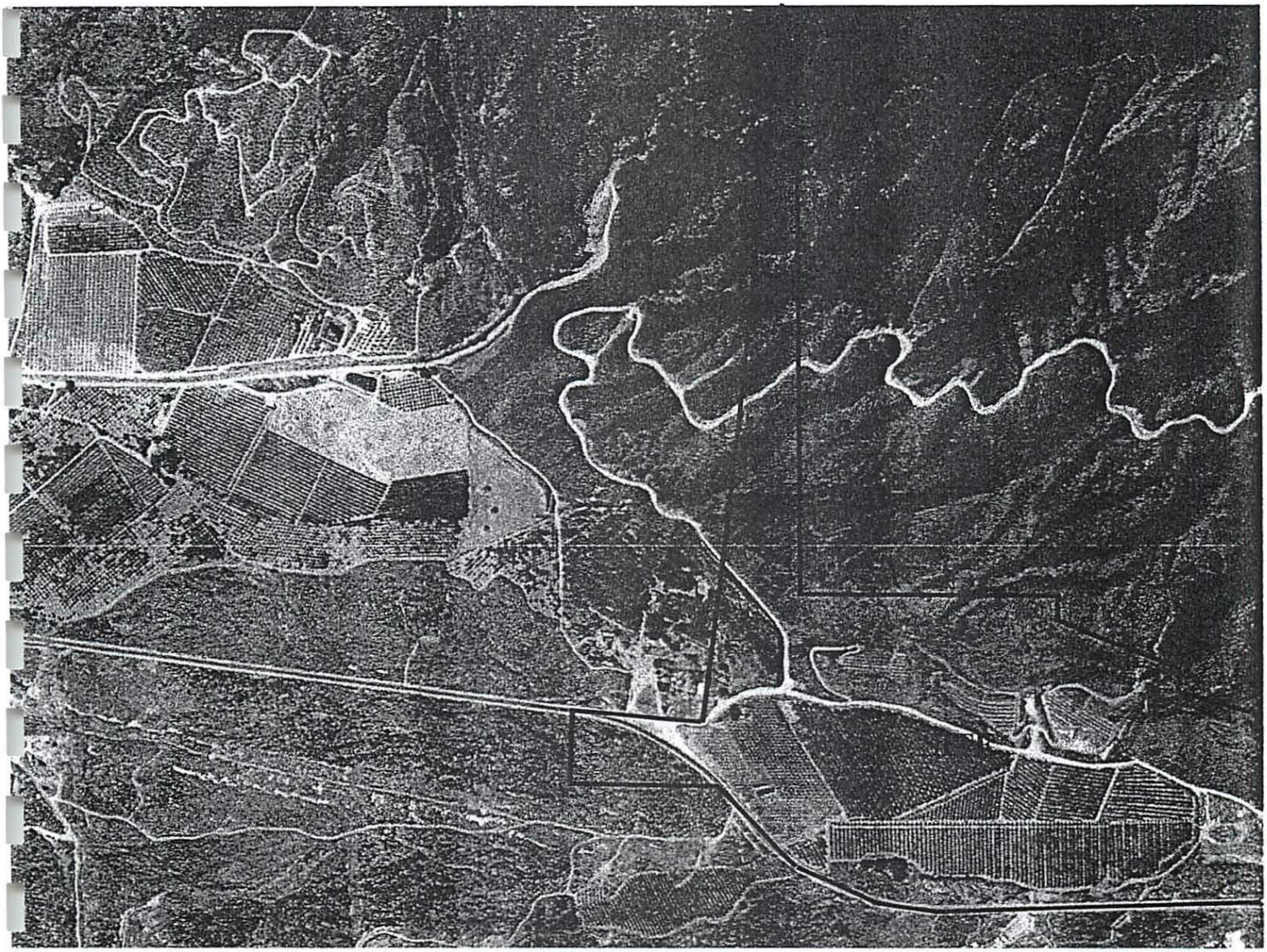


USGS, 2002 (2of2) Scale 1"= 666'

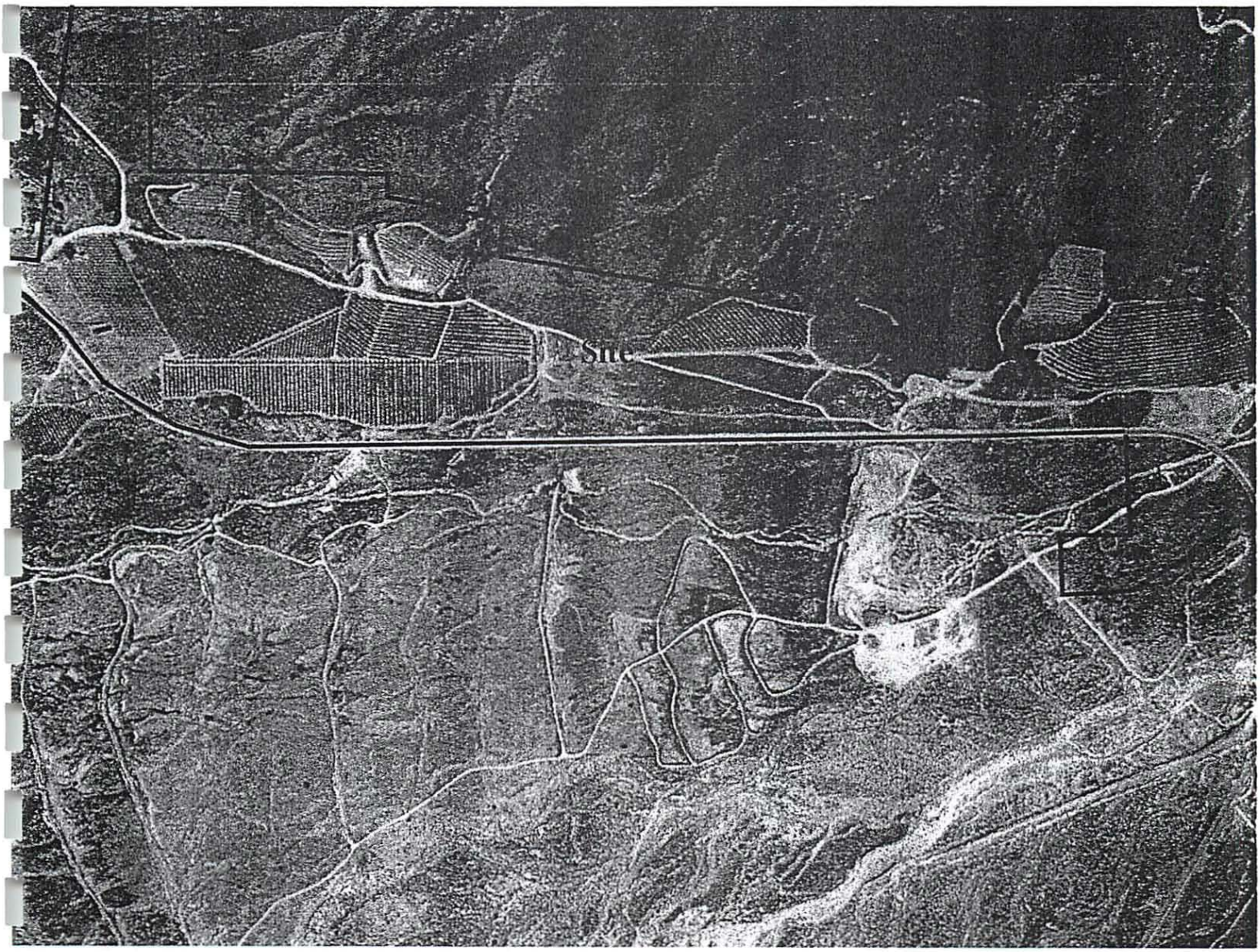
USGS, 1994 (1of2) Scale 1"= 666'



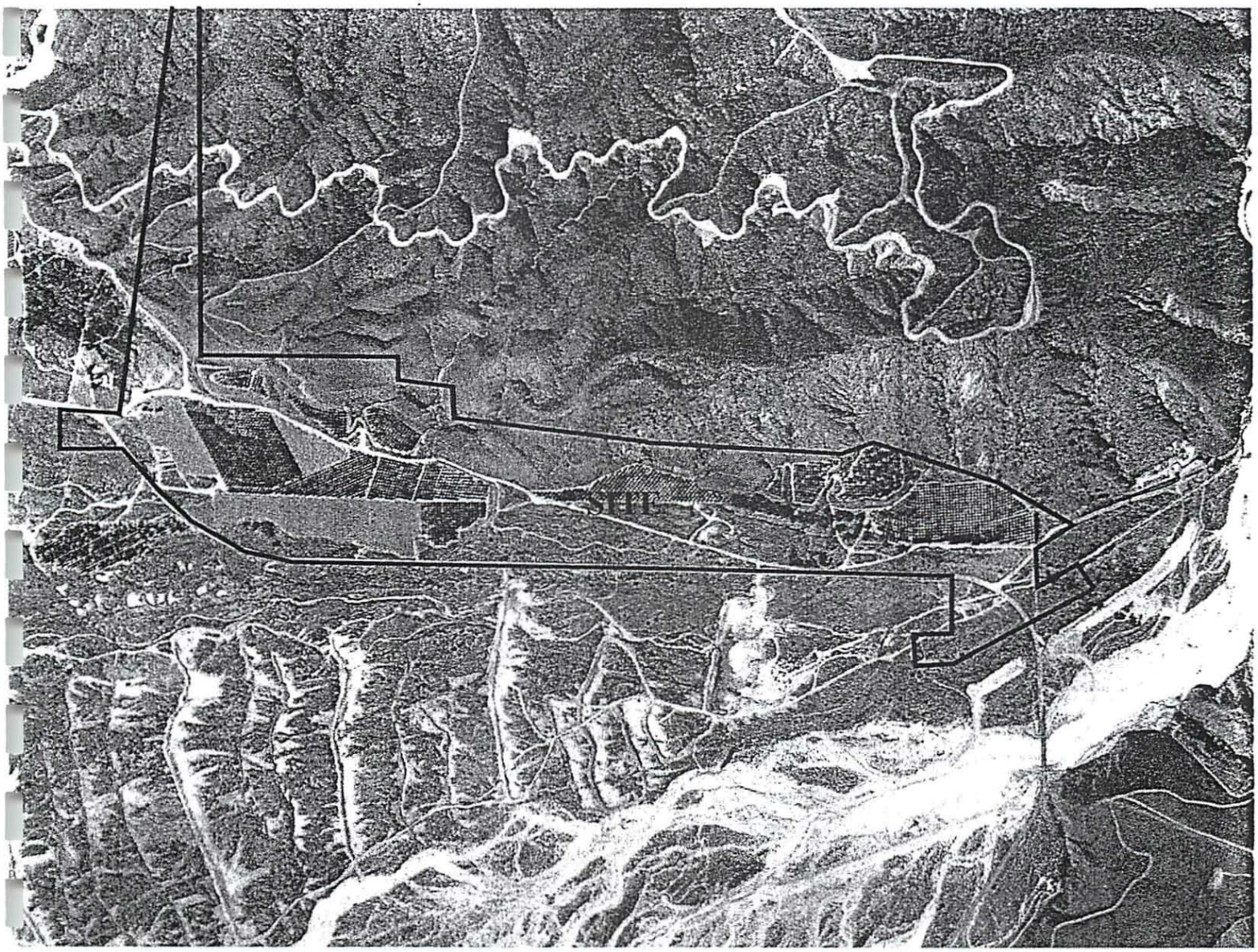
USGS, 1994 (2of2) Scale 1"= 666'



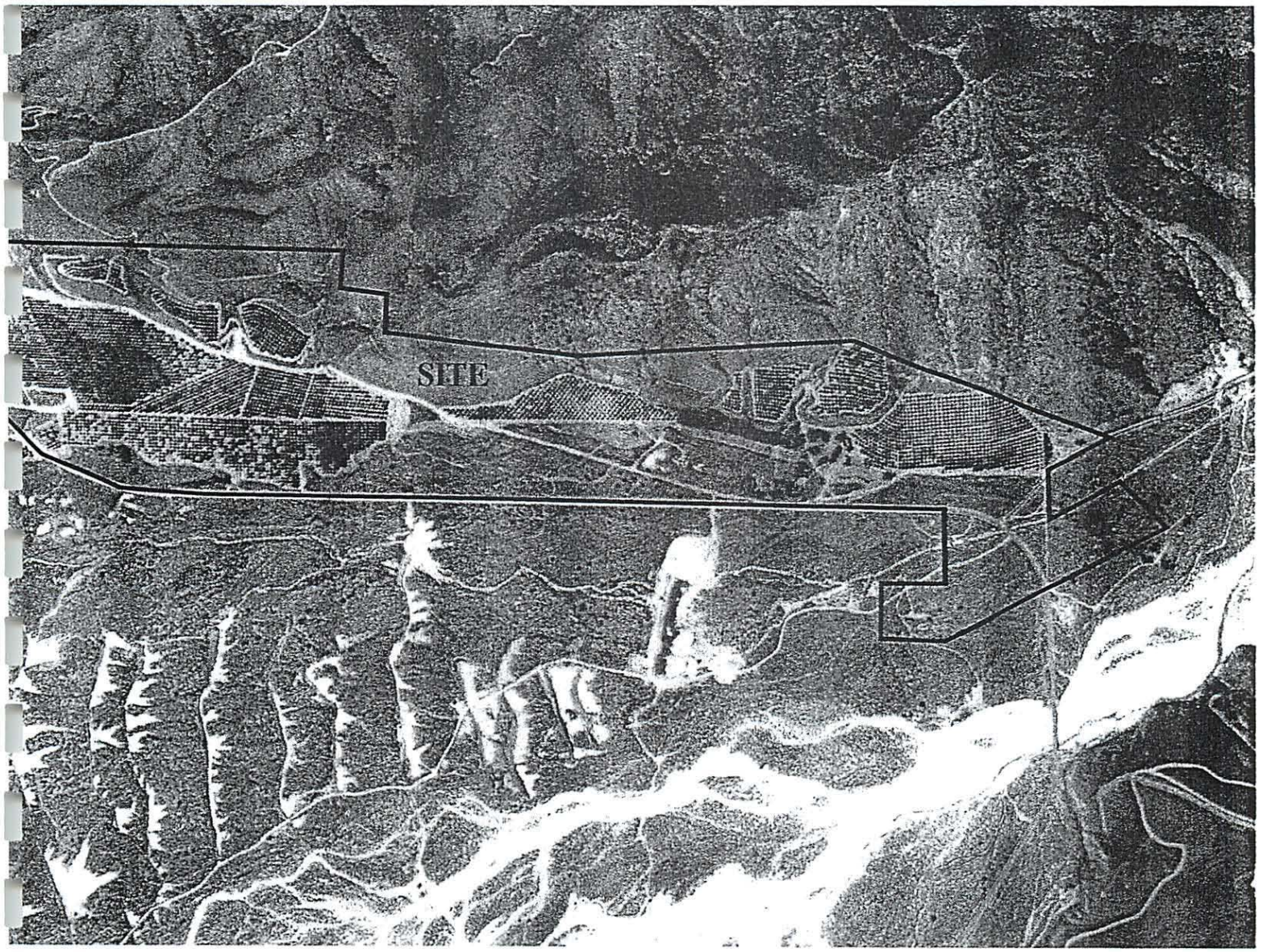
USGS, 1989 (1of2) Scale 1"= 666'



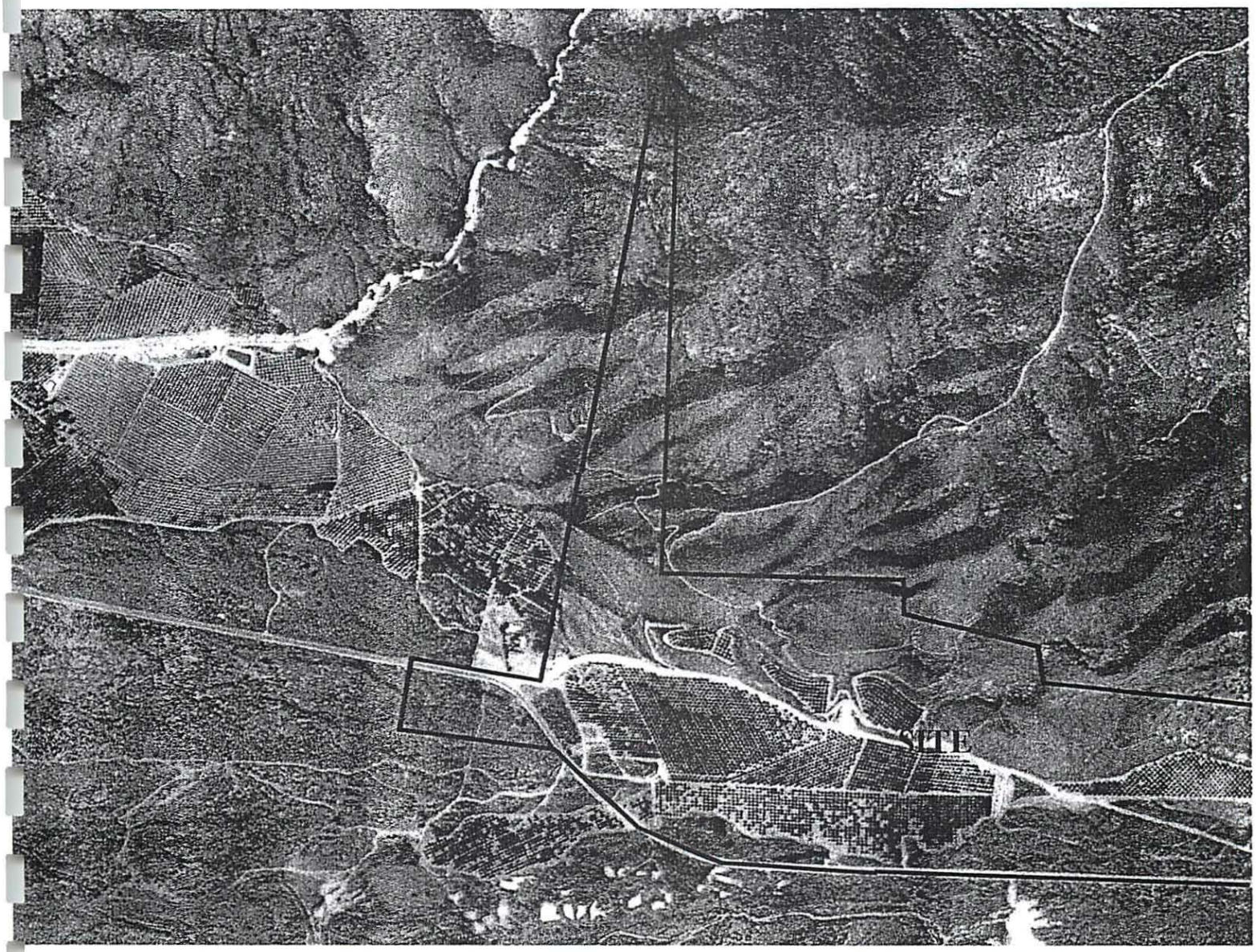
USGS, 1989 (2of2) Scale 1"= 666'



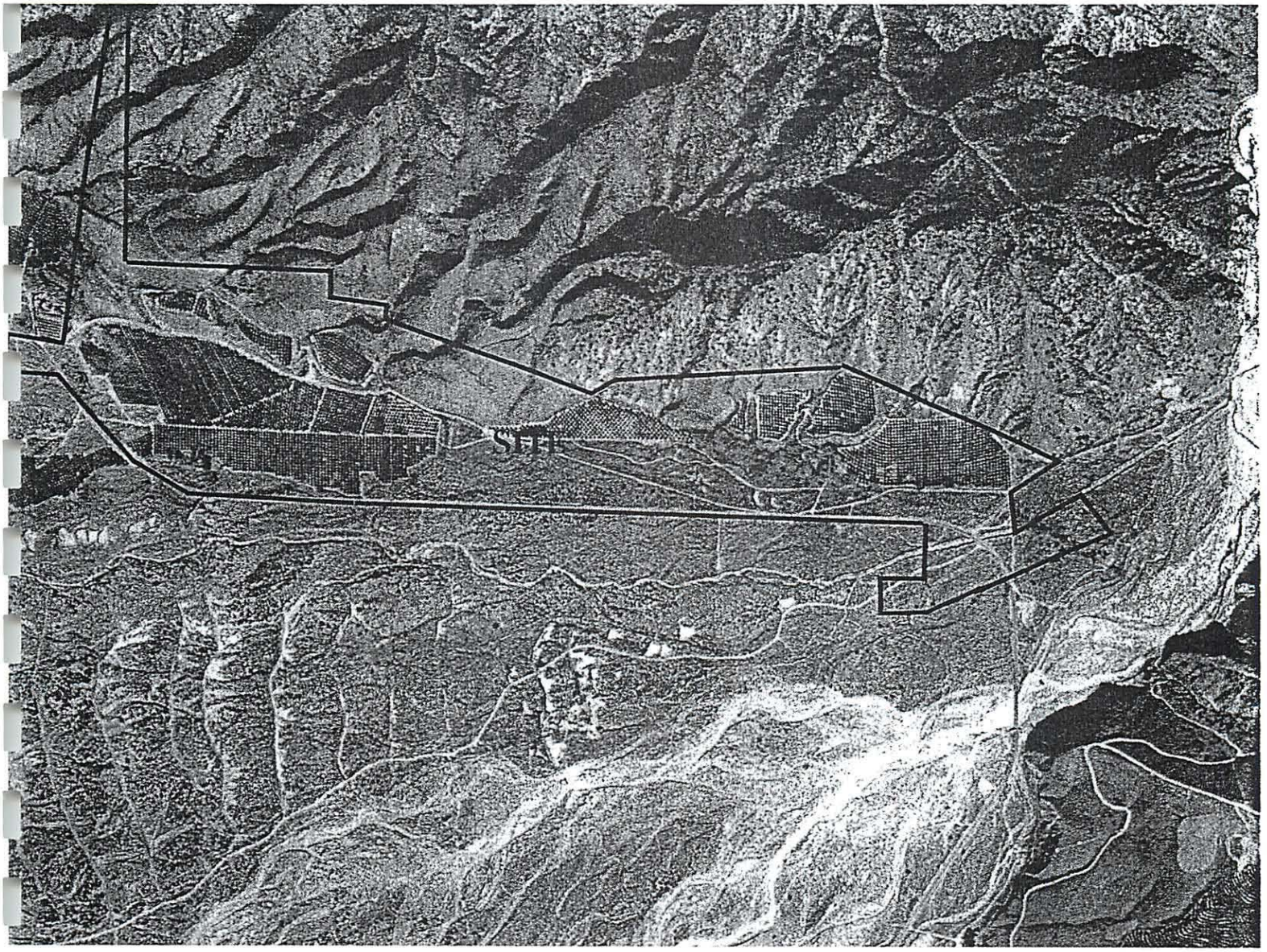
Pacific Air, 1972 Scale 1"= 1000'



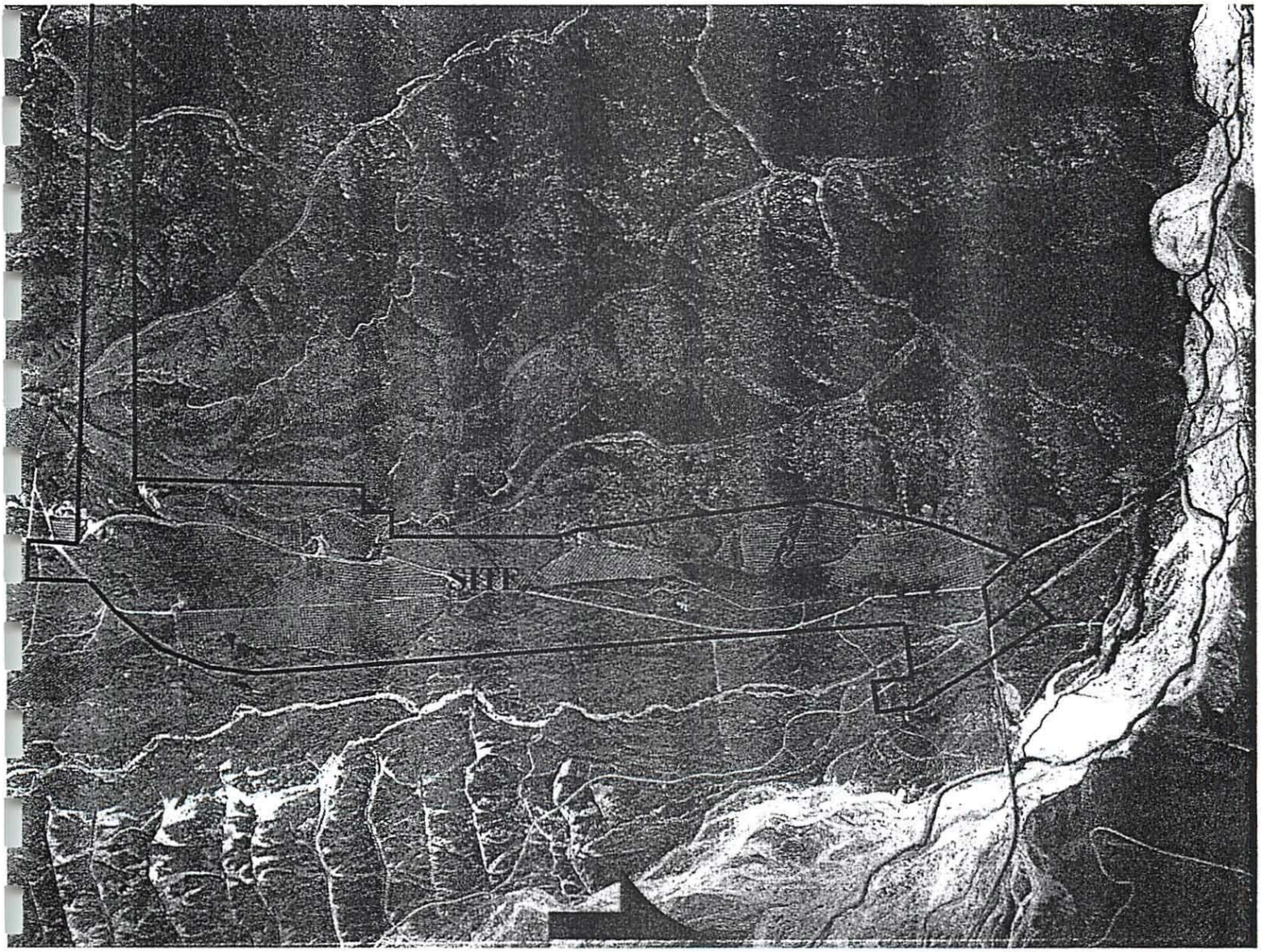
Western, 1967 (2of2) Scale 1"= 666'



Western, 1967 (1of2) Scale 1"= 666'



Southwestern, 1953 Scale 1"= 1000'



Laval, 1938 Scale 1"= 1000'

APPENDIX C

EDR City Directory and Sanborn® Map Reports

EDR™ Environmental Data Resources Inc

"Linking Technology with Tradition"®

Sanborn® Map Report

Ship To: M. Kevin Osmun
LOR Geotechnical Group,
6121 Quail Valley Court
Riverside, CA 92507

Order Date: 6/9/2005 **Completion Date:** 6/23/2005
Inquiry #: 1439206.3
P.O. #: NA
Site Name: 200 Acres East Highlands
Address: Greenspot/Santa Ana Canyon
City/State: Highland, CA 92346
Cross Streets:

Customer Project: 32126.2
1028974TIM 951-653-1760

This document reports that the largest and most complete collection of Sanborn fire insurance maps has been reviewed based on client supplied information, and fire insurance maps depicting the target property at the specified address were not identified.

NO COVERAGE

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report AS IS. Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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The EDR-City Directory
Abstract

200 Acres East Highlands
31019 Greenspot Rd
Highland, CA 92346

June 24, 2005

Inquiry Number: 1439206-7

EDR™ Environmental
Data Resources Inc

The Standard In Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

Environmental Data Resources, Inc.
City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist professionals in evaluating potential liability on a target property resulting from past activities. ASTM E 1527-00, Section 7.3 on Historical Use Information, identifies the prior use requirements for a Phase I environmental site assessment. The ASTM standard requires a review of *reasonably ascertainable standard historical sources. Reasonably ascertainable means information that is publicly available, obtainable from a source with reasonable time and cost constraints, and practically reviewable.*

To meet the prior use requirements of ASTM E 1527-00, Section 7.3.4, the following *standard historical sources* may be used: aerial photographs, fire insurance maps, property tax files, land title records (although these cannot be the sole historical source consulted), topographic maps, city directories, building department records, or zoning/land use records. ASTM E 1527-00 requires *"All obvious uses of the property shall be identified from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier. This task requires reviewing only as many of the standard historical sources as are necessary, and that are reasonably ascertainable and likely to be useful."* (ASTM E 1527-00, Section 7.3.2, page 12.)

EDR's City Directory Abstract includes a search and abstract of available city directory data.

City Directories
City directories have been published for cities and towns across the U.S. since the 1700s. Originally a list of residents, the city directory developed into a sophisticated tool for locating individuals and businesses in a particular urban or suburban area. Twentieth century directories are generally divided into three sections: a business index, a list of resident names and addresses, and a street index. With each address, the directory lists the name of the resident or, if a business is operated from this address, the name and type of business (if unclear from the name). While city directory coverage is comprehensive for major cities, it may be spotty for rural areas and small towns. ASTM E 1527-00 specifies that a *"review of city directories (standard historical sources) at less than approximately five year intervals is not required by this practice." (ASTM E 1527-00, Section 7.3.2.1, page 12.)*

NAICS (North American Industry Classification System) Codes
NAICS is a unique, all-new system for classifying business establishments. Adopted in 1997 to replace the prior Standard Industry Classification (SIC) system, it is the system used by the statistical agencies of the United States. It is the first economic classification system to be constructed based on a single economic concept. To learn more about the background, the development and difference between NAICS and SIC, visit the following Census website: http://www.census.gov/epcd/www/naicsdev.htm.

Please call EDR Nationwide Customer Service at
1-800-352-0050 (8am-8pm EST)
with questions or comments about your report.
Thank you for your business!

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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4. SUMMARY

- *City Directories:*

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1970 through 2004. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

Date EDR Searched Historical Sources:
City Directories Jun 24, 2005

Target Property:
31019 Greenspot Rd
Highland, CA 92346

PUR ID *Year*	*Uses*	*NAICS*	*Source*
-- 1970	Street not listed in research source.	N/A	Haines Criss-Cross Directory
-- 1975	Street not listed in research source.	N/A	Haines Criss-Cross Directory
-- 1980	Street not listed in research source.	N/A	Haines Criss-Cross Directory
-- 1985	Street not listed in research source.	N/A	Haines Criss-Cross Directory
-- 1990	Address not Listed in Research Source	N/A	Haines Criss-Cross Directory
-- 1995	Address not Listed in Research Source	N/A	Haines Criss-Cross Directory
-- 2000	No Return		Haines Criss-Cross Directory
-- 2004	No Return		Haines Criss-Cross Directory

Adjoining Properties

SURROUNDING
Greenspot Road
Highland, CA 92346

PUR ID *Year*	*Uses*	*NAICS*	*Source*
1970	Street not listed in research source.	N/A	Haines Criss-Cross Directory
1975	Street not listed in research source.	N/A	Haines Criss-Cross Directory
1980	Street not listed in research source.	N/A	Haines Criss-Cross Directory
1985	Street not listed in research source.	N/A	Haines Criss-Cross Directory
1990	Address not Listed in Research Source	N/A	Haines Criss-Cross Directory
1995	Address not Listed in Research Source	N/A	Haines Criss-Cross Directory
2000	****Greenspot Road**** Residence (30976) Residence (30992) Residence (31272) No other addresses in range		Haines Criss-Cross Directory
2004	****Greenspot Road**** Residence (30976)		Haines Criss-Cross Directory

PUR ID Year	Uses	NAICS	Source
2004 (continued)			
	Residence (30992)		
	Residence (31272)		
	No other addresses in range		

APPENDIX D

The EDR Radius Map with GeoCheck® Report

The EDR Radius Map
with GeoCheck®

200 Acres East Highlands
Greenspot/Santa Ana Canyon
Highland, CA 92346

Inquiry Number: 1439206.2s

June 10, 2005

EDR™ Environmental
Data Resources Inc

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-TIM

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

GREENSPOT/SANTA ANA CANYON
HIGHLAND, CA 92346

COORDINATES

Latitude (North):	34.107000 - 34˚ 6' 25.2"
Longitude (West):	117.116100 - 117˚ 6' 58.0"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	489291.6
UTM Y (Meters):	3773831.2
Elevation:	2030 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	34117-A1 YUCAIPA, CA
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP..... CERCLIS No Further Remedial Action Planned
CORRACTS..... Corrective Action Report
RCRA-TSDF..... Resource Conservation and Recovery Act Information
RCRA-LQG..... Resource Conservation and Recovery Act Information
RCRA-SQG..... Resource Conservation and Recovery Act Information
ERNS..... Emergency Response Notification System

STATE ASTM STANDARD

AWP..... Annual Workplan Sites

EXECUTIVE SUMMARY

Cal-Sites	Calsites Database
Cortese	"Cortese" Hazardous Waste & Substances Sites List
Notify 65	Proposition 65 Records
Toxic Pits	Toxic Pits Cleanup Act Sites
SWF/LF	Solid Waste Information System
WMUDS/SWAT	Waste Management Unit Database
LUST	Geotracker's Leaking Underground Fuel Tank Report
CA BOND EXP. PLAN	Bond Expenditure Plan
UST	List of Underground Storage Tank Facilities
VCP	Voluntary Cleanup Program Properties
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land
INDIAN UST	Underground Storage Tanks on Indian Land
CA FID UST	Facility Inventory Database
HIST UST	Hazardous Substance Storage Container Database

FEDERAL ASTM SUPPLEMENTAL

CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
Delisted NPL	National Priority List Deletions
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS	Hazardous Materials Information Reporting System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File
NPL Liens	Federal Superfund Liens
PADS	PCB Activity Database System
US ENG CONTROLS	Engineering Controls Sites List
ODI	Open Dump Inventory
DOD	Department of Defense Sites
INDIAN RESERV	Indian Reservations
UMTRA	Uranium Mill Tailings Sites
FUDS	Formerly Used Defense Sites
RAATS	RCRA Administrative Action Tracking System
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
SSTS	Section 7 Tracking Systems
FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

AST	Aboveground Petroleum Storage Tank Facilities
CLEANERS	Cleaner Facilities
CA WDS	Waste Discharge System
DEED	Deed Restriction Listing
NFA	No Further Action Determination
WIP	Well Investigation Program Case List
REF	Unconfirmed Properties Referred to Another Agency
SCH	School Property Evaluation Program
NFE	Properties Needing Further Evaluation
CA SLIC	Statewide SLIC Cases
HAZNET	Facility and Manifest Data
San Bern. Co. Permit	Hazardous Material Permits

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas	Former Manufactured Gas (Coal Gas) Sites

EXECUTIVE SUMMARY

BROWNFIELDS DATABASES

US BROWNFIELDS..... A Listing of Brownfields Sites
US INST CONTROL..... Sites with Institutional Controls
VCP..... Voluntary Cleanup Program Properties

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STATE ASTM STANDARD

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 12/31/2003 has revealed that there are 9 CHMIRS sites within approximately 2 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
Not reported	32330 SANTA ANNA CANYON	1/2 - 1 E	A2	6
Not reported	32330 SANTA ANA CYN RD	1/2 - 1 E	A3	7
Not reported	32330 SANTA ANA CANYON	1/2 - 1 E	A4	9
Not reported	32330 SANTA ANA CANYON	1/2 - 1 E	A5	10
ODEBRECHT CONTRACTORS OF CALIF	***32330 SANTA ANA CANYON***	***1/2 - 1 E***	***A6***	***17***
Not reported	32330 SANTA ANA CAYNON	1/2 - 1 E	A7	19
Not reported	***32330 SANTA ANA CANYON***	***1/2 - 1 E***	***A8***	***21***
Not reported	32330 SANT ANA CANYON R	1/2 - 1 E	A9	50
Not reported	32333 SANTA ANA CANYON	1/2 - 1 E	A10	52

STATE OR LOCAL ASTM SUPPLEMENTAL

Emissions Inventory Data: Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

A review of the EMI list, as provided by EDR, and dated 12/31/2002 has revealed that there are 3 EMI sites within approximately 2 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
ODEBRECHT CONTRACTORS OF CALIF	32330 SANTA ANA CANYON	1/2 - 1 E	A1	6

EXECUTIVE SUMMARY

Lower Elevation	Address	Dist / Dir	Map ID	Page
Not reported	*32330 SANTA ANA CANYON*	*1/2 - 1 E*	*A8*	*21*
ASPECTS INC	9477 N OPAL AVE	1 - 2 SW	11	53

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
RIALTO LILAC STREET	CHMIRS, EMI
SEVEN OAKS DAM	LUST
PLUNGE CREEK LANDFILL LEVEES	WMUDS/SWAT
SPRINT PCS	HAZNET
WESTERN DESERT	HAZNET
1X EAST HIGHLANDS RANCH INC	HAZNET
COUNTY OF SAN BERNARDINO	HAZNET
EAST VALLEY WATER DISTRICT	HAZNET
EAST VALLEY WATER DIST.#137	San Bern. Co. Permit
WELL #6- EAST LUGONIA	San Bern. Co. Permit

OVERVIEW MAP - 1439206.2s - LOR Geotechnical Group, Inc.

★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

Coal Gasification Sites

National Priority List Sites

Landfill Sites

Dept. Defense Sites

0 1/2 1 2 Miles

Indian Reservations BIA

Oil & Gas pipelines

100-year flood zone

500-year flood zone

Areas of Concern

TARGET PROPERTY:	200 Acres East Highlands	CUSTOMER:	LOR Geotechnical Group, Inc.
ADDRESS:	Greenspot/Santa Ana Canyon	CONTACT:	M. Kevin Osmun
CITY/STATE/ZIP:	Highland CA 92346	INQUIRY #:	1439206.2s
LAT/LONG:	34.1070 / 117.1161	DATE:	June 10, 2005 7:36 am

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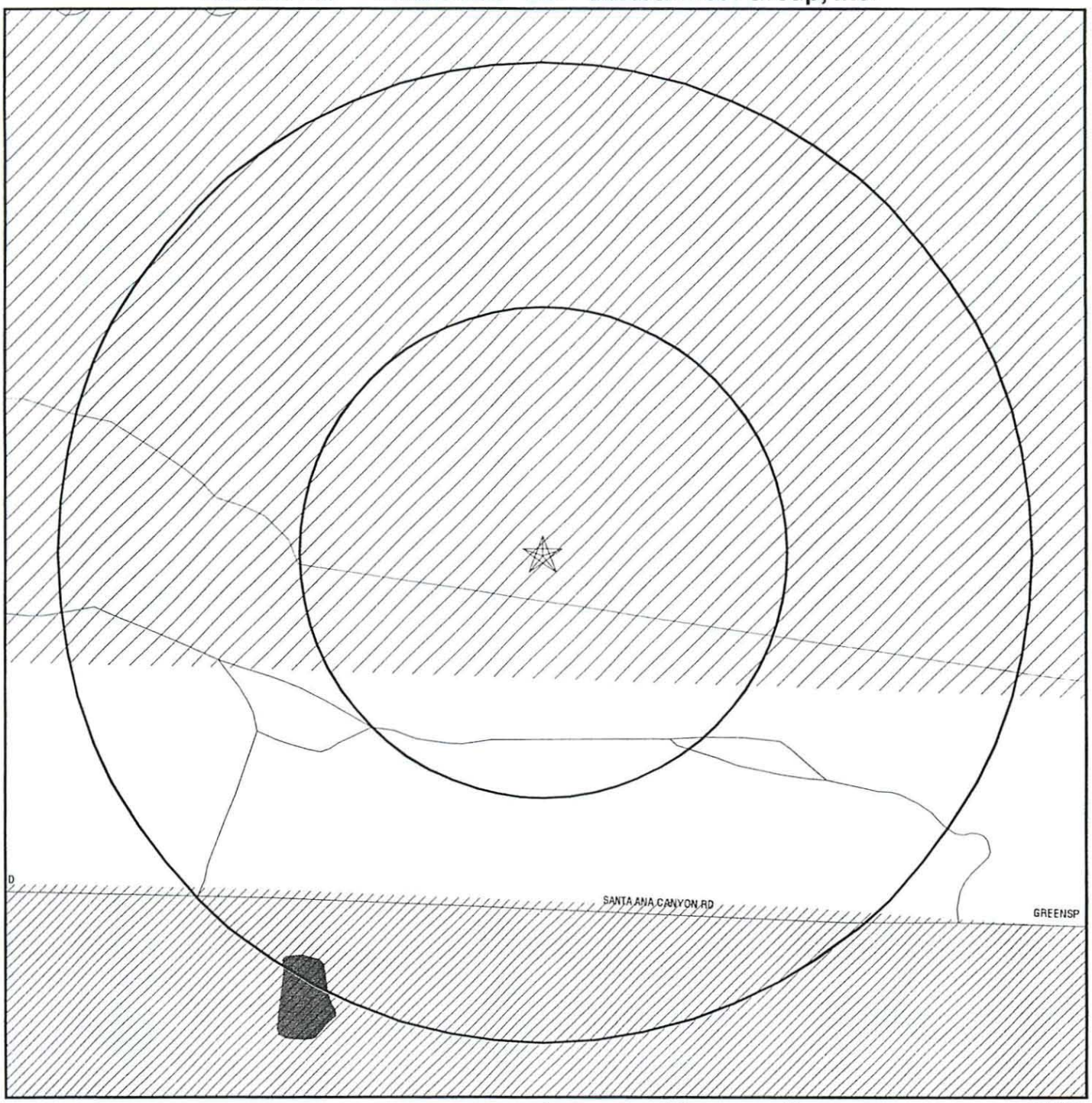

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Coal Gasification Sites

Sensitive Receptors

National Priority List Sites

Landfill Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Oil & Gas pipelines

100-year flood zone

500-year flood zone

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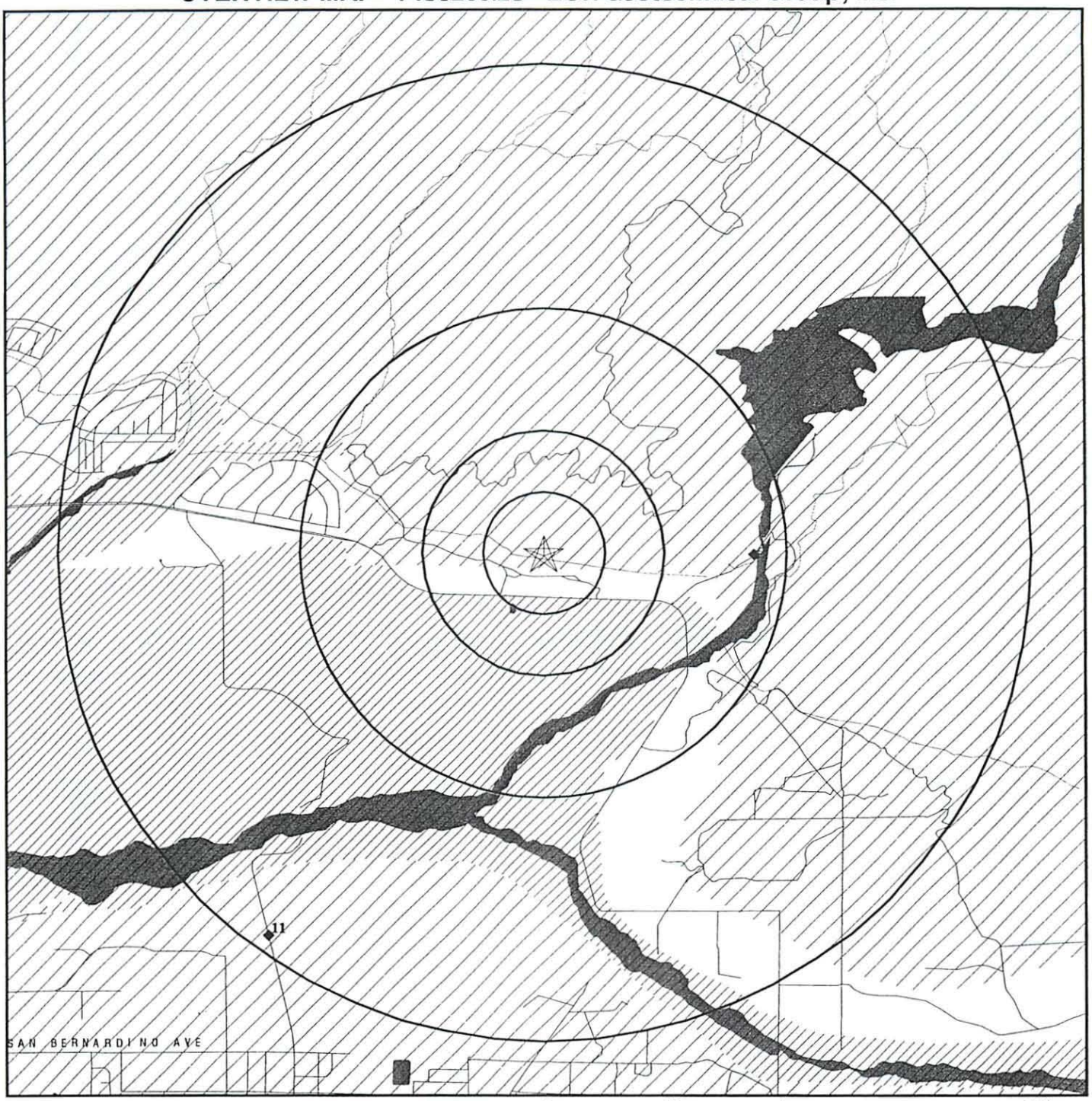

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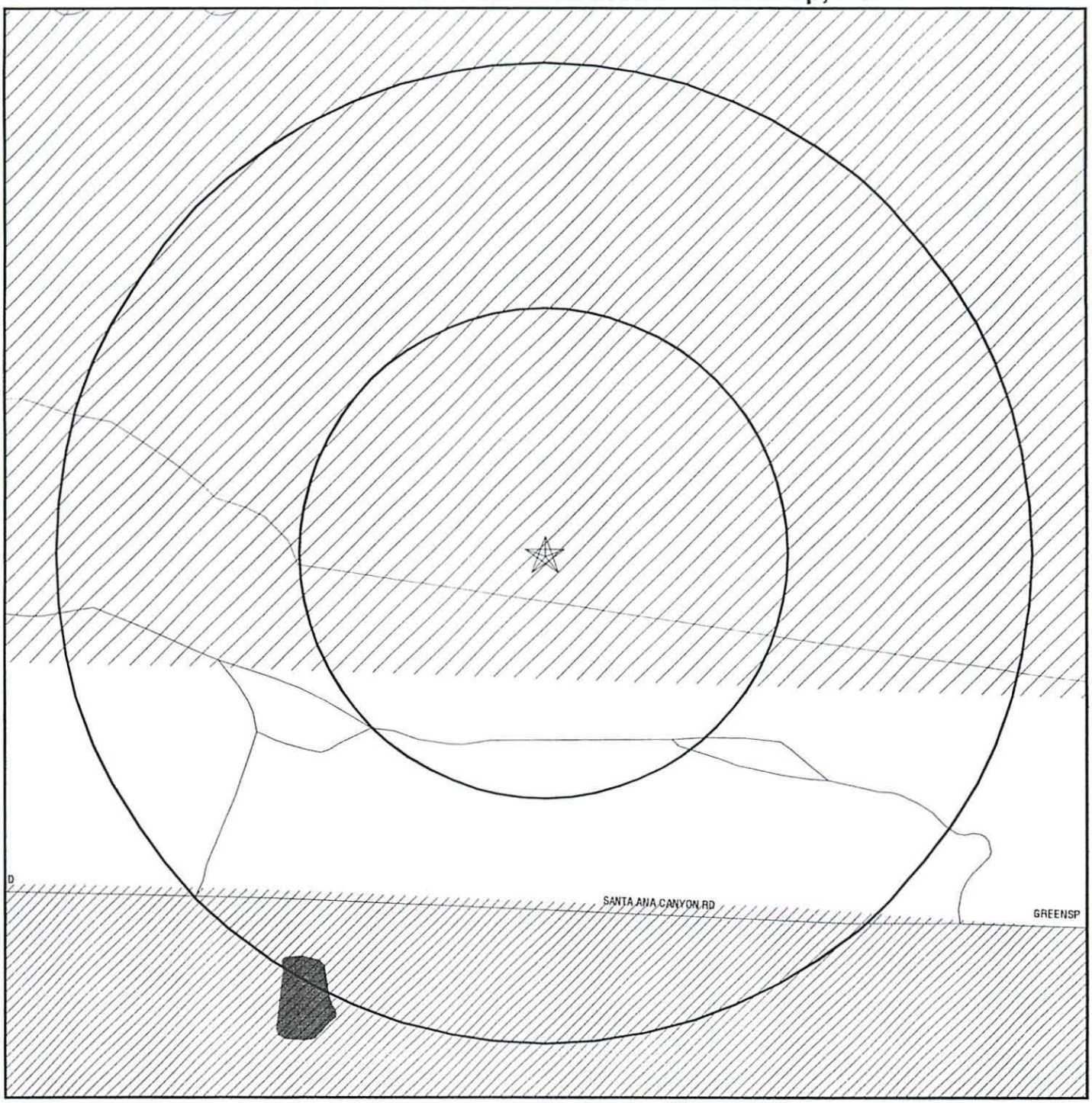

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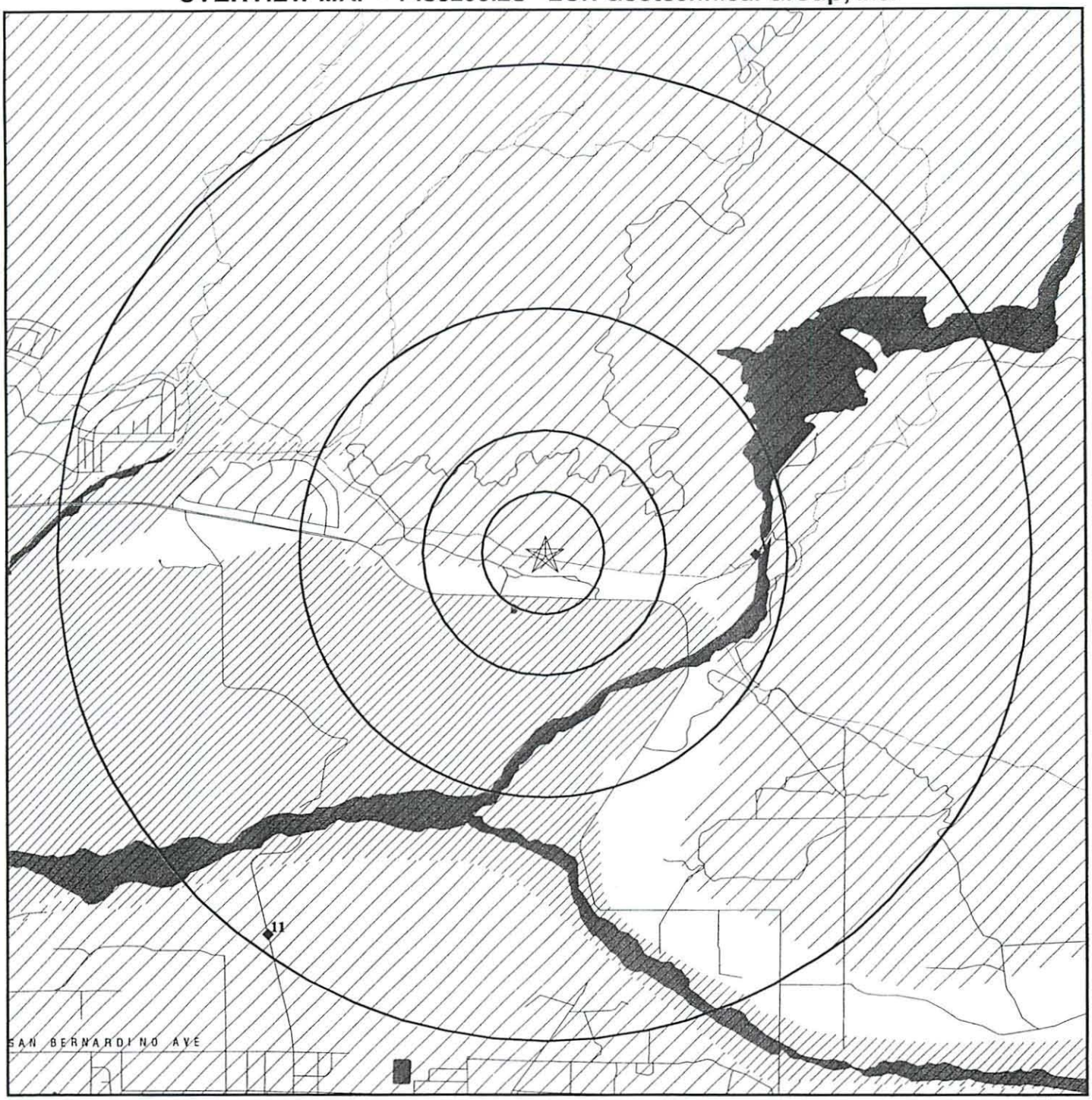

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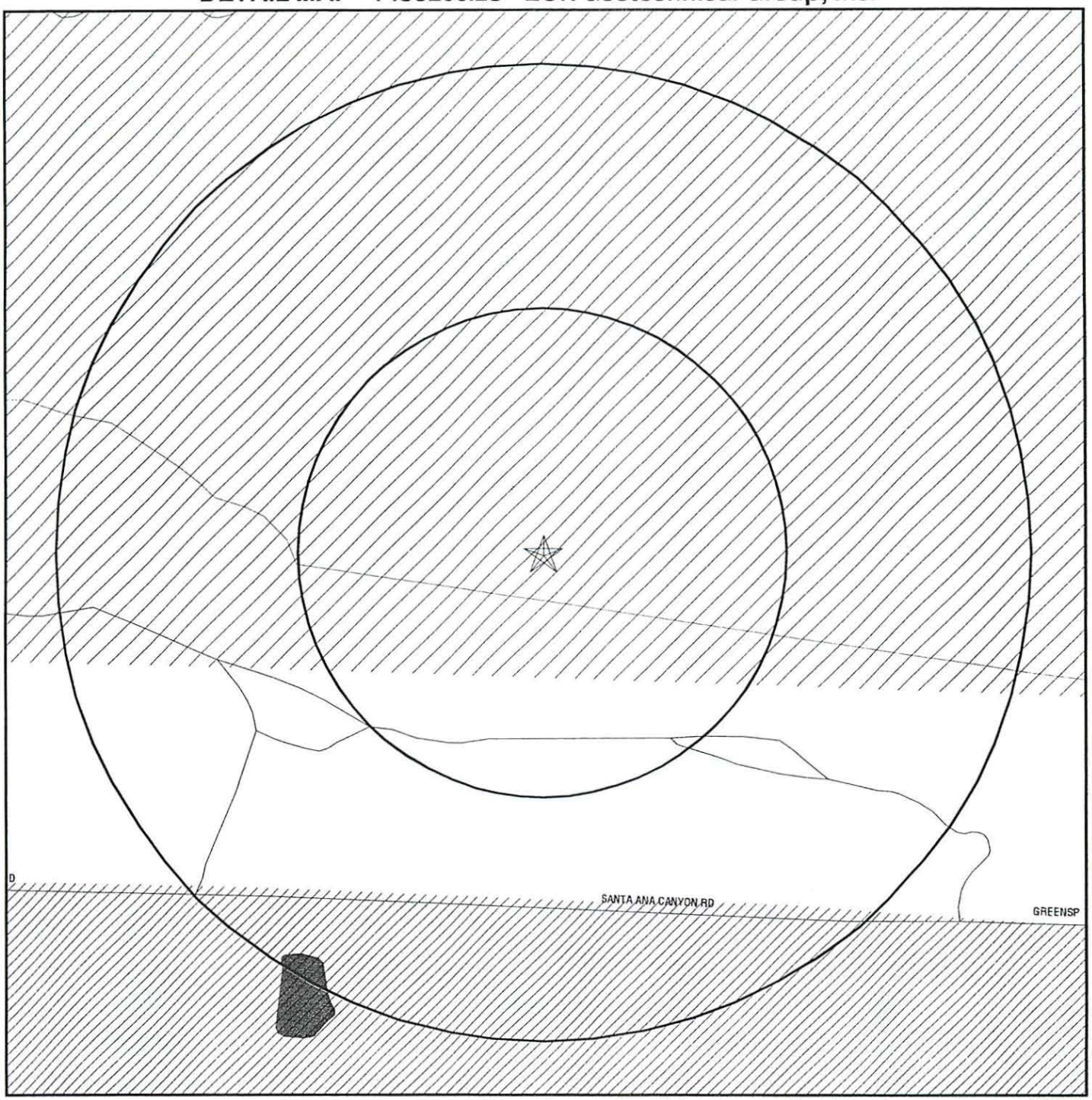

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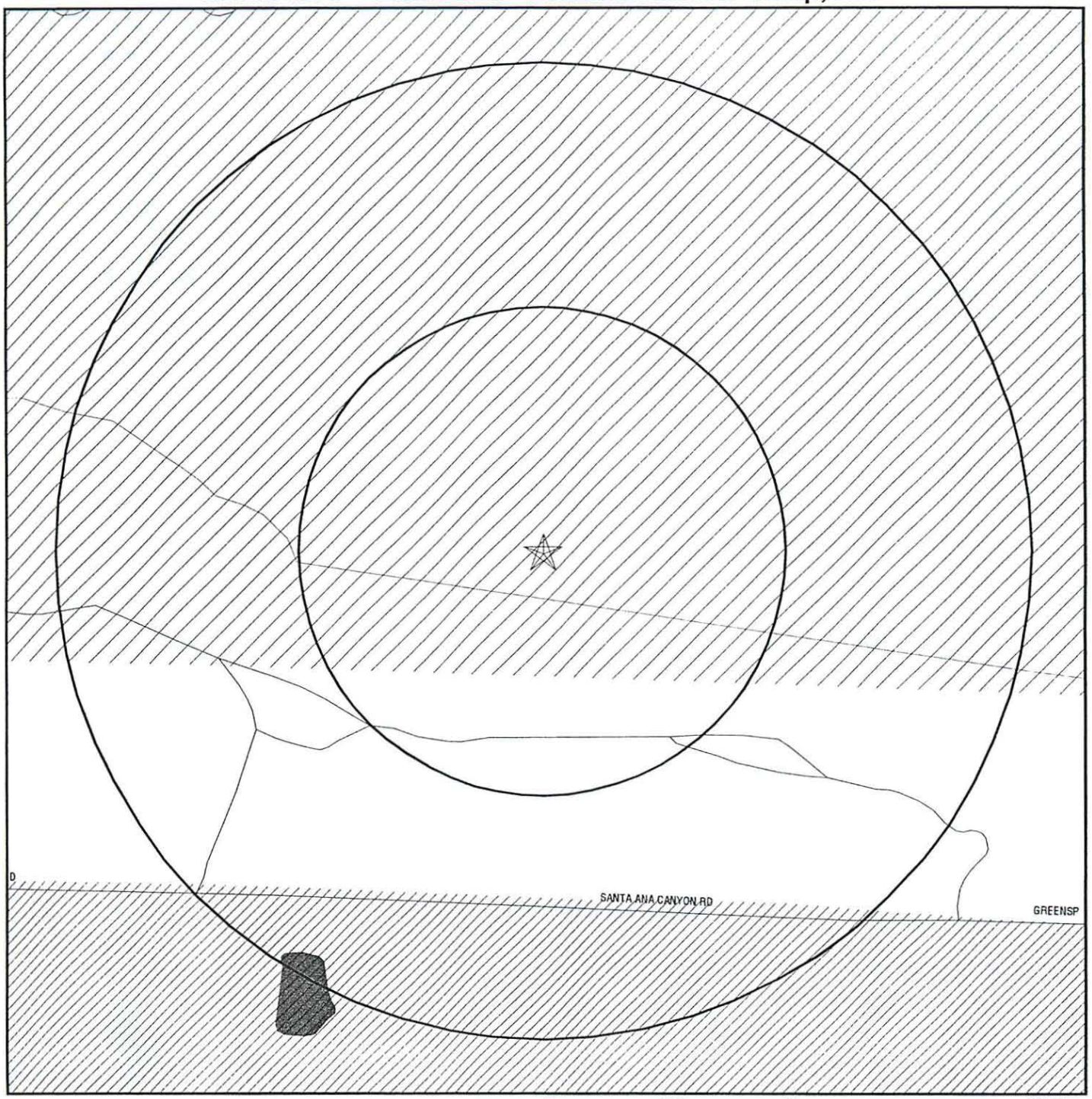

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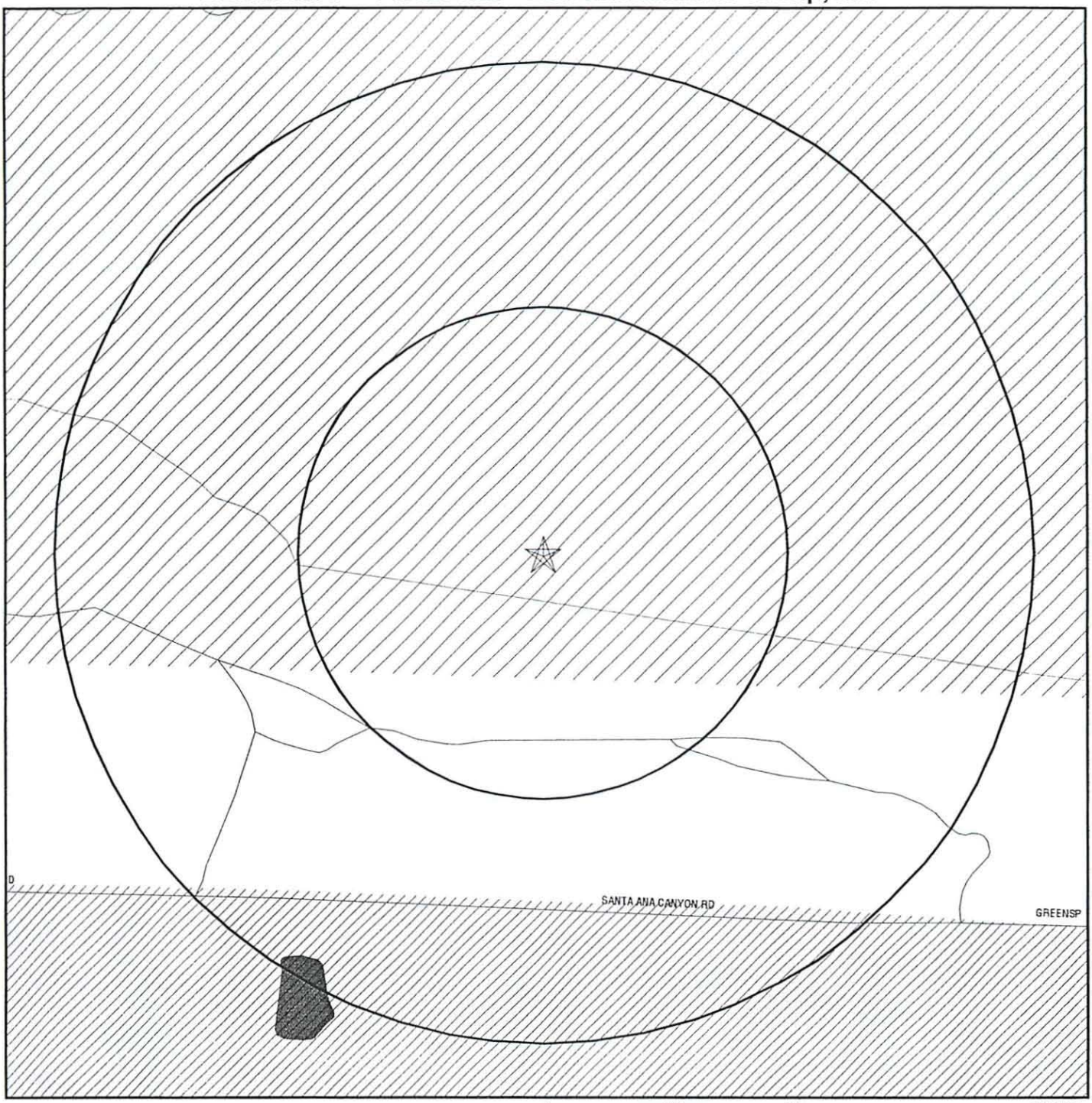

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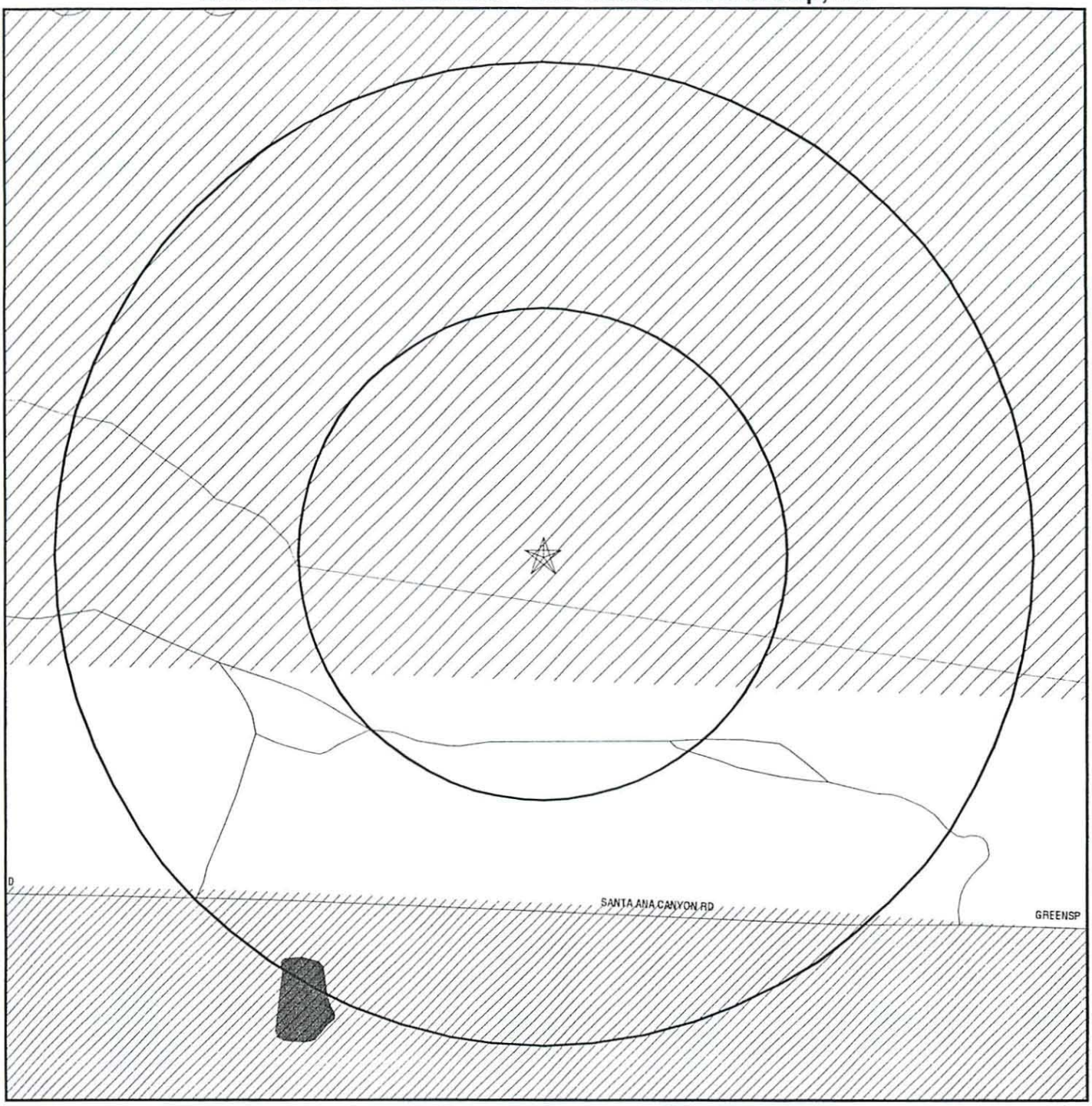

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		2.000	0	0	0	0	0	0
Proposed NPL		2.000	0	0	0	0	0	0
CERCLIS		2.000	0	0	0	0	0	0
CERC-NFRAP		2.000	0	0	0	0	0	0
CORRACTS		2.000	0	0	0	0	0	0
RCRA TSD		2.000	0	0	0	0	0	0
RCRA Lg. Quan. Gen.		0.750	0	0	0	0	NR	0
RCRA Sm. Quan. Gen.		0.750	0	0	0	0	NR	0
ERNS		0.500	0	0	0	NR	NR	0
STATE ASTM STANDARD								
AWP		2.000	0	0	0	0	0	0
Cal-Sites		2.000	0	0	0	0	0	0
CHMIRS		2.000	0	0	0	9	0	9
Cortese		2.000	0	0	0	0	0	0
Notify 65		2.000	0	0	0	0	0	0
Toxic Pits		2.000	0	0	0	0	0	0
State Landfill		2.000	0	0	0	0	0	0
WMUDS/SWAT		2.000	0	0	0	0	0	0
LUST		2.000	0	0	0	0	0	0
CA Bond Exp. Plan		2.000	0	0	0	0	0	0
UST		0.250	0	0	NR	NR	NR	0
VCP		2.000	0	0	0	0	0	0
INDIAN LUST		1.000	0	0	0	0	NR	0
INDIAN UST		0.750	0	0	0	0	NR	0
CA FID UST		0.750	0	0	0	0	NR	0
HIST UST		0.750	0	0	0	0	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.500	0	0	0	0	0	0
ROD		1.500	0	0	0	0	0	0
Delisted NPL		1.500	0	0	0	0	0	0
FINDS		0.500	0	0	0	NR	NR	0
HMIRS		0.500	0	0	0	NR	NR	0
MLTS		0.500	0	0	0	NR	NR	0
MINES		0.750	0	0	0	0	NR	0
NPL Liens		0.500	0	0	0	NR	NR	0
PADS		0.500	0	0	0	NR	NR	0
US ENG CONTROLS		1.000	0	0	0	0	NR	0
ODI		2.000	0	0	0	0	0	0
DOD		1.500	0	0	0	0	0	0
INDIAN RESERV		1.500	0	0	0	0	0	0
UMTRA		1.000	0	0	0	0	NR	0
FUDS		1.500	0	0	0	0	0	0
RAATS		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIS		0.500	0	0	0	NR	NR	0
TSCA		0.500	0	0	0	NR	NR	0
SSTS		0.500	0	0	0	NR	NR	0
FTTS		0.500	0	0	0	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
AST		0.500	0	0	0	NR	NR	0
CLEANERS		0.750	0	0	0	0	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
DEED		1.000	0	0	0	0	NR	0
NFA		0.750	0	0	0	0	NR	0
WIP		0.750	0	0	0	0	NR	0
EMI		2.000	0	0	0	2	1	3
REF		0.750	0	0	0	0	NR	0
SCH		0.750	0	0	0	0	NR	0
NFE		0.750	0	0	0	0	NR	0
SLIC		1.000	0	0	0	0	NR	0
HAZNET		0.500	0	0	0	NR	NR	0
San Bern. Co. Permit		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY HISTORICAL DATABASES								
Coal Gas		1.500	0	0	0	0	0	0
BROWNFIELDS DATABASES								
US BROWNFIELDS		1.000	0	0	0	0	NR	0
US INST CONTROL		1.000	0	0	0	0	NR	0
VCP		2.000	0	0	0	0	0	0

NOTES:

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1
East
1/2-1
4410 ft.

ODEBRECHT CONTRACTORS OF CALIF
32330 SANTA ANA CANYON
SHERMAN OAKS, CA 92346

EMI **S106836574**
N/A

Site 1 of 10 in cluster A

Relative:
Lower

Actual:
1975 ft.

EMISSIONS :

Facility ID :	104018
Air District Code :	SC
SIC Code :	1611
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	4.50100000
Reactive Organic Gases :	4.40042230
Carbon Monoxide Emissions :	7.57400000
NOX Gas Emissions (Nitrogen - Oxygen) :	7
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	2.48635000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	1.74055000

A2
East
1/2-1
4576 ft.

32330 SANTA ANNA CANYON RD
HIGHLAND, CA 92346

CHMIRS **S105646762**
N/A

Site 2 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	012812
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	012812
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported

(Continued) **S105646762**

Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill caused by hydraulic line that was broken.
Incident date :	2030/3-16-96
Admin Agency :	Not reported
OES date :	3/16/1996
OES time :	09:47:21 PM
Amount :	2 gallons

A3 **CHMIRS** **S105659618**
East **32330 SANTA ANA CYN RD** **N/A**
1/2-1 **HIGHLAND, CA 92346**
4576 ft.

Site 3 of 10 in cluster A

Relative:
Lower

CHMIRS:

OES Control Number:	99-4249
Chemical Name:	Hydraulic Fluid
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported

Actual:
1950 ft.

(Continued) **S105659618**

Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	99-4249
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Other
Cleanup By :	Responsible Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	10/6/199901:42:01 PM
Evacuations :	0
True date :	12/31/03
Year :	1999
Agency :	Odebrecht of CA
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	40
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0

(Continued) **S105659618**

Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	Valve on tank of Hitachi 2500 broke. Material spill onto plastic. Stayed contained.
Incident date :	10/5/199912:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported

A4 **CHMIRS** **S105644556**
East **32330 SANTA ANA CANYON ROAD** **N/A**
1/2-1 **HIGHLAND, CA 92346**
4576 ft.

Site 4 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	015191
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	015191
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	Not reported
Waterway :	Not reported
Spill Site :	OTHER

(Continued) **S105644556**

Cleanup By :	Not reported
Containment :	Not reported
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	oderbrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken line on equipment
Incident date :	0030 8/18/96
Admin Agency :	Not reported
OES date :	8/18/1996
OES time :	01:43:36 AM
Amount :	32 gallons

A5
East
1/2-1
4576 ft.

32330 SANTA ANA CANYON ROAD
HIGHLANDS, CA

CHMIRS **S105644364**
N/A

Site 5 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	013004
Chemical Name:	diesel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013004
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported

(Continued) **S105644364**

Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	IND PLT
Cleanup By :	discharger
Containment :	NO
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	oderbrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	equipment malfunction
Incident date :	2230 3/29/96
Admin Agency :	Not reported
OES date :	3/30/1996
OES time :	01:38:54 AM
Amount :	2 gals
OES Control Number:	013711
Chemical Name:	hydraulic fluid
Extent of Release:	Not reported
Property Use:	Not reported

(Continued) **S105644364**

Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013711
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	RD
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht contractors
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported

(Continued) **S105644364**

Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken hydraulic line on the hammer at the truck dump.
Incident date :	1400/11, May 96
Admin Agency :	Not reported
OES date :	5/13/1996
OES time :	04:37:31 PM
Amount :	15 gals.
OES Control Number:	013840
Chemical Name:	hydraulic
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013840
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported

(Continued) **S105644364**

Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht contractors
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken hydraulic line on rock breaker. soil excavated and put into a hazmat bin.
Incident date :	1630/21 May 96
Admin Agency :	Not reported
OES date :	5/21/1996
OES time :	06:00:25 PM
Amount :	3 gals.
OES Control Number:	014035
Chemical Name:	hydraulic fluid
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014035
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported

(Continued) **S105644364**

Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	hydraulic leak on equipment. line was repaired and area cleaned.
Incident date :	1430/3 June 96
Admin Agency :	Not reported
OES date :	6/3/1996
OES time :	04:09:53 PM
Amount :	15 gals.
OES Control Number:	015399
Chemical Name:	hydraulic fluid
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	015399
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported

(Continued) **S105644364**

Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht contractors
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken hydraulic hose on a piece of equipment. soil was excavated and put into storage bin for disposal.
Incident date :	1330/3 Sept 96
Admin Agency :	Not reported
OES date :	9/3/1996
OES time :	02:39:12 PM

(Continued) **S105644364**

Amount : 20 gals.

A6
East
1/2-1
4576 ft.

Relative:
Lower

Actual:
1950 ft.

ODEBRECHT CONTRACTORS OF CALIFORNIA INC
32330 SANTA ANA CANYON RD.
HIGHLAND, CA 92346

HAZNET **S103652802**
CHMIRS **N/A**

Site 6 of 10 in cluster A

HAZNET:

Gepaid:	CAL000141256
TSD EPA ID:	CAT080013352
Gen County:	San Bernardino
Tsd County:	Los Angeles
Tons:	11.5716
Waste Category:	Aqueous solution with 10% or more total organic residues
Disposal Method:	Recycler
Contact:	CONSTRUTORA NORBERTO ODEBRECHT
Telephone:	(021) 552-4324
Mailing Address:	15260 VENTURA BLVD STE 800 SHERMAN OAKS, CA 91403 - 5343
County	San Bernardino

Gepaid:	CAL000141256
TSD EPA ID:	CAT080013352
Gen County:	San Bernardino
Tsd County:	Los Angeles
Tons:	23.0392
Waste Category:	Tank bottom waste
Disposal Method:	Recycler
Contact:	CONSTRUTORA NORBERTO ODEBRECHT
Telephone:	(021) 552-4324
Mailing Address:	15260 VENTURA BLVD STE 800 SHERMAN OAKS, CA 91403 - 5343
County	San Bernardino

Gepaid:	CAL000141256
TSD EPA ID:	CAD028409019
Gen County:	San Bernardino
Tsd County:	Los Angeles
Tons:	62.9670
Waste Category:	Tank bottom waste
Disposal Method:	Treatment, Tank
Contact:	CONSTRUTORA NORBERTO ODEBRECHT
Telephone:	(021) 552-4324
Mailing Address:	15260 VENTURA BLVD STE 800 SHERMAN OAKS, CA 91403 - 5343
County	San Bernardino

Gepaid:	CAL000141256
TSD EPA ID:	CAT080013352
Gen County:	San Bernardino
Tsd County:	Los Angeles
Tons:	10.2165
Waste Category:	Tank bottom waste
Disposal Method:	Recycler
Contact:	CONSTRUTORA NORBERTO ODEBRECHT
Telephone:	(021) 552-4324
Mailing Address:	15260 VENTURA BLVD STE 800 SHERMAN OAKS, CA 91403 - 5343
County	San Bernardino

ODEBRECHT CONTRACTORS OF CALIFORNIA INC (Continued) **S103652802**

Gepaid:	CAL000141256
TSD EPA ID:	CAT080013352
Gen County:	San Bernardino
Tsd County:	Los Angeles
Tons:	89.2380
Waste Category:	Tank bottom waste
Disposal Method:	Recycler
Contact:	CONSTRUTORA NORBERTO ODEBRECHT
Telephone:	(021) 552-4324
Mailing Address:	15260 VENTURA BLVD STE 800 SHERMAN OAKS, CA 91403 - 5343
County	San Bernardino

Click this hyperlink while viewing on your computer to access 13 additional CA HAZNET record(s) in the EDR Site Report.

CHMIRS:

OES Control Number:	97-0100
Chemical Name:	Diesel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	97-0100
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Industrial Plant

ODEBRECHT CONTRACTORS OF CALIFORNIA INC (Continued) **S103652802**

Cleanup By :	Unknown
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	1/7/199707:43:23 PM
Evacuations :	0
True date :	12/31/03
Year :	1997
Agency :	Odebrecht Contracter
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	20
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	Light plant blew over due to high winds causing the oil to spill. Oil was cleaned and placed in hazmat bin. Spill was reported to San Bernardino Co./Incdt. #1347.
Incident date :	1/7/199712:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported

A7 **CHMIRS** **S105650950**
East **32330 SANTA ANA CAYNON RD** **N/A**
1/2-1 **HIGHLAND, CA**
4576 ft.

Site 7 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	97-1973
Chemical Name:	Hydraulic Fluid
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	97-1973
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported

(Continued) **S105650950**

Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Other
Cleanup By :	Reporting Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	5/16/199710:44:02 PM
Evacuations :	0
True date :	12/31/03
Year :	1997
Agency :	Odebrecht Contractors
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	20
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	Broken Hydraulic line on an excavator
Incident date :	5/14/199712:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported

Map ID / Direction / Distance / Distance (ft.) / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A8		**CHMIRS**	**S104586887**
East	**32330 SANTA ANA CANYON RD**	**EMI**	**N/A**
1/2-1	**HIGHLAND, CA 92346**		
4576 ft.			

Site 8 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	98-0088
Chemical Name:	Diesel Fuel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	98-0088
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Industrial Plant
Cleanup By :	Reporting Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	1/8/199809:25:19 AM
Evacuations :	0
True date :	12/31/03
Year :	1998

(Continued) **S104586887**

Agency :	Odabreck Contractors
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	30
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	Rock fell from loader, striking a fuel tank, breaking fuel spout causing substance to spill. Spill has been cleaned up.
Incident date :	1/7/199812:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported
OES Control Number:	011669
Chemical Name:	HYDROLIC OIL
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	011669
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported

(Continued) **S104586887**

Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	COMPANY PERSONNEL
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	ODEBRECHT (CBPO)
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	HYDROLIC HOSE RUPTURED ON HEAVY EQUIPMENT DURING THE CONSTRUCTION OF A DAM. COMPANY HAS A HAZMAT TEAM ON SITE.
Incident date :	0430 9JAN96
Admin Agency :	Not reported
OES date :	1/9/1996
OES time :	07:41:45 AM
Amount :	2 TO 3 GALS
OES Control Number:	011670
Chemical Name:	HYDROLIC OIL
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	011670
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported

(Continued) **S104586887**

Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	COMPANY PERSONNEL
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	ODEBRECHT (CBPO)
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	HYDROLIC SEAL RUPTURED ON HEAVY EQUIPMENT DURING CONSTRUCTION OF DAM. HAZMAT TEAM ON SITE.
Incident date :	0330 9JAN96
Admin Agency :	Not reported
OES date :	1/9/1996
OES time :	07:50:25 AM
Amount :	4-6 GALS
OES Control Number:	011694
Chemical Name:	HYDROLIC OIL
Extent of Release:	Not reported
Property Use:	Not reported

(Continued) **S104586887**

Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	011694
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	COMPANY PERSONNEL
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	ODEBRECHT (CBPO)
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported

(Continued) **S104586887**

Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	FRONT END LOADER HYDROLIC HOSE RUPTURED. HAZ MAT TEAM IS ON SITE.
Incident date :	0400 10JAN96
Admin Agency :	Not reported
OES date :	1/10/1996
OES time :	07:36:25 AM
Amount :	3-4 GALS
OES Control Number:	011702
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	011702
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported

(Continued) **S104586887**

Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	hydraulic hose burst.
Incident date :	0100 11Jan96
Admin Agency :	Not reported
OES date :	1/11/1996
OES time :	08:06:07 AM
Amount :	8-10 gals
OES Control Number:	99-0753
Chemical Name:	dieswl fuel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	99-0753
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported

(Continued) **S104586887**

Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Merchant/Business,Other
Cleanup By :	Reporting Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	2/17/199906:11:29 AM
Evacuations :	0
True date :	12/31/03
Year :	1999
Agency :	Odebrecht Contractors
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	20
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	auto shut-off failed during refueling.
Incident date :	2/11/199912:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported
OES Control Number:	013120
Chemical Name:	motor oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013120
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported

(Continued) **S104586887**

Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	Not reported
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	Not reported
Cleanup By :	reporting party
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	Odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	hose leak on bulldozier. leake onto the soil. all contained and cleaned
Incident date :	05/1015 apr 96
Admin Agency :	Not reported
OES date :	4/5/1996
OES time :	10:57:06 AM

(Continued) **S104586887**

Amount :	est 1/2 gal
OES Control Number:	013470
Chemical Name:	motor oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013470
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	Not reported
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported

(Continued) **S104586887**

Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	during equipment repair spill happened.
Incident date :	1100/4-26-96
Admin Agency :	Not reported
OES date :	4/27/1996
OES time :	07:14:49 AM
Amount :	1/2 gallon
OES Control Number:	013471
Chemical Name:	diesel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013471
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	Not reported

(Continued) **S104586887**

Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	while refueling a vehicle, spill happened.
Incident date :	1730/4-26-96
Admin Agency :	Not reported
OES date :	4/27/1996
OES time :	07:18:50 AM
Amount :	10 gallons
OES Control Number:	013472
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013472
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported

(Continued) **S104586887**

Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	Not reported
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill happened during equipment repair.
Incident date :	1940/4-26-96
Admin Agency :	Not reported
OES date :	4/27/1996
OES time :	07:21:46 AM
Amount :	2 gallons
OES Control Number:	013532
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013532
Time Notified :	Not reported

(Continued) S104586887

Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	a blown hydraulic line on piece of equipment.
Incident date :	0420 01May95

(Continued) **S104586887**

Admin Agency :	Not reported
OES date :	5/1/1996
OES time :	10:10:29 AM
Amount :	5 gals
OES Control Number:	013798
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013798
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht

(Continued) **S104586887**

BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill caused by a leaky hydraulic hose. substance contained , cleaned and disposed of.
Incident date :	1145/5-18-96
Admin Agency :	Not reported
OES date :	5/18/1996
OES time :	12:28:47 PM
Amount :	.5 gallon
OES Control Number:	013977
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013977
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported

(Continued) **S104586887**

Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill caused by a broken hydraulic hose on equipment.
Incident date :	0930/5-30-96
Admin Agency :	Not reported
OES date :	5/30/1996
OES time :	04:21:34 PM
Amount :	7 gallons
OES Control Number:	014178
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014178
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported

(Continued) **S104586887**

Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill caused by broken hydraulic line.
Incident date :	1630/6-11-96
Admin Agency :	Not reported
OES date :	6/11/1996
OES time :	06:25:03 PM
Amount :	2 gallons
OES Control Number:	014226
Chemical Name:	motor oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported

(Continued) **S104586887**

Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014226
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported

(Continued) **S104586887**

Tons :	Not reported
Unknown :	Not reported
Description :	spill noticed and reported.
Incident date :	0400/6-14-96
Admin Agency :	Not reported
OES date :	6/14/1996
OES time :	09:19:56 AM
Amount :	3 gallons
OES Control Number:	014227
Chemical Name:	diesel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014227
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported

(Continued) **S104586887**

Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken fuel line on equipment caused spill.
Incident date :	0600/6-14-96
Admin Agency :	Not reported
OES date :	6/14/1996
OES time :	09:23:34 AM
Amount :	7 gallons
OES Control Number:	014240
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014240
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported

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Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	broken hydraulic line caused spill.
Incident date :	1600/6-13-96
Admin Agency :	Not reported
OES date :	6/15/1996
OES time :	02:28:22 PM
Amount :	5 gallons
OES Control Number:	014842
Chemical Name:	hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	014842
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported

(Continued) **S104586887**

Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	hydraulic line ruptured causing the spill.
Incident date :	2240/7-27-96
Admin Agency :	Not reported
OES date :	7/28/1996
OES time :	01:25:31 AM
Amount :	30 gallons
OES Control Number:	015726
Chemical Name:	hydraulic fluid
Extent of Release:	Not reported
Property Use:	Not reported

(Continued) **S104586887**

Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	015726
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported

(Continued) **S104586887**

Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill from equipment repair
Incident date :	Not reported
Admin Agency :	Not reported
OES date :	9/27/1996
OES time :	01:56:38 AM
Amount :	11-12 gallons
OES Control Number:	016260
Chemical Name:	motor oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	016260
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	OTHER
Cleanup By :	odebrecht
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported

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Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996
Agency :	odebrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	spill caused by a broken hose.
Incident date :	Not reported
Admin Agency :	Not reported
OES date :	10/30/1996
OES time :	03:57:15 AM
Amount :	14 gallons
OES Control Number:	97-1251
Chemical Name:	DIESEL
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	97-1251
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported

(Continued) **S104586887**

CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Other
Cleanup By :	Reporting Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	3/26/199710:12:18 PM
Evacuations :	0
True date :	12/31/03
Year :	1997
Agency :	ODEBRECHT
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	10
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	QUICK FUEL OVERFLOWED.
Incident date :	3/26/199712:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported
OES Control Number:	97-3756
Chemical Name:	Hydraulic oil
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	97-3756
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported

(Continued) **S104586887**

Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	Not reported
Spill Site :	Other
Cleanup By :	Reporting Party
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	9/24/199701:51:45 PM
Evacuations :	0
True date :	12/31/03
Year :	1997
Agency :	Odebrecht Contractors of Ca.
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	25
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	At a construction site. Failed hydraulic line on a crane. Went into dirt, is now cleaned up
Incident date :	9/24/199712:00:00 AM
Admin Agency :	San Bernardino County Health Department
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported

(Continued) **S104586887**

EMISSIONS :

Facility ID :	104018
Air District Code :	SC
SIC Code :	1629
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	137.70801974
Reactive Organic Gases :	19.54655648
Carbon Monoxide Emissions :	46.92600000
NOX Gas Emissions (Nitrogen - Oxygen) :	43.65000000
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	14.98335000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	3.81289800

Facility ID :	104018
Air District Code :	SC
SIC Code :	1629
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	168.70252744
Reactive Organic Gases :	22.86931942
Carbon Monoxide Emissions :	46.92600000
NOX Gas Emissions (Nitrogen - Oxygen) :	43.65000000
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	14.98335000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	3.81289800

Facility ID :	104018
Air District Code :	SC
SIC Code :	1629
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	137.70801974
Reactive Organic Gases :	19.54655648
Carbon Monoxide Emissions :	46.92600000
NOX Gas Emissions (Nitrogen - Oxygen) :	43.65000000
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	14.98335000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	3.81289800

Facility ID :	104018
Air District Code :	SC
SIC Code :	1629
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD

(Continued) **S104586887**

Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	B
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	137.71000000
Reactive Organic Gases :	19.80078700
Carbon Monoxide Emissions :	46.93000000
NOX Gas Emissions (Nitrogen - Oxygen) :	43.64000000
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	14.99000000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	3.81770000

Facility ID :	104018
Air District Code :	SC
SIC Code :	1629
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	137.70801974
Reactive Organic Gases :	19.54655648
Carbon Monoxide Emissions :	46.92600000
NOX Gas Emissions (Nitrogen - Oxygen) :	43.65000000
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	14.98335000
Part. Matter 10 Micrometers and Smaller Tons/Yr :	3.81289800

A9 **CHMIRS** **S105652412**
East **32330 SANT ANA CANYON ROAD** **N/A**
1/2-1 **HIGHLANDS, CA 92346**
4576 ft.

Site 9 of 10 in cluster A

Relative:
Lower

Actual:
1950 ft.

CHMIRS:

OES Control Number:	97-0475
Chemical Name:	diesel
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	97-0475
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	0

(Continued) **S105652412**

Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	No
Waterway :	n
Spill Site :	Industrial Plant
Cleanup By :	Not reported
Containment :	Yes
What Happened :	Not reported
Type :	Not reported
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	2/2/199704:33:08 AM
Evacuations :	0
True date :	12/31/03
Year :	1997
Agency :	Oderbrecht
BBLS :	0
Cups :	0
CUFT :	0
Gallons :	15
Grams :	0
Pounds :	0
Liters :	0
Ounces :	0
Pints :	0
Quarts :	0
Sheen :	0
Tons :	0
Unknown :	0
Description :	fuel hose broken
Incident date :	2/2/199712:00:00 AM
Admin Agency :	Not reported
OES date :	Not reported
OES time :	Not reported
Amount :	Not reported

Map ID / Direction / Distance / Distance (ft.) / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A10		**CHMIRS**	**S105646573**
East	**32333 SANTA ANA CANYON ROAD**		**N/A**
1/2-1	**HIGHLANDS, CA**		
4580 ft.			

Site 10 of 10 in cluster A

Relative:
Lower

Actual:
1949 ft.

CHMIRS:

OES Control Number:	013005
Chemical Name:	hydraulic fluid
Extent of Release:	Not reported
Property Use:	Not reported
Incident Date:	Not reported
Date Completed:	Not reported
Time Completed :	Not reported
Agency Id Number :	Not reported
Agency Incident Number :	Not reported
OES Incident Number :	013005
Time Notified :	Not reported
Surrounding Area :	Not reported
Estimated Temperature :	Not reported
Property Management :	Not reported
More Than Two Substances Involved? :	Not reported
Special Studies 1 :	Not reported
Special Studies 2 :	Not reported
Special Studies 3 :	Not reported
Special Studies 4 :	Not reported
Special Studies 5 :	Not reported
Special Studies 6 :	Not reported
Responding Agency Personel # Of Injuries :	Not reported
Responding Agency Personel # Of Fatalities :	NO
Resp Agncy Personel # Of Decontaminated :	Not reported
Others Number Of Decontaminated :	Not reported
Others Number Of Injuries :	Not reported
Others Number Of Fatalities :	Not reported
Vehicle Make/year :	Not reported
Vehicle License Number :	Not reported
Vehicle State :	Not reported
Vehicle Id Number :	Not reported
CA/DOT/PUC/ICC Number :	Not reported
Company Name :	Not reported
Reporting Officer Name/ID :	Not reported
Report Date :	Not reported
Comments :	Not reported
Facility Telephone Number :	Not reported
Waterway Involved :	YES
Waterway :	Not reported
Spill Site :	Not reported
Cleanup By :	discharger
Containment :	NO
What Happened :	Not reported
Type :	PETROLEUM
Other :	Not reported
Chemical 1 :	Not Reported
Chemical 2 :	Not Reported
Chemical 3 :	Not Reported
Date/Time :	Not reported
Evacuations :	NO
True date :	12/31/03
Year :	1996

(Continued) **S105646573**

Agency :	oderbrecht
BBLS :	Not reported
Cups :	Not reported
CUFT :	Not reported
Gallons :	Not reported
Grams :	Not reported
Pounds :	Not reported
Liters :	Not reported
Ounces :	Not reported
Pints :	Not reported
Quarts :	Not reported
Sheen :	Not reported
Tons :	Not reported
Unknown :	Not reported
Description :	equipment failure
Incident date :	0015 3/30/96
Admin Agency :	Not reported
OES date :	3/30/1996
OES time :	03:02:01 AM
Amount :	2 gals

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11 **ASPECTS INC** **EMI** **S106826318**
SW **9477 N OPAL AVE** **N/A**
> 1 **MENTONE, CA 92359**
10195 ft.

Relative:
Lower

Actual:
1602 ft.

EMISSIONS :

Facility ID :	52372
Air District Code :	SC
SIC Code :	7538
Air Basin :	SC
Air District Name :	SOUTH COAST AQMD
Community Health Air Pollution Info System :	Not reported
Consolidated Emission Reporting Rule :	Not reported
County Code :	36
County ID :	36
Total Organic Hydrocarbon Gases :	0.60000000
Reactive Organic Gases :	0.41916000
Carbon Monoxide Emissions :	0
NOX Gas Emissions (Nitrogen - Oxygen) :	0
SOX Gas Emissions (Sulphur - Oxygen) :	0
Particulate Matter Tons/Yr :	0
Part. Matter 10 Micrometers and Smaller Tons/Yr :	0

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HEMET	S104571686	SPRINT PCS	34035 HWY 74	92359	HAZNET
HIGHLAND	S103995560	WESTERN DESERT	APN 297001-20 GREENSPOT RD / PLUNGE CRK	92346	HAZNET
HIGHLAND	S102796530	1X EAST HIGHLANDS RANCH INC	7600 CLOVER HILL DR	92346	HAZNET
HIGHLAND	S105697630	EAST VALLEY WATER DIST.#137	28300 LIVE OAK/SUMMIT RD	92346	San Bern. Co. Permit
HIGHLAND	S102436705	SEVEN OAKS DAM	NEWPORT AVE	92346	LUST
HIGHLAND-EAST HIGHLAI	S103702339	PLUNGE CREEK LANDFILL LEVEES	NORTH SIDE OF SANTA ANA RIVER	92346	WMUDS/SWAT
MENTONE	S105974299	WELL #6- EAST LUGONIA	1500 N AMETHYST	92359	San Bern. Co. Permit
MENTONE	S103958846	COUNTY OF SAN BERNARDINO	NW CORNER OF HWY 38 / OPAL ST	92359	HAZNET
SAN BERNARDINO	S104566146	EAST VALLEY WATER DISTRICT	HIGHLAND AVE AT PATTON STATE HOSPITAL	92346	HAZNET
SAN BERNARDINO COUN	S105629377		RIALTO LILAC STREET		CHMIRS, EMI

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/28/05
Date Made Active at EDR: 05/16/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/04/05
Elapsed ASTM days: 12
Date of Last EDR Contact: 05/04/05

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 6
Telephone: 214-655-6659

EPA Region 8
Telephone: 303-312-6774

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 04/27/05
Date Made Active at EDR: 05/16/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/04/05
Elapsed ASTM days: 12
Date of Last EDR Contact: 05/04/05

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/15/05
Date Made Active at EDR: 04/06/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/22/05
Elapsed ASTM days: 15
Date of Last EDR Contact: 03/22/05

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 03/22/05
Date Made Active at EDR: 04/06/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 04/01/05
Elapsed ASTM days: 5
Date of Last EDR Contact: 04/01/05

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/29/05
Date Made Active at EDR: 05/16/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 04/11/05
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/07/05

RCRA: Resource Conservation and Recovery Act Information
Source: EPA
Telephone: 800-424-9346
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 05/20/05
Date Made Active at EDR: 06/09/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/24/05
Elapsed ASTM days: 16
Date of Last EDR Contact: 05/24/05

ERNS: Emergency Response Notification System
Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/04
Date Made Active at EDR: 03/24/05
Database Release Frequency: Annually
Date of Data Arrival at EDR: 01/27/05
Elapsed ASTM days: 56
Date of Last EDR Contact: 04/25/05

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/01/01
Database Release Frequency: Biennially
Date of Last EDR Contact: 04/15/05
Date of Next Scheduled EDR Contact: 06/13/05

CONSENT: Superfund (CERCLA) Consent Decrees
Source: Department of Justice, Consent Decree Library
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/04
Database Release Frequency: Varies

Date of Last EDR Contact: 04/26/05
Date of Next Scheduled EDR Contact: 07/25/05

ROD: Records Of Decision
Source: EPA
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/10/05
Database Release Frequency: Annually

Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/28/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 05/04/05
Date of Next Scheduled EDR Contact: 08/01/05

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/11/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/04
Database Release Frequency: Annually

Date of Last EDR Contact: 04/19/05
Date of Next Scheduled EDR Contact: 07/18/05

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/14/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/11/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 03/30/05
Date of Next Scheduled EDR Contact: 06/27/05

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 202-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 02/22/05
Date of Next Scheduled EDR Contact: 05/23/05

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-564-3887
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/30/05
Database Release Frequency: Annually
Date of Last EDR Contact: 05/10/05
Date of Next Scheduled EDR Contact: 08/08/05

DOD: Department of Defense Sites
Source: USGS
Telephone: 703-692-8801
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/08/05
Date of Next Scheduled EDR Contact: 05/09/05

UMTRA: Uranium Mill Tailings Sites
Source: Department of Energy
Telephone: 505-845-0011
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized. In 1978, 24 inactive uranium mill tailings sites in Oregon, Idaho, Wyoming, Utah, Colorado, New Mexico, Texas, North Dakota, South Dakota, Pennsylvania, and on Navajo and Hopi tribal lands, were targeted for cleanup by the Department of Energy.

Date of Government Version: 12/29/04
Database Release Frequency: Varies
Date of Last EDR Contact: 03/22/05
Date of Next Scheduled EDR Contact: 06/20/05

ODI: Open Dump Inventory
Source: Environmental Protection Agency
Telephone: 800-424-9346
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/85
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 05/23/95
Date of Next Scheduled EDR Contact: N/A

FUDS: Formerly Used Defense Sites
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/03
Database Release Frequency: Varies
Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

INDIAN RESERV: Indian Reservations
Source: USGS
Telephone: 202-208-3710
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/08/05
Date of Next Scheduled EDR Contact: 05/09/05

US ENG CONTROLS: Engineering Controls Sites List
Source: Environmental Protection Agency
Telephone: 703-603-8867
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/10/05
Database Release Frequency: Varies
Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-566-0250
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/02
Database Release Frequency: Annually
Date of Last EDR Contact: 03/22/05
Date of Next Scheduled EDR Contact: 06/20/05

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-5521
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/02
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 04/05/05
Date of Next Scheduled EDR Contact: 06/06/05

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-566-1667

Date of Government Version: 04/13/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/21/05
Date of Next Scheduled EDR Contact: 06/20/05

SSTS: Section 7 Tracking Systems
Source: EPA
Telephone: 202-564-4203
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/03
Database Release Frequency: Annually
Date of Last EDR Contact: 04/19/05
Date of Next Scheduled EDR Contact: 07/18/05

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/21/05
Date of Next Scheduled EDR Contact: 06/20/05

STATE OF CALIFORNIA ASTM STANDARD RECORDS

AWP: Annual Workplan Sites
Source: California Environmental Protection Agency
Telephone: 916-323-3400
Known Hazardous Waste Sites. California DTSC's Annual Workplan (AWP), formerly BEP, identifies known hazardous substance sites targeted for cleanup.

Date of Government Version: 02/07/05
Date Made Active at EDR: 04/05/05
Database Release Frequency: Annually
Date of Data Arrival at EDR: 03/01/05
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/01/05

CAL-SITES: Calsites Database
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database.

Date of Government Version: 02/07/05
Date Made Active at EDR: 04/05/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/01/05
Elapsed ASTM days: 35
Date of Last EDR Contact: 03/01/05

CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-845-8400
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/03
Date Made Active at EDR: 06/25/04
Database Release Frequency: Varies
Date of Data Arrival at EDR: 05/18/04
Elapsed ASTM days: 38
Date of Last EDR Contact: 02/23/05

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-9100
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/01
Date Made Active at EDR: 07/26/01
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 05/29/01
Elapsed ASTM days: 58
Date of Last EDR Contact: 04/25/05

NOTIFY 65: Proposition 65 Records
Source: State Water Resources Control Board
Telephone: 916-445-3846
Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/93
Date Made Active at EDR: 11/19/93
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 11/01/93
Elapsed ASTM days: 18
Date of Last EDR Contact: 04/18/05

TOXIC PITS: Toxic Pits Cleanup Act Sites
Source: State Water Resources Control Board
Telephone: 916-227-4364
Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/95
Date Made Active at EDR: 09/26/95
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 08/30/95
Elapsed ASTM days: 27
Date of Last EDR Contact: 02/01/05

SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-341-6320
Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/14/05
Date Made Active at EDR: 04/05/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/15/05
Elapsed ASTM days: 21
Date of Last EDR Contact: 03/15/05

WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/00
Date Made Active at EDR: 05/10/00
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 04/10/00
Elapsed ASTM days: 30
Date of Last EDR Contact: 03/07/05

LUST: Geotracker's Leaking Underground Fuel Tank Report
Source: State Water Resources Control Board
Contact: San Bernardino County Fire Hazmat Division, (909) 386-8418
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/12/05
Date Made Active at EDR: 06/07/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 05/12/05
Elapsed ASTM days: 26
Date of Last EDR Contact: 04/13/05

CA BOND EXP. PLAN: Bond Expenditure Plan
Source: Department of Health Services
Telephone: 916-255-2118
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/89
Date Made Active at EDR: 08/02/94
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 07/27/94
Elapsed ASTM days: 6
Date of Last EDR Contact: 05/31/94

CA UST:

UST: Active UST Facilities
Source: SWRCB
Contact: San Bernardino County Fire Hazmat Division, (909) 386-8418
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 04/12/05
Date Made Active at EDR: 05/06/05
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 04/13/05
Elapsed ASTM days: 23
Date of Last EDR Contact: 04/13/05

VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/07/05
Date Made Active at EDR: 03/31/05
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 03/01/05
Elapsed ASTM days: 30
Date of Last EDR Contact: 03/01/05

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
Source: Environmental Protection Agency
Telephone: 415-972-3372
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/18/05
Date Made Active at EDR: 04/13/05
Database Release Frequency: Varies
Date of Data Arrival at EDR: 03/21/05
Elapsed ASTM days: 23
Date of Last EDR Contact: 02/22/05

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
Source: EPA Region 10
Telephone: 206-553-2857
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/02/05
Date Made Active at EDR: 03/28/05
Database Release Frequency: Varies
Date of Data Arrival at EDR: 02/02/05
Elapsed ASTM days: 54
Date of Last EDR Contact: 01/31/05

INDIAN UST: Underground Storage Tanks on Indian Land
Source: EPA Region 9
Telephone: 415-972-3368

Date of Government Version: 04/18/05
Date Made Active at EDR: 05/31/05
Database Release Frequency: Varies
Date of Data Arrival at EDR: 05/16/05
Elapsed ASTM days: 15
Date of Last EDR Contact: 05/16/05

CA FID UST: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-341-5851
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/94
Date Made Active at EDR: 09/29/95
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 09/05/95
Elapsed ASTM days: 24
Date of Last EDR Contact: 12/28/98

HIST UST: Hazardous Substance Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-341-5851
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/90
Date Made Active at EDR: 02/12/91
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 01/25/91
Elapsed ASTM days: 18
Date of Last EDR Contact: 07/26/01

STATE OF CALIFORNIA ASTM SUPPLEMENTAL RECORDS

AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-341-5712
Registered Aboveground Storage Tanks.

Date of Government Version: 02/01/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 02/24/05
Date of Next Scheduled EDR Contact: 05/02/05

CLEANERS: Cleaner Facilities
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/18/05
Database Release Frequency: Annually
Date of Last EDR Contact: 04/15/05
Date of Next Scheduled EDR Contact: 07/04/05

CA WDS: Waste Discharge System
Source: State Water Resources Control Board
Telephone: 916-341-5227
Sites which have been issued waste discharge requirements.

Date of Government Version: 03/21/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/22/05
Date of Next Scheduled EDR Contact: 06/20/05

DEED: Deed Restriction Listing
Source: Department of Toxic Substances Control
Telephone: 916-323-3400

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 04/05/05 — Date of Last EDR Contact: 04/04/05
Database Release Frequency: Semi-Annually — Date of Next Scheduled EDR Contact: 07/04/05

NFA: No Further Action Determination
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains properties at which DTSC has made a clear determination that the property does not pose a problem to the environment or to public health.

Date of Government Version: 02/07/05 — Date of Last EDR Contact: 03/01/05
Database Release Frequency: Quarterly — Date of Next Scheduled EDR Contact: 05/30/05

EMI: Emissions Inventory Data
Source: California Air Resources Board
Telephone: 916-322-2990
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/02 — Date of Last EDR Contact: 04/22/05
Database Release Frequency: Varies — Date of Next Scheduled EDR Contact: 07/18/05

WIP: Well Investigation Program Case List
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 04/26/05 — Date of Last EDR Contact: 04/25/05
Database Release Frequency: Varies — Date of Next Scheduled EDR Contact: 07/25/05

REF: Unconfirmed Properties Referred to Another Agency
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.

Date of Government Version: 02/07/05 — Date of Last EDR Contact: 03/01/05
Database Release Frequency: Quarterly — Date of Next Scheduled EDR Contact: 05/30/05

SCH: School Property Evaluation Program
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/07/05 — Date of Last EDR Contact: 03/01/05
Database Release Frequency: Quarterly — Date of Next Scheduled EDR Contact: 05/30/05

NFE: Properties Needing Further Evaluation
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
This category contains properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the PEA process. PEA in Progress indicates properties where DTSC is currently conducting a PEA. PEA Required indicates properties where DTSC has determined a PEA is required, but not currently underway.

Date of Government Version: 02/07/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 03/01/05
Date of Next Scheduled EDR Contact: 05/30/05

SLIC: Statewide SLIC Cases
Source: State Water Resources Control Board
Contact: San Bernardino County Fire Hazmat Division, (909) 386-8418
The Spills, Leaks, Investigations, and Cleanups (SLIC) listings includes unauthorized discharges from spills and leaks, other than from underground storage tanks or other regulated sites.

Date of Government Version: 04/12/05
Database Release Frequency: Varies
Date of Last EDR Contact: 04/13/05
Date of Next Scheduled EDR Contact: 07/11/05

HAZNET: Facility and Manifest Data
Source: California Environmental Protection Agency
Telephone: 916-255-1136
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/02
Database Release Frequency: Annually
Date of Last EDR Contact: 02/17/05
Date of Next Scheduled EDR Contact: 05/09/05

LOCAL RECORDS

ALAMEDA COUNTY:

Local Oversight Program Listing of UGT Cleanup Sites
Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

Date of Government Version: 02/14/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/25/05
Date of Next Scheduled EDR Contact: 07/25/05

Underground Tanks
Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

Date of Government Version: 02/15/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/25/05
Date of Next Scheduled EDR Contact: 07/25/05

CONTRA COSTA COUNTY:

Site List
Source: Contra Costa Health Services Department
Telephone: 925-646-2286
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 03/04/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/28/05
Date of Next Scheduled EDR Contact: 05/30/05

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FRESNO COUNTY:

CUPA Resources List
Source: Dept. of Community Health
Telephone: 559-445-3271
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/31/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 01/19/05
Date of Next Scheduled EDR Contact: 05/09/05

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Kern County Sites and Tanks Listing.

Date of Government Version: 05/10/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 05/02/05
Date of Next Scheduled EDR Contact: 09/05/05

LOS ANGELES COUNTY:

List of Solid Waste Facilities
Source: La County Department of Public Works
Telephone: 818-458-5185

Date of Government Version: 02/01/05
Database Release Frequency: Varies

Date of Last EDR Contact: 02/18/05
Date of Next Scheduled EDR Contact: 05/16/05

City of El Segundo Underground Storage Tank
Source: City of El Segundo Fire Department
Telephone: 310-524-2236

Date of Government Version: 02/14/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 02/14/05
Date of Next Scheduled EDR Contact: 05/16/05

City of Long Beach Underground Storage Tank
Source: City of Long Beach Fire Department
Telephone: 562-570-2563

Date of Government Version: 03/28/03
Database Release Frequency: Annually

Date of Last EDR Contact: 02/23/05
Date of Next Scheduled EDR Contact: 05/23/05

City of Torrance Underground Storage Tank
Source: City of Torrance Fire Department
Telephone: 310-618-2973

Date of Government Version: 03/24/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 02/28/05
Date of Next Scheduled EDR Contact: 05/16/05

City of Los Angeles Landfills
Source: Engineering & Construction Division
Telephone: 213-473-7869

Date of Government Version: 03/01/05
Database Release Frequency: Varies

Date of Last EDR Contact: 03/18/05
Date of Next Scheduled EDR Contact: 06/13/05

HMS: Street Number List
Source: Department of Public Works
Telephone: 626-458-3517
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 02/28/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/14/05
Date of Next Scheduled EDR Contact: 05/16/05

Site Mitigation List
Source: Community Health Services
Telephone: 323-890-7806
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/09/05
Database Release Frequency: Annually
Date of Last EDR Contact: 02/14/05
Date of Next Scheduled EDR Contact: 05/16/05

San Gabriel Valley Areas of Concern
Source: EPA Region 9
Telephone: 415-972-3178
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/98
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 07/06/99
Date of Next Scheduled EDR Contact: N/A

MARIN COUNTY:

Underground Storage Tank Sites
Source: Public Works Department Waste Management
Telephone: 415-499-6647
Currently permitted USTs in Marin County.

Date of Government Version: 02/08/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/31/05
Date of Next Scheduled EDR Contact: 05/02/05

NAPA COUNTY:

Sites With Reported Contamination
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

Date of Government Version: 03/29/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 03/28/05
Date of Next Scheduled EDR Contact: 06/27/05

Closed and Operating Underground Storage Tank Sites
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

Date of Government Version: 03/29/05
Database Release Frequency: Annually
Date of Last EDR Contact: 03/28/05
Date of Next Scheduled EDR Contact: 06/27/05

ORANGE COUNTY:

List of Underground Storage Tank Cleanups
Source: Health Care Agency
Telephone: 714-834-3446
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/01/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/11/05
Date of Next Scheduled EDR Contact: 06/06/05

List of Underground Storage Tank Facilities
Source: Health Care Agency
Telephone: 714-834-3446
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 03/01/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/11/05
Date of Next Scheduled EDR Contact: 06/06/05

List of Industrial Site Cleanups
Source: Health Care Agency
Telephone: 714-834-3446
Petroleum and non-petroleum spills.

Date of Government Version: 03/01/05
Database Release Frequency: Annually

Date of Last EDR Contact: 03/11/05
Date of Next Scheduled EDR Contact: 06/06/05

PLACER COUNTY:

Master List of Facilities
Source: Placer County Health and Human Services
Telephone: 530-889-7312
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 04/05/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 03/21/05
Date of Next Scheduled EDR Contact: 06/20/05

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Source: Department of Public Health
Telephone: 951-358-5055
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 02/14/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 07/18/05

Underground Storage Tank Tank List
Source: Health Services Agency
Telephone: 951-358-5055

Date of Government Version: 02/14/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 07/18/05

SACRAMENTO COUNTY:

CS - Contaminated Sites
Source: Sacramento County Environmental Management
Telephone: 916-875-8406

Date of Government Version: 04/06/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 05/06/05
Date of Next Scheduled EDR Contact: 08/01/05

ML - Regulatory Compliance Master List
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 03/29/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 05/06/05
Date of Next Scheduled EDR Contact: 08/01/05

SAN BERNARDINO COUNTY:

Hazardous Material Permits
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/25/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

SAN DIEGO COUNTY:

Solid Waste Facilities
Source: Department of Health Services
Telephone: 619-338-2209
San Diego County Solid Waste Facilities.

Date of Government Version: 08/01/00
Database Release Frequency: Varies

Date of Last EDR Contact: 02/22/05
Date of Next Scheduled EDR Contact: 05/23/05

Hazardous Materials Management Division Database
Source: Hazardous Materials Management Division
Telephone: 619-338-2268
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/29/04
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/22/05
Date of Next Scheduled EDR Contact: 07/04/05

SAN FRANCISCO COUNTY:

Local Oversite Facilities
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920

Date of Government Version: 03/09/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

Underground Storage Tank Information
Source: Department of Public Health
Telephone: 415-252-3920

Date of Government Version: 03/09/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SAN MATEO COUNTY:

Fuel Leak List
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921

Date of Government Version: 05/05/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 04/11/05
Date of Next Scheduled EDR Contact: 07/11/05

Business Inventory
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 05/12/05
Database Release Frequency: Annually

Date of Last EDR Contact: 04/11/05
Date of Next Scheduled EDR Contact: 07/11/05

SANTA CLARA COUNTY:

Fuel Leak Site Activity Report
Source: Santa Clara Valley Water District
Telephone: 408-265-2600

Date of Government Version: 03/29/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 03/29/05
Date of Next Scheduled EDR Contact: 06/27/05

Hazardous Material Facilities
Source: City of San Jose Fire Department
Telephone: 408-277-4659

Date of Government Version: 01/14/05
Database Release Frequency: Annually

Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

SOLANO COUNTY:

Leaking Underground Storage Tanks
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770

Date of Government Version: 04/18/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 06/13/05

Underground Storage Tanks
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770

Date of Government Version: 04/18/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 06/13/05

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
Source: Department of Health Services
Telephone: 707-565-6565

Date of Government Version: 04/25/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/25/05
Date of Next Scheduled EDR Contact: 07/25/05

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SUTTER COUNTY:

Underground Storage Tanks
Source: Sutter County Department of Agriculture
Telephone: 530-822-7500

Date of Government Version: 01/29/04
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 07/04/05

VENTURA COUNTY:

Inventory of Illegal Abandoned and Inactive Sites
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/04
Database Release Frequency: Annually

Date of Last EDR Contact: 02/23/05
Date of Next Scheduled EDR Contact: 05/23/05

Listing of Underground Tank Cleanup Sites
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/01/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/18/05
Date of Next Scheduled EDR Contact: 06/13/05

Underground Tank Closed Sites List
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/30/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 04/15/05
Date of Next Scheduled EDR Contact: 07/11/05

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/01/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/18/05
Date of Next Scheduled EDR Contact: 06/13/05

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Source: Yolo County Department of Health
Telephone: 530-666-8646

Date of Government Version: 04/19/05
Database Release Frequency: Annually

Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 07/18/05

California Regional Water Quality Control Board (RWQCB) LUST Records

LUST REG 1: Active Toxic Site Investigation
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-576-2220
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/01
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 02/23/05
Date of Next Scheduled EDR Contact: 05/23/05

LUST REG 2: Fuel Leak List
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457

Date of Government Version: 09/30/04
Database Release Frequency: Quarterly
Date of Last EDR Contact: 04/11/05
Date of Next Scheduled EDR Contact: 07/11/05

LUST REG 3: Leaking Underground Storage Tank Database
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147

Date of Government Version: 05/19/03
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 02/14/05
Date of Next Scheduled EDR Contact: 05/16/05

LUST REG 4: Underground Storage Tank Leak List
Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/04
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/29/05
Date of Next Scheduled EDR Contact: 06/27/05

LUST REG 5: Leaking Underground Storage Tank Database
Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291

Date of Government Version: 04/01/05
Database Release Frequency: Quarterly
Date of Last EDR Contact: 04/19/05
Date of Next Scheduled EDR Contact: 07/04/05

LUST REG 6L: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 916-542-5424
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/03
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 04/12/05
Date of Next Scheduled EDR Contact: 06/06/05

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-346-7491

Date of Government Version: 08/09/04
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 04/15/05
Date of Next Scheduled EDR Contact: 07/04/05

LUST REG 7: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-346-7491

Date of Government Version: 02/26/04
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/29/05
Date of Next Scheduled EDR Contact: 06/27/05

LUST REG 8: Leaking Underground Storage Tanks
Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-4130
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/05
Database Release Frequency: Varies
Date of Last EDR Contact: 02/08/05
Date of Next Scheduled EDR Contact: 05/09/05

LUST REG 9: Leaking Underground Storage Tank Report
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/01
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 04/19/05
Date of Next Scheduled EDR Contact: 07/18/05

California Regional Water Quality Control Board (RWQCB) SLIC Records

SLIC REG 1: Active Toxic Site Investigations
Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220

Date of Government Version: 04/03/03
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 02/23/05
Date of Next Scheduled EDR Contact: 05/23/05

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 09/30/04
Database Release Frequency: Quarterly
Date of Last EDR Contact: 04/11/05
Date of Next Scheduled EDR Contact: 07/11/05

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 05/16/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 05/16/05
Date of Next Scheduled EDR Contact: 08/15/05

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 11/17/04
Database Release Frequency: Varies
Date of Last EDR Contact: 04/25/05
Date of Next Scheduled EDR Contact: 07/25/05

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Unregulated sites that impact groundwater or have the potential to impact groundwater.

Date of Government Version: 04/01/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/05/05
Date of Next Scheduled EDR Contact: 07/04/05

SLIC REG 6L: SLIC Sites
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574

Date of Government Version: 09/07/04
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 03/07/05
Date of Next Scheduled EDR Contact: 06/06/05

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583

Date of Government Version: 01/25/05
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/18/05
Date of Next Scheduled EDR Contact: 07/04/05

SLIC REG 7: SLIC List
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491

Date of Government Version: 11/24/04
Database Release Frequency: Varies
Date of Last EDR Contact: 02/22/05
Date of Next Scheduled EDR Contact: 05/23/05

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298

Date of Government Version: 07/01/04
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 04/06/05
Date of Next Scheduled EDR Contact: 07/04/05

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980

Date of Government Version: 09/10/04
Database Release Frequency: Annually
Date of Last EDR Contact: 03/01/05
Date of Next Scheduled EDR Contact: 05/30/05

EDR PROPRIETARY HISTORICAL DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

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The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

BROWNFIELDS DATABASES

VCP: Voluntary Cleanup Program Properties
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/07/05
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/01/05
Date of Next Scheduled EDR Contact: 05/30/05

US BROWNFIELDS: A Listing of Brownfields Sites
Source: Environmental Protection Agency
Telephone: 202-566-2777
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 01/10/05
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 03/14/05
Date of Next Scheduled EDR Contact: 06/13/05

US INST CONTROL: Sites with Institutional Controls
Source: Environmental Protection Agency
Telephone: 703-603-8867
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/10/05
Database Release Frequency: Varies

Date of Last EDR Contact: 04/04/05
Date of Next Scheduled EDR Contact: 07/04/05

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

200 ACRES EAST HIGHLANDS
GREENSPOT/SANTA ANA CANYON
HIGHLAND, CA 92346

TARGET PROPERTY COORDINATES

Latitude (North):	34.106998 - 34˚ 6' 25.2"
Longitude (West):	117.116096 - 117˚ 6' 57.9"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	489291.6
UTM Y (Meters):	3773831.2
Elevation:	2030 ft. above sea level

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

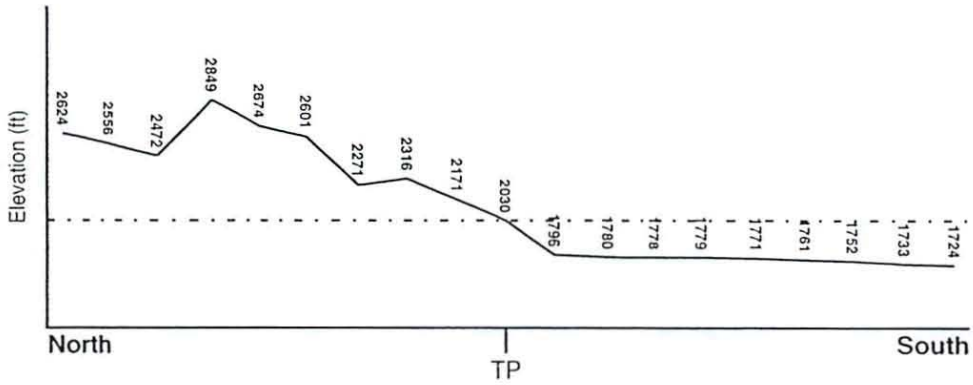
TOPOGRAPHIC INFORMATION

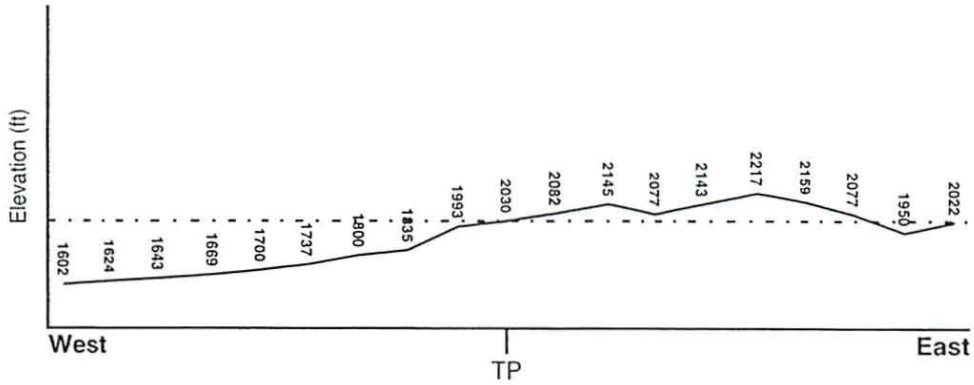
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

USGS Topographic Map:	34117-A1 YUCAIPA, CA
General Topographic Gradient:	General SSW
Source:	USGS 7.5 min quad index

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 2030 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN BERNARDINO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	06071C8730F
Additional Panels in search area:	06071C8707F

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	Not Available

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

*©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: Precambrian
System: Precambrian
Series: Orthogneiss and paragneiss
Code: Xm *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Metamorphic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: ROCK OUTCROP

Soil Surface Texture: unweathered bedrock

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Bedrock Max: > 0 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	60 inches	unweathered bedrock	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:	very gravelly - sandy loam gravelly - sandy loam very gravelly - loamy coarse sand fragmental material sandy loam gravelly - loam very gravelly - silt loam
Surficial Soil Types:	very gravelly - sandy loam gravelly - sandy loam very gravelly - loamy coarse sand fragmental material sandy loam gravelly - loam very gravelly - silt loam
Shallow Soil Types:	fine gravelly - loamy coarse sand very gravelly - silt loam
Deeper Soil Types:	very gravelly - loamy coarse sand weathered bedrock fragmental material gravelly - sandy loam

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS3134934	1/8 - 1/4 Mile SE
2	USGS3134926	1/8 - 1/4 Mile SE
3	USGS3134819	1/4 - 1/2 Mile NNW
5	USGS3135021	1/2 - 1 Mile SSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

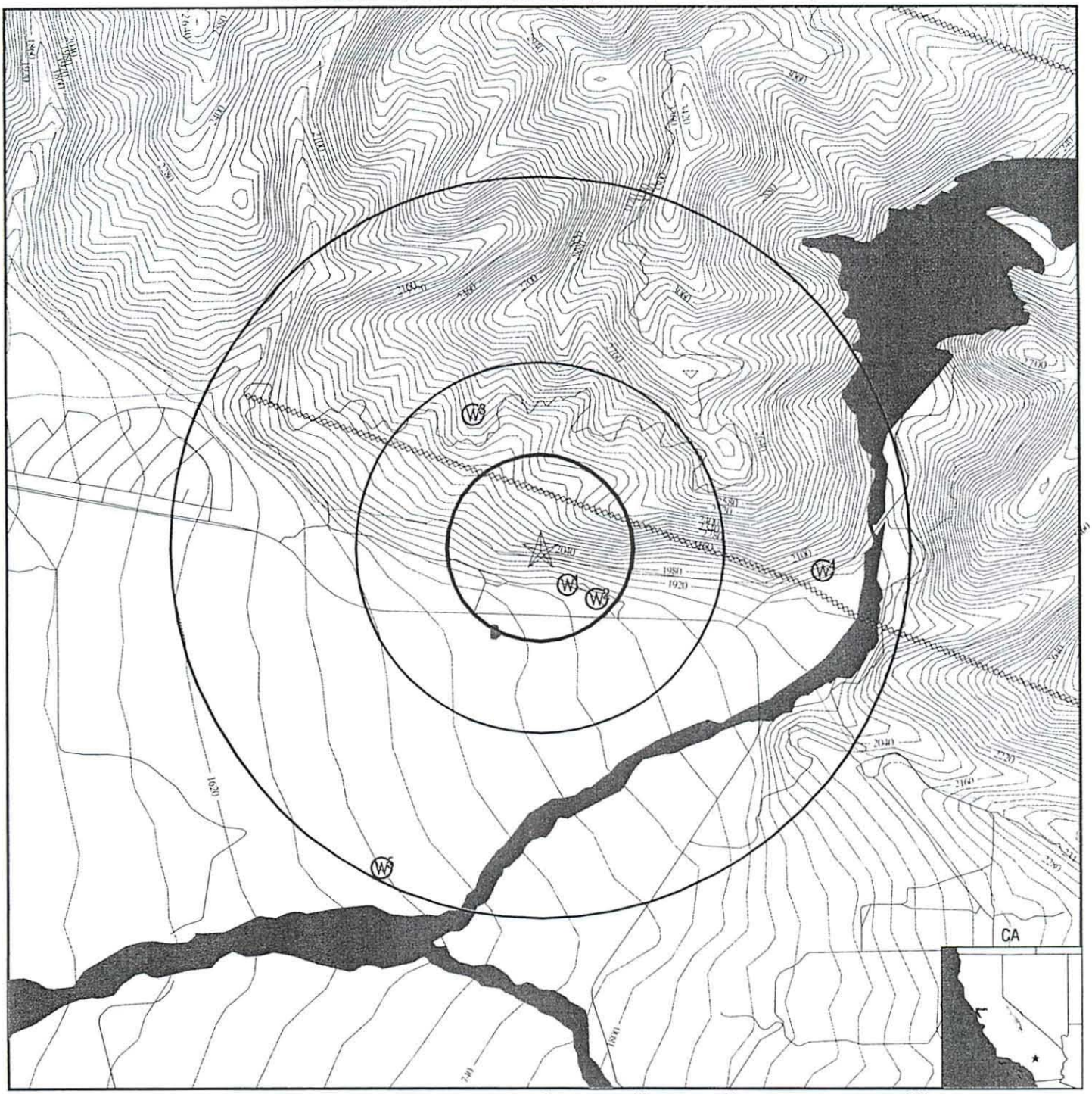
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
4	23592	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 1439206.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location
HD Closest Hydrogeological Data
Oil, gas or related wells

N

TARGET PROPERTY:	200 Acres East Highlands	CUSTOMER:	LOR Geotechnical Group, Inc.
ADDRESS:	Greenspot/Santa Ana Canyon	CONTACT:	M. Kevin Osmun
CITY/STATE/ZIP:	Highland CA 92346	INQUIRY #:	1439206.2s
LAT/LONG:	34.1070 / 117.1161	DATE:	June 10, 2005 7:36 am

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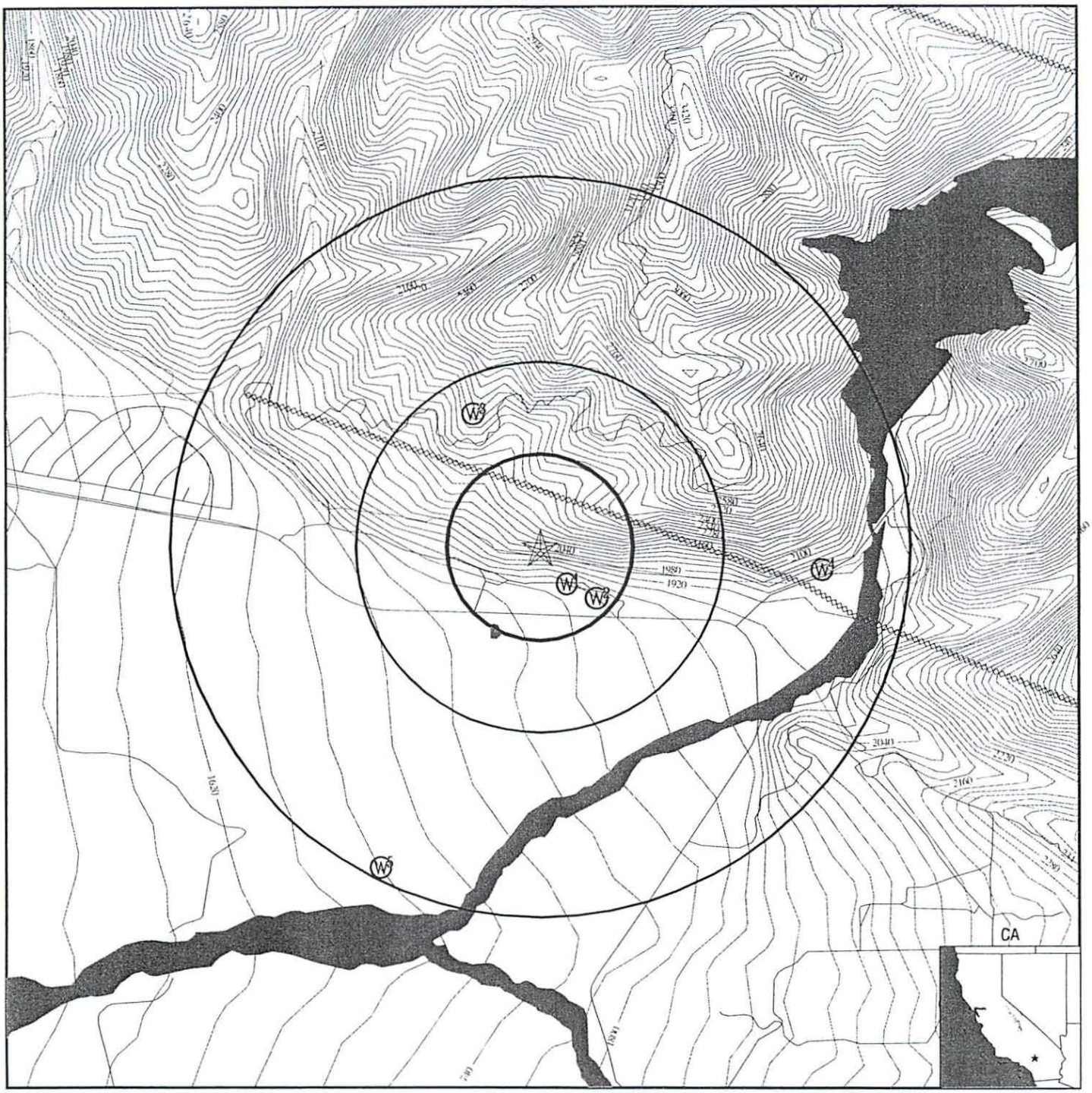
PHYSICAL SETTING SOURCE MAP - 1439206.2s



County Boundary
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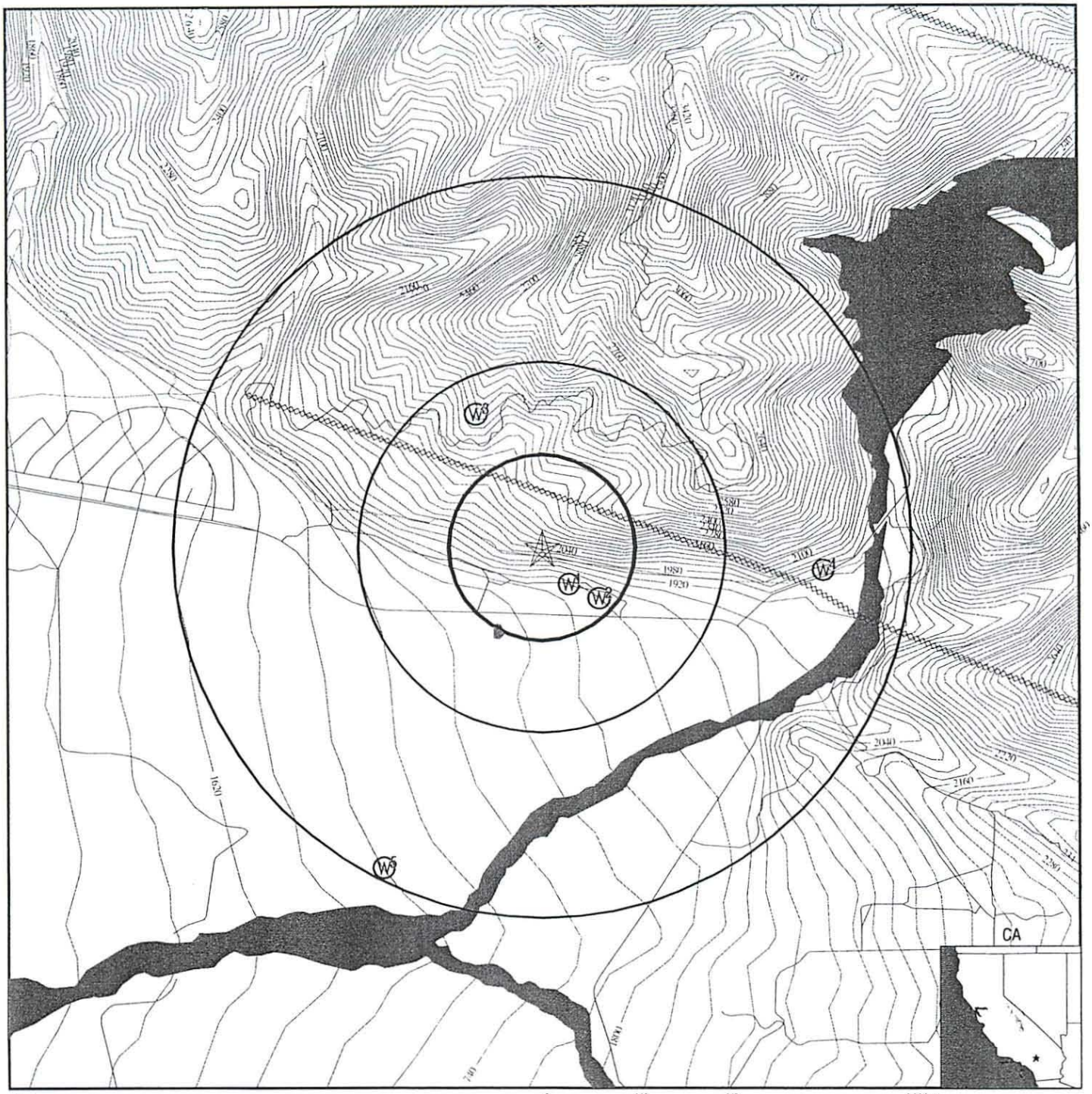

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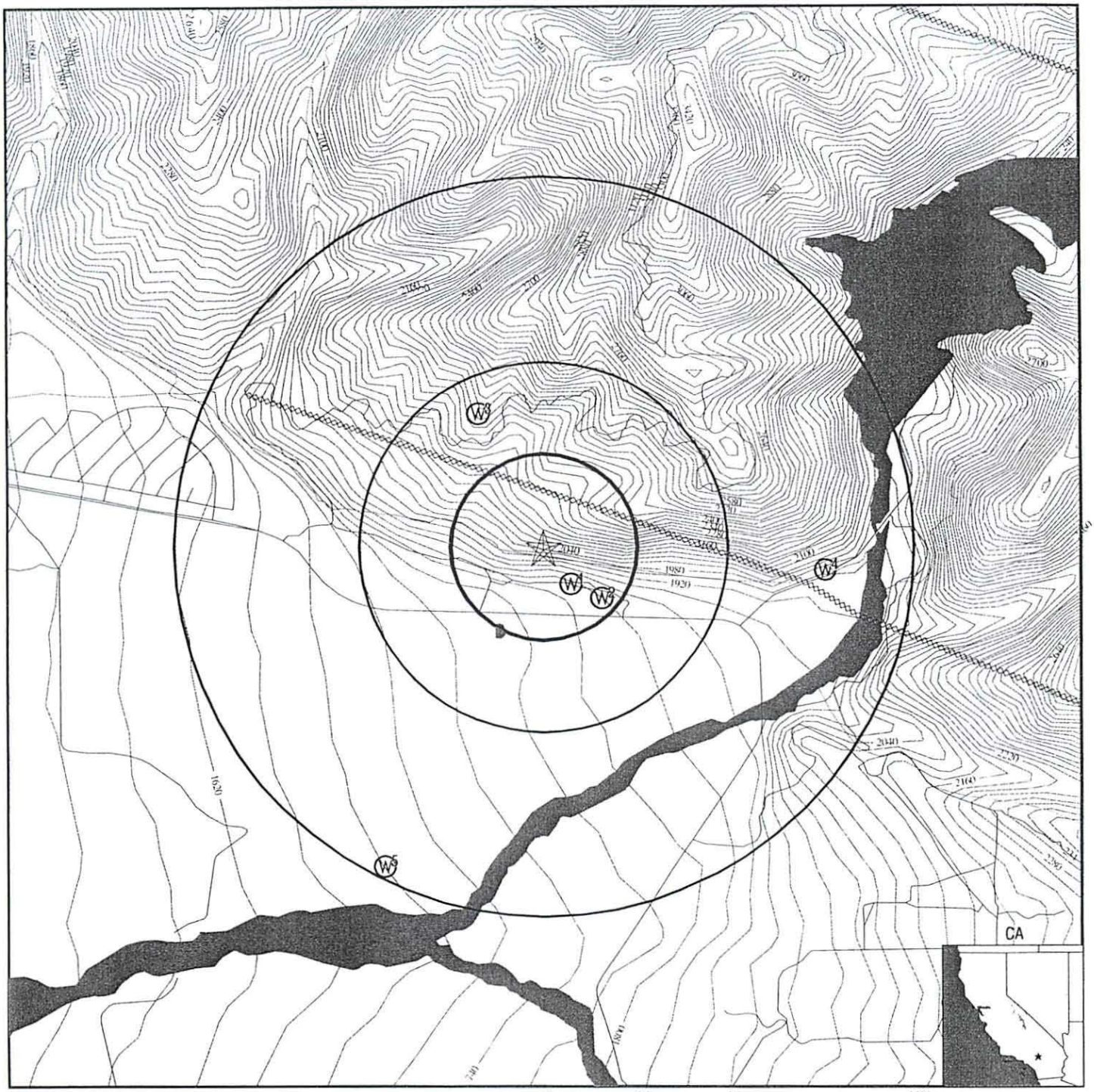

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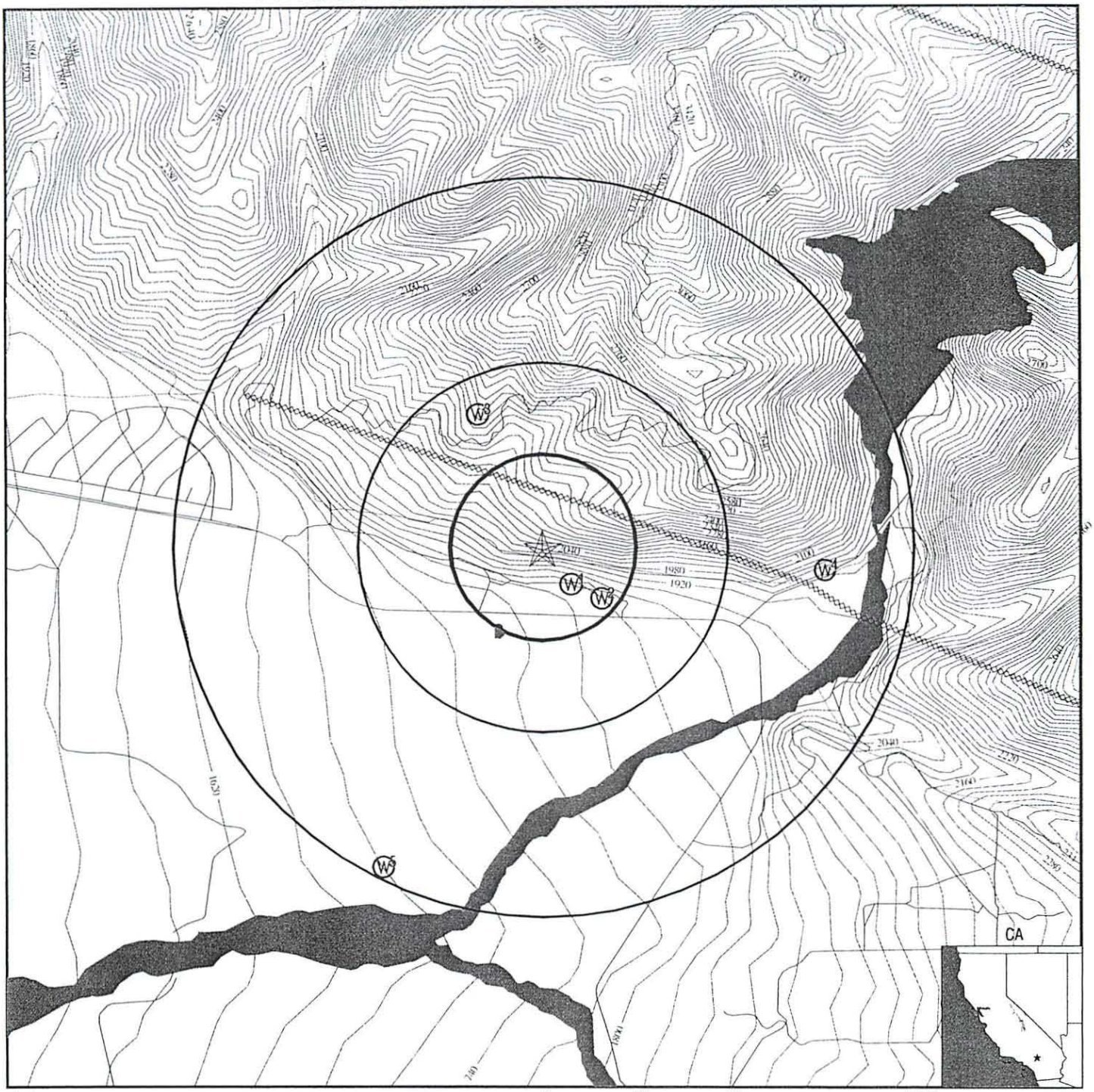

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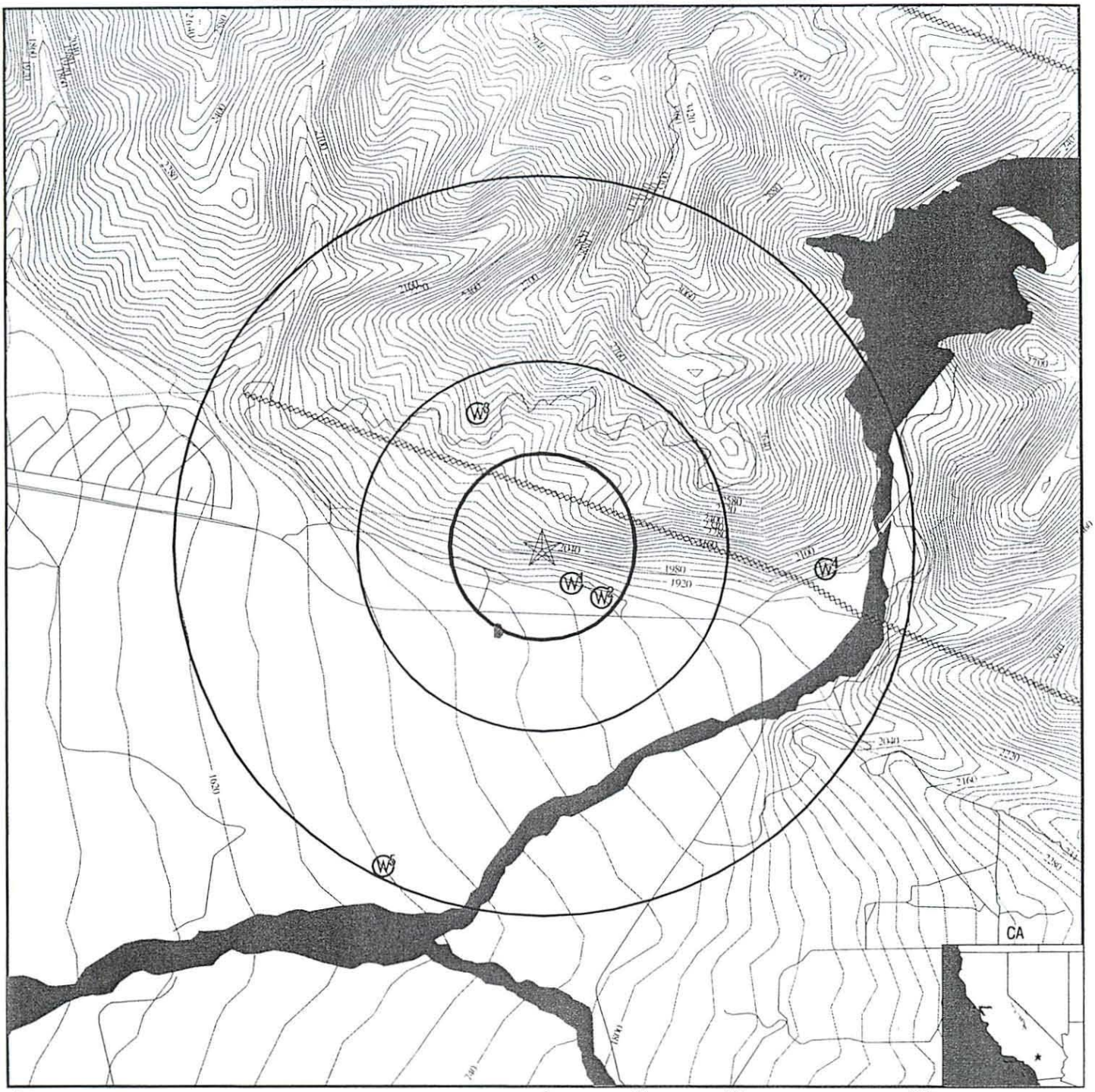

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GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **SE** **1/8 - 1/4 Mile** **Lower**		**FED USGS**	**USGS3134934**

Agency cd:	USGS	Site no:	340620117065001
Site name:	001S002W08C002S		
Latitude:	340620		
Longitude:	1170650	Dec lat:	34.10556723
Dec lon:	-117.11475832	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	071
Country:	US	Land net:	Not Reported
Location map:	YUCAIPA	Map scale:	24000
Altitude:	1806.7	Altitude method:	L
Altitude accuracy:	.1	Altitude datum:	NGVD29
Hydrologic:	Santa Ana. California. Area = 1680 sq.mi.		
Topographic:	Alluvial fan		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	19880629	Mean greenwich time offset:	PST
Local standard time flag:	Y	Type of ground water site:	Single well, other than collector or Ranney type
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	176.1	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1927-12-18	Ground water data end date:	2004-10-22
Ground water data count:	311		

Ground-water levels, Number of Measurements: 311

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-10-22	68.30		2004-04-21	67.63	
2003-10-23	74.92		2003-04-21	49.36	
2002-10-28	62.82		2002-04-09	70.69	
2001-10-22	73.22		2001-04-17	69.43	
2000-10-24	76.60		2000-04-13	64.87	
1999-10-18	74.98		1999-04-14	70.57	
1998-10-22	66.68		1998-04-14	60.26	
1997-10-30	74.74		1997-04-16	67.15	
1996-10-07	69.05		1996-04-25	61.50	
1995-10-26	67.00		1995-04-20	47.03	
1994-10-26	70.92		1994-04-19	41.57	
1993-10-18	56.86		1993-04-12	31.57	
1992-10-30	76.73		1992-06-12	59.29	
1991-11-26	75.39		1991-06-25	69.83	
1990-11-28	80.50		1990-06-25	76.85	
1989-11-27	81.15		1989-09-18	80.17	
1988-09-21	80.25		1988-06-29	72.87	
1987-12-09	68.28		1987-04-16	75.48	
1986-11-17	77.20		1986-06-18	67.34	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1985-09-24	79.45	
1983-09-01	32.9	
1983-02-23	47.8	
1982-09-22	62.9	
1982-05-27	36.0	
1982-04-09	33.0	
1981-06-04	60.8	
1981-01-20	76.8	
1980-09-17	38.6	
1980-07-15	60.8	
1980-04-24	41.8	
1979-12-05	85.8	
1979-07-06	42.3	
1979-05-01	46.4	
1979-03-08	44.4	
1978-12-13	46.1	
1978-07-27	36.0	
1978-06-28	33.0	
1978-05-25	31.8	
1978-04-25	33.0	
1978-03-29	20.3	
1978-02-15	27.3	
1978-01-10	66.4	
1977-12-15	81.4	
Note: The site had been pumped recently.		
1977-11-30	79.8	
1977-10-11	80.0	
1977-09-09	79.1	
1977-07-18	66.3	
1977-06-20	58.3	
1977-05-13	56.4	
1977-04-29	72.1	
1977-04-06	66.8	
1977-03-09	58.6	
1977-02-09	46.8	
1977-01-13	69.8	
1976-12-16	74.3	
1976-11-18	68.0	
1976-10-28	65.2	
1976-09-23	69.7	
1976-08-26	73.9	
1976-07-29	72.4	
1976-06-11	64.4	
1976-05-12	60.3	
1976-04-16	59.2	
1976-03-23	76.4	
1976-02-26	80.4	
1976-01-16	75.4	
1975-12-11	78.4	
1975-10-16	81.9	
1975-09-26	81.4	
1975-09-04	80.5	
1975-08-14	81.2	
1975-07-24	84.4	
1975-06-26	81.4	

Date	Feet below Surface	Feet to Sealevel
1983-12-08	50.9	
1983-06-02	38.0	
1982-11-23	51.9	
1982-06-30	46.7	
1982-04-25	31.2	
1982-02-09	37.3	
1981-03-11	48.4	
1980-12-05	74.7	
1980-09-04	71.0	
1980-06-03	40.4	
1980-02-20	38.6	
1979-09-07	54.3	
1979-06-07	45.7	
1979-04-03	46.9	
1979-02-13	43.8	
1978-08-09	40.0	
1978-07-11	35.6	
1978-06-14	32.3	
1978-05-10	32.1	
1978-04-11	34.0	
1978-03-15	19.7	
1978-01-27	35.9	
1977-12-29	80.6	
1977-11-15	80.2	
1977-09-21	79.6	
1977-08-25	72.2	
1977-07-07	68.6	
1977-06-08	54.4	
1977-05-11	73.2	
1977-04-15	68.6	
1977-03-18	61.2	
1977-02-25	56.5	
1977-01-25	55.2	
1976-12-28	74.4	
1976-11-30	69.9	
1976-11-10	66.0	
1976-10-13	65.4	
1976-09-10	79.6	
1976-08-13	70.2	
1976-07-14	77.7	
1976-05-28	63.2	
1976-04-29	58.0	
1976-04-09	77.1	
1976-03-12	77.5	
1976-02-11	78.7	
1976-01-08	75.2	
1975-11-06	81.2	
1975-10-09	82.3	
1975-09-11	81.0	
1975-08-21	78	
1975-08-06	79.3	
1975-07-10	82.2	
1975-06-11	72.6	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1975-05-29	66.4	
1975-05-02	78.2	
1975-03-12	70.5	
1975-02-12	71.9	
1975-01-10	73.1	
1974-12-19	71.1	
1974-11-21	75.5	
1974-10-24	83.9	
1974-09-19	80.7	
1974-08-22	78.5	
1974-07-19	75.7	
1974-05-16	68.3	
1974-04-01	43.6	
1974-03-11	55.1	
1974-02-20	60.3	
1974-01-08	72.0	
1973-12-12	73.3	
1973-10-24	75.6	
1973-04-01	22.6	
1972-11-20	80.8	
1971-03-23	57.5	
1970-12-29	51.6	
1970-07-30	120.8	
Note: The site was being pumped.		
1970-05-23	67.1	
1970-03-24	45.3	
1969-08-13	45.0	
1969-04-26	33.4	
1968-08-21	121.9	
Note: The site was being pumped.		
1968-06-19	116.4	
Note: The site was being pumped.		
1968-05-18	70.1	
1968-02-06	56.0	
1967-11-29	54.8	
1967-10-28	72.6	
1967-06-02	38.8	
1967-01-09	30.4	
1965-06-01	104.0	
Note: The site was being pumped.		
1965-05-02	97.3	
1965-02-24	116.7	
Note: The site was being pumped.		
1965-01-27	88.4	
1964-11-20	138.3	
1964-08-24	134.0	
Note: The site was being pumped.		
1964-06-27	124.3	
Note: The site was being pumped.		
1964-04-06	53.7	
1963-12-27	85.8	
1963-09-25	98.3	
1963-07-30	133.2	
Note: The site was being pumped.		
1963-06-26	127.3	
Note: The site was being pumped.		

Date	Feet below Surface	Feet to Sealevel
1975-05-15	76.1	
1975-04-18	61.6	
1975-02-28	71.1	
1975-01-30	72.2	
1975-01-03	72.7	
1974-12-03	69.6	
1974-11-07	75.1	
1974-10-10	82.3	
1974-09-05	78.9	
1974-08-08	77.8	
1974-06-13	71.1	
1974-05-02	56.0	
1974-03-21	43.8	
1974-03-06	98.1	
1974-01-22	74.9	
1973-12-26	70.3	
1973-11-28	78.6	
1973-10-11	74.4	
1973-02-01	52.7	
1972-01-04	75.4	
1971-01-23	53.1	
1970-11-28	105.2	
1970-04-14	55.8	
1970-02-14	34.7	
1969-06-16	36.0	
1969-04-01	34.1	
1968-04-10	59.9	
1968-01-04	52.5	
1967-11-11	73.0	
1967-07-27	51.8	
1967-05-01	51.2	
1966-12-08	89.4	
1965-03-22	97.8	
1964-12-29	120.4	
1964-03-27	85.1	
1963-11-24	94.6	
1963-08-26	136.0	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1963-05-28	139.4				
Note: The site was being pumped.					
1963-04-25	68.8				
1963-03-19	84.2				
Note: Other conditions existed that would affect the measured water level.					
1962-11-22	140.2				
Note: The site was being pumped.					
1962-10-29	135.7				
Note: The site was being pumped.					
1962-09-14	133.0				
Note: The site was being pumped.					
1962-07-24	100.3				
Note: The site was being pumped.					
1962-06-20	51.9				
Note: Other conditions existed that would affect the measured water level.					
1962-05-23	52.9		1962-04-12	51.4	
1962-03-22	54.8				
1962-01-17	158.9				
Note: The site was being pumped.					
1961-12-19	68.6				
Note: The site was being pumped.					
1961-11-28	110.8				
1961-09-28	147.4				
Note: The site was being pumped.					
1961-08-08	146.7				
Note: The site was being pumped.					
1961-07-12	148.0				
Note: The site was being pumped.					
1961-06-16	145.7				
Note: The site was being pumped.					
1961-05-23	143.7				
Note: The site was being pumped.					
1961-04-12	141.7				
Note: The site was being pumped.					
1961-03-09	136.4				
Note: The site was being pumped.					
1961-02-16	134.2				
Note: The site was being pumped.					
1961-01-28	112.6				
1960-12-28	137.1				
Note: The site was being pumped.					
1960-08-02	121.3				
Note: The site was being pumped.					
1960-06-01	116.2				
Note: The site was being pumped.					
1960-03-23	56.5		1960-03-02	63.9	
1960-01-15	70.9		1959-12-04	149.2	
1959-11-04	110.8				
1959-09-16	147.0				
Note: The site was being pumped.					
1959-08-06	137.0				
Note: The site was being pumped.					
1959-06-09	135.1				
Note: The site was being pumped.					
1959-05-13	132.7				
Note: The site was being pumped.					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1959-04-16	115.0	
1959-01-30	115.7	
1958-10-08	129.6	
Note: The site was being pumped.		
1958-09-09	118.7	
Note: The site was being pumped.		
1958-08-08	68.7	
1958-06-12	52.1	
1958-04-09	42.1	
1958-02-07	54.7	
1957-12-04	103.0	
1957-09-27	145.2	
Note: The site was being pumped.		
1957-07-23	135.1	
Note: The site was being pumped.		
1957-03-18	55.0	
1957-01-15	106.5	
1956-12-27	155.7	
Note: The site was being pumped.		
1956-12-06	138.8	
1956-10-30	155.0	
Note: The site was being pumped.		
1956-09-27	143.8	
Note: The site was being pumped.		
1956-08-27	144.8	
Note: The site was being pumped.		
1956-07-17	136.8	
Note: The site was being pumped.		
1956-06-01	124.8	
Note: The site was being pumped.		
1956-04-30	111.6	
Note: The site was being pumped.		
1956-02-03	71.9	
1955-09-06	133.2	
Note: The site was being pumped.		
1955-08-02	133.2	
Note: The site was being pumped.		
1955-07-05	129.9	
Note: The site was being pumped.		
1955-06-30	108.3	
1955-06-13	106.4	
Note: A nearby site that taps the same aquifer was being pumped.		
1954-11-15	100.1	
1954-10-21	114.3	
Note: A nearby site that taps the same aquifer was being pumped.		
1954-08-16	108.9	
Note: A nearby site that taps the same aquifer was being pumped.		
1954-06-21	86.5	
Note: A nearby site that taps the same aquifer was being pumped.		
1951-10-26	108.4	
1940-10-03	76.7	
1928-03-01	39.3	
1927-12-18	59.5	

Date	Feet below Surface	Feet to Sealevel
1959-03-13	48.8	
1958-11-17	96.5	
1958-07-12	62.5	
1958-05-07	46.5	
1958-03-07	41.9	
1958-01-09	75.0	
1957-11-05	93.0	
1957-02-16	59.9	
1955-12-02	127.4	
1950-11-10	113.9	
1928-04-02	59.0	
1928-02-02	55.1	

Map ID Direction Distance Elevation	Database	EDR ID Number
2 SE 1/8 - 1/4 Mile Lower	FED USGS	USGS3134926

Agency cd:	USGS	Site no:	340618117064501
Site name:	001S002W08C001S		
Latitude:	340618		
Longitude:	1170645	Dec lat:	34.10501169
Dec lon:	-117.11336936	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	071
Country:	US	Land net:	Not Reported
Location map:	YUCAIPA	Map scale:	24000
Altitude:	1810.	Altitude method:	M
Altitude accuracy:	10	Altitude datum:	NGVD29
Hydrologic:	Santa Ana. California. Area = 1680 sq.mi.		
Topographic:	Alluvial fan		
Site type:	Ground-water other than Spring	Date construction:	1928
Date inventoried:	19880629	Mean greenwich time offset:	PST
Local standard time flag:	Y	Type of ground water site:	Single well, other than collector or Ranney type
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	84.2	Hole depth:	267
Source of depth data:	reporting agency (generally USGS)	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1959-11-04	Ground water data end date:	1988-06-29
Ground water data count:	11		

Ground-water levels, Number of Measurements: 11

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1988-06-29	71.15		1987-12-09	66.50	
1987-06-16	74.26		1986-11-17	77.66	
1986-06-18	65.22		1985-09-24	82.74	
1978-03-15	18.9		1978-03-01	18.9	
1974-04-16	71.90		1973-11-13	74.82	
1959-11-04	133.7				

3 NNW 1/4 - 1/2 Mile Higher	FED USGS	USGS3134819

Agency cd:	USGS	Site no:	340644117070601
Site name:	001S002W06M001S		
Latitude:	340644		
Longitude:	1170706	Dec lat:	34.11223367
Dec lon:	-117.11920309	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	071
Country:	US	Land net:	Not Reported
Location map:	YUCAIPA	Map scale:	24000
Altitude:	1585.00	Altitude method:	M
Altitude accuracy:	5	Altitude datum:	NGVD29
Hydrologic:	Santa Ana. California. Area = 1680 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19310101
Date inventoried:	19731113	Mean greenwich time offset:	PST
Local standard time flag:	Y	Type of ground water site:	Single well, other than collector or Ranney type
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	415	Hole depth:	415
Source of depth data:	logs	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

4
East
1/2 - 1 Mile
Lower

CA WELLS **23592**

Water System Information:

Prime Station Code:	M36/064-NFORK R	User ID:	TAN
FRDS Number:	3610064013	County:	San Beernardino
District Number:	13	Station Type:	STREAM/AMBNT
Water Type:	Surface Water	Well Status:	Active Raw
Source Lat/Long:	340622.0 1170607.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	NORTH FORK DITCH		
System Number:	3610064		
System Name:	EAST VALLEY WD		
Organization That Operates System:			
	PO BOX 3427		
	SAN BERNARDINO, CA 92413		
Pop Served:	55000	Connections:	18303
Area Served:	SAN BERNARDINO VIC		

Sample Information: * Only Findings Above Detection Level Are Listed

Sample Collected:	02/05/1992	Findings:	245.100 UMHO
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02/05/1992	Findings:	8.000
Chemical:	PH (LABORATORY)		
Sample Collected:	02/05/1992	Findings:	101.200 MG/L
Chemical:	TOTAL ALKALINITY (AS CACO3)		
Sample Collected:	02/05/1992	Findings:	123.500 MG/L
Chemical:	BICARBONATE ALKALINITY		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	02/05/1992	Findings:	96.800 MG/L
Chemical:	TOTAL HARDNESS (AS CACO3)		
Sample Collected:	02/05/1992	Findings:	28.700 MG/L
Chemical:	CALCIUM		
Sample Collected:	02/05/1992	Findings:	6.100 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	02/05/1992	Findings:	14.800 MG/L
Chemical:	SODIUM		
Sample Collected:	02/05/1992	Findings:	1.200 MG/L
Chemical:	POTASSIUM		
Sample Collected:	02/05/1992	Findings:	6.600 MG/L
Chemical:	CHLORIDE		
Sample Collected:	02/05/1992	Findings:	.300 MG/L
Chemical:	FLUORIDE (TEMPERATURE DEPENDENT)		
Sample Collected:	02/05/1992	Findings:	127.100 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	03/26/1992	Findings:	.500 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06/26/1992	Findings:	13.890 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	06/26/1992	Findings:	190.000 UMHO
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	06/26/1992	Findings:	8.100
Chemical:	FIELD PH		
Sample Collected:	06/26/1992	Findings:	8.100
Chemical:	PH (LABORATORY)		
Sample Collected:	06/26/1992	Findings:	80.000 MG/L
Chemical:	TOTAL ALKALINITY (AS CACO3)		
Sample Collected:	06/26/1992	Findings:	97.600 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	06/26/1992	Findings:	71.600 MG/L
Chemical:	TOTAL HARDNESS (AS CACO3)		
Sample Collected:	06/26/1992	Findings:	21.600 MG/L
Chemical:	CALCIUM		
Sample Collected:	06/26/1992	Findings:	4.300 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	06/26/1992	Findings:	11.600 MG/L
Chemical:	SODIUM		
Sample Collected:	06/26/1992	Findings:	1.300 MG/L
Chemical:	POTASSIUM		
Sample Collected:	06/26/1992	Findings:	1.600 MG/L
Chemical:	CHLORIDE		
Sample Collected:	06/26/1992	Findings:	.300 MG/L
Chemical:	FLUORIDE (TEMPERATURE DEPENDENT)		
Sample Collected:	06/26/1992	Findings:	7.300 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	06/26/1992	Findings:	2.000 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06/26/1992	Findings:	11.100 PCI/L
Chemical:	GROSS BETA		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	06/26/1992	Findings:	1.400 PCI/L
Chemical:	GROSS BETA COUNTING ERROR		
Sample Collected:	06/26/1992	Findings:	92.000 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	06/26/1992	Findings:	.700
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	06/26/1992	Findings:	- .150
Chemical:	LANGELIER INDEX @ SOURCE TEMP.		
Sample Collected:	06/26/1992	Findings:	11.730
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	06/08/1993	Findings:	15.000 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	06/08/1993	Findings:	170.000 UMHO
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	06/08/1993	Findings:	8.200
Chemical:	FIELD PH		
Sample Collected:	06/08/1993	Findings:	7.800
Chemical:	PH (LABORATORY)		
Sample Collected:	06/08/1993	Findings:	76.400 MG/L
Chemical:	TOTAL ALKALINITY (AS CACO3)		
Sample Collected:	06/08/1993	Findings:	93.200 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	06/08/1993	Findings:	81.600 MG/L
Chemical:	TOTAL HARDNESS (AS CACO3)		
Sample Collected:	06/08/1993	Findings:	21.000 MG/L
Chemical:	CALCIUM		
Sample Collected:	06/08/1993	Findings:	7.100 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	06/08/1993	Findings:	3.300 MG/L
Chemical:	SODIUM		
Sample Collected:	06/08/1993	Findings:	1.100 MG/L
Chemical:	POTASSIUM		
Sample Collected:	06/08/1993	Findings:	7.100 MG/L
Chemical:	CHLORIDE		
Sample Collected:	06/08/1993	Findings:	.400 MG/L
Chemical:	FLUORIDE (TEMPERATURE DEPENDENT)		
Sample Collected:	06/08/1993	Findings:	374.000 UG/L
Chemical:	ALUMINUM		
Sample Collected:	06/08/1993	Findings:	92.500 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	06/08/1993	Findings:	.360
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	06/08/1993	Findings:	- .460
Chemical:	LANGELIER INDEX @ SOURCE TEMP.		
Sample Collected:	06/08/1993	Findings:	11.400
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	12/16/1994	Findings:	8.900 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	12/16/1994	Findings:	260.000 UMHO
Chemical:	SPECIFIC CONDUCTANCE		

Sample Collected:	12/16/1994	Findings:	8.100
Chemical:	FIELD PH		
Sample Collected:	12/16/1994	Findings:	8.100
Chemical:	PH (LABORATORY)		
Sample Collected:	12/16/1994	Findings:	106.000 MG/L
Chemical:	TOTAL ALKALINITY (AS CACO3)		
Sample Collected:	12/16/1994	Findings:	129.300 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	12/16/1994	Findings:	92.000 MG/L
Chemical:	TOTAL HARDNESS (AS CACO3)		
Sample Collected:	12/16/1994	Findings:	26.900 MG/L
Chemical:	CALCIUM		
Sample Collected:	12/16/1994	Findings:	5.900 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	12/16/1994	Findings:	18.600 MG/L
Chemical:	SODIUM		
Sample Collected:	12/16/1994	Findings:	1.700 MG/L
Chemical:	POTASSIUM		
Sample Collected:	12/16/1994	Findings:	4.600 MG/L
Chemical:	CHLORIDE		
Sample Collected:	12/16/1994	Findings:	.350 MG/L
Chemical:	FLUORIDE (TEMPERATURE DEPENDENT)		
Sample Collected:	12/16/1994	Findings:	107.000 UG/L
Chemical:	IRON		
Sample Collected:	12/16/1994	Findings:	4.800 PCI/L
Chemical:	GROSS BETA		
Sample Collected:	12/16/1994	Findings:	1.300 PCI/L
Chemical:	GROSS BETA COUNTING ERROR		
Sample Collected:	12/16/1994	Findings:	139.000 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	12/16/1994	Findings:	- .760
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	12/16/1994	Findings:	- .220
Chemical:	LANGELIER INDEX @ SOURCE TEMP.		
Sample Collected:	12/16/1994	Findings:	11.950
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	12/12/1995	Findings:	12.200 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	12/12/1995	Findings:	220.000 UMHO
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12/12/1995	Findings:	8.100
Chemical:	FIELD PH		
Sample Collected:	12/12/1995	Findings:	8.100
Chemical:	PH (LABORATORY)		
Sample Collected:	12/12/1995	Findings:	92.000 MG/L
Chemical:	TOTAL ALKALINITY (AS CACO3)		
Sample Collected:	12/12/1995	Findings:	112.200 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	12/12/1995	Findings:	80.000 MG/L
Chemical:	TOTAL HARDNESS (AS CACO3)		

Sample Collected:	12/12/1995	Findings:	25.300 MG/L
Chemical:	CALCIUM		
Sample Collected:	12/12/1995	Findings:	4.900 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	12/12/1995	Findings:	15.200 MG/L
Chemical:	SODIUM		
Sample Collected:	12/12/1995	Findings:	1.600 MG/L
Chemical:	POTASSIUM		
Sample Collected:	12/12/1995	Findings:	5.400 MG/L
Chemical:	CHLORIDE		
Sample Collected:	12/12/1995	Findings:	.500 MG/L
Chemical:	FLUORIDE (TEMPERATURE DEPENDENT)		
Sample Collected:	12/12/1995	Findings:	15.700 PCI/L
Chemical:	GROSS BETA		
Sample Collected:	12/12/1995	Findings:	1.800 PCI/L
Chemical:	GROSS BETA COUNTING ERROR		
Sample Collected:	12/12/1995	Findings:	120.000 MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	12/12/1995	Findings:	.680
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	12/12/1995	Findings:	- .210
Chemical:	LANGELIER INDEX @ SOURCE TEMP.		
Sample Collected:	12/12/1995	Findings:	11.860
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		

5
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS3135021**

Agency cd:	USGS	Site no:	340540117072201
Site name:	001S002W07R001S		
Latitude:	340540		
Longitude:	1170722	Dec lat:	34.09445653
Dec lon:	-117.12364732	Coor meth:	M
Coor accr:	F	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	06
State:	06	County:	071
Country:	US	Land net:	Not Reported
Location map:	YUCAIPA	Map scale:	24000
Altitude:	1680	Altitude method:	M
Altitude accuracy:	20	Altitude datum:	NGVD29
Hydrologic:	Santa Ana. California. Area = 1680 sq.mi.		
Topographic:	Flood plain		
Site type:	Ground-water other than Spring	Date construction:	19970110
Date inventoried:	19970507	Mean greenwich time offset:	PST
Local standard time flag:	Y	Type of ground water site:	Single well, other than collector or Ranney type
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	600	Hole depth:	605
Source of depth data:	driller	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: 0
Water quality data end date:0000-00-00
Ground water data begin date: 1997-05-07
Ground water data count: 16

Water quality data begin date: 0000-00-00
Water quality data count: 0
Ground water data end date: 2004-10-25

Ground-water levels, Number of Measurements: 16

Date	Feet below Surface	Feet to Sealevel
2004-10-25	318.70	
2003-10-23	278.16	
2002-10-28	304.02	
2001-10-22	315.92	
2000-10-24	289.10	
1999-10-18	243.50	
1998-10-22	155.64	
1997-10-30	251.16	

Date	Feet below Surface	Feet to Sealevel
2004-04-21	292.44	
2003-04-21	239.06	
2002-04-09	282.78	
2001-04-17	303.35	
2000-04-13	253.83	
1999-04-14	196.39	
1998-04-14	181.21	
1997-05-07	199.07	

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
92346	6	0	0.00

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92346

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.900 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002. 7.5-Minute DEMs correspond to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations for District 2, 3, 5 and 6
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

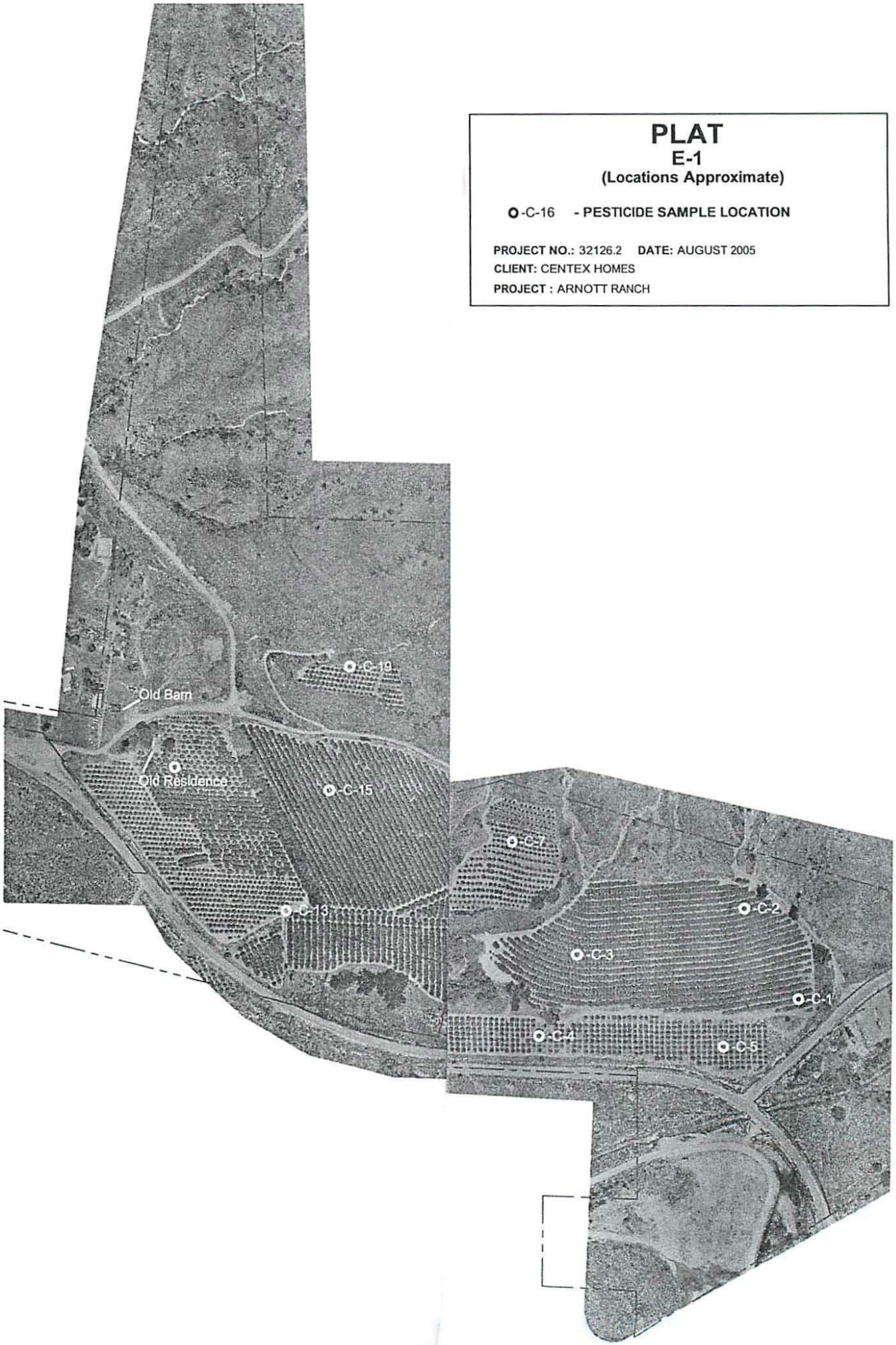
APPENDIX E

Soil Sample Location Map and Laboratory Pesticide Test Results

PLAT
E-1
(Locations Approximate)

O -C-16 - PESTICIDE SAMPLE LOCATION

PROJECT NO.: 32126.2 **DATE:** AUGUST 2005
CLIENT: CENTEX HOMES
PROJECT : ARNOTT RANCH



Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING MOBILE & IN HOUSE LABORATORIES

Client:	LOR Geotechnical Group, Inc. 6121 Quail Valley Court Riverside, CA 92507	Date Sampled: Date Received: Job Number:	06/21/05 06/21/05 26484

Project: Centex - EH

CASE NARRATIVE

The following information applies to samples which were received on 06/21/05:

The samples were received at the laboratory chilled and sample containers were intact.

Unless otherwise noted below, the Quality Control acceptance criteria were met for all samples for every analysis requested. The date of issue for this report is 07/01/05.

Report approved by:

Tom Wilson

Tom Wilson
Laboratory Director

ELAP Lab# 2419, 2479, 2527, 2373, 2562

RL: Reporting Limit -- The lowest level at which the compound can be reliably detected under normal laboratory conditions.
ND: Not Detected -- The compound was analyzed for, but was not found to be present at or above the Reporting Limit.
NA: Not Analyzed -- This compound was not on the list of compounds requested for analysis.

951•779•0310 OR 800•798•9336 fax 951•779•0344
www.centrum-labs.com 1401 Research Park Drive, Suite 100, Riverside, CA 92507

Centrum Analytical Laboratories, Inc.

Organochlorine Pesticides by EPA 8081A

Client:	LOR Geotechnical Group, Inc.	Date Sampled:	06/21/05
Project:	Centex - EH	Date Received:	06/21/05
Job No.:	26484	Date Extracted:	06/24/05
Matrix:	Soil	Date Analyzed:	06/26-27/05
Analyst:	SEC	Batch Number:	PESTS0900

	Sample ID:	Blank	C-1	C-2	C-3	C-4	C-5
Pesticides	**RL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aldrin	0.001	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.001	ND	ND	ND	ND	ND	ND
Beta-BHC	0.001	ND	ND	ND	ND	ND	ND
Delta-BHC	0.001	ND	ND	ND	ND	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND	ND	ND	ND	ND
Chlordane	0.010	ND	ND	ND	ND	ND	ND
4,4'-DDD	0.002	ND	ND	ND	ND	ND	ND
4,4'-DDE	0.002	ND	**0.028**	ND	ND	ND	ND
4,4'-DDT	0.002	ND	**0.007**	**0.011**	ND	ND	ND
Dieldrin	0.002	ND	ND	ND	ND	ND	ND
Endosulfan I	0.001	ND	ND	ND	ND	ND	ND
Endosulfan II	0.002	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	0.002	ND	ND	ND	ND	ND	ND
Endrin	0.002	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	0.002	ND	ND	ND	ND	ND	ND
Endrin Ketone	0.010	ND	ND	ND	ND	ND	ND
Heptachlor	0.001	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.001	ND	ND	ND	ND	ND	ND
Methoxychlor	0.010	ND	ND	ND	ND	ND	ND
Toxaphene	0.020	ND	ND	ND	ND	ND	ND

Surrogates in % Recovery (Acceptance Limits: 50 - 150%)

Sample ID:	Blank	C-1	C-2	C-3	C-4	C-5
Tetrachloro-m-xylene	85	93	86	78	89	86

Centrum Analytical Laboratories, Inc.

Organochlorine Pesticides by EPA 8081A

Client:	LOR Geotechnical Group, Inc.	Date Sampled:	06/21/05
Project:	Centex - EH	Date Received:	06/21/05
Job No.:	26484	Date Extracted:	06/24/05
Matrix:	Soil	Date Analyzed:	06/26-27/05
Analyst:	SEC	Batch Number:	PESTS0900

	Sample ID:	C-6	C-7	C-8	C-9	C-10	C-11
Pesticides	**RL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aldrin	0.001	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.001	ND	ND	ND	ND	ND	ND
Beta-BHC	0.001	ND	ND	ND	ND	ND	ND
Delta-BHC	0.001	ND	ND	ND	ND	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND	ND	ND	ND	ND
Chlordane	0.010	ND	ND	ND	ND	ND	ND
4,4'-DDD	0.002	ND	ND	ND	ND	ND	ND
4,4'-DDE	0.002	ND	ND	ND	ND	ND	ND
4,4'-DDT	0.002	ND	ND	ND	ND	ND	ND
Dieldrin	0.002	ND	ND	ND	ND	ND	ND
Endosulfan I	0.001	ND	ND	ND	ND	ND	ND
Endosulfan II	0.002	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	0.002	ND	ND	ND	ND	ND	ND
Endrin	0.002	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	0.002	ND	ND	ND	ND	ND	ND
Endrin Ketone	0.010	ND	ND	ND	ND	ND	ND
Heptachlor	0.001	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.001	ND	ND	ND	ND	ND	ND
Methoxychlor	0.010	ND	ND	ND	ND	ND	ND
Toxaphene	0.020	ND	ND	ND	ND	ND	ND

Surrogates in % Recovery (Acceptance Limits: 50 - 150%)

Sample ID:	C-6	C-7	C-8	C-9	C-10	C-11
Tetrachloro-m-xylene	84	81	72	87	86	85

Centrum Analytical Laboratories, Inc.

Organochlorine Pesticides by EPA 8081A

Client:	LOR Geotechnical Group, Inc.	Date Sampled:	06/21/05
Project:	Centex - EH	Date Received:	06/21/05
Job No.:	26484	Date Extracted:	06/24/05
Matrix:	Soil	Date Analyzed:	06/26-27/05
Analyst:	SEC	Batch Number:	PESTS0900

	Sample ID:	C-12	C-13	C-14	C-15	C-16	C-17
Pesticides	**RL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aldrin	0.001	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.001	ND	ND	ND	ND	ND	ND
Beta-BHC	0.001	ND	ND	ND	ND	ND	ND
Delta-BHC	0.001	ND	ND	ND	ND	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND	ND	ND	ND	ND
Chlordane	0.010	ND	ND	ND	ND	ND	ND
4,4'-DDD	0.002	**0.003**	ND	**0.006**	ND	ND	ND
4,4'-DDE	0.002	**0.47**	**0.68**	**0.19**	**0.16**	**0.020**	**0.17**
4,4'-DDT	0.002	**0.16**	**0.48**	**0.31**	**0.13**	**0.007**	**0.069**
Dieldrin	0.002	ND	ND	**0.005**	**0.027**	ND	**0.010**
Endosulfan I	0.001	ND	ND	ND	ND	ND	ND
Endosulfan II	0.002	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	0.002	ND	ND	ND	ND	ND	ND
Endrin	0.002	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	0.002	ND	ND	ND	ND	ND	ND
Endrin Ketone	0.010	ND	ND	ND	ND	ND	ND
Heptachlor	0.001	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.001	ND	ND	ND	ND	ND	ND
Methoxychlor	0.010	ND	ND	ND	ND	ND	ND
Toxaphene	0.020	**0.13**	**0.28**	**0.17**	**0.14**	**0.068**	**0.044**

Surrogates in % Recovery (Acceptance Limits: 50 - 150%)

Sample ID:	C-12	C-13	C-14	C-15	C-16	C-17
Tetrachloro-m-xylene	78	74	90	93	109	78

Centrum Analytical Laboratories, Inc.

Organochlorine Pesticides by EPA 8081A

Client:	LOR Geotechnical Group, Inc.	Date Sampled:	06/21/05
Project:	Centex - EH	Date Received:	06/21/05
Job No.:	26484	Date Extracted:	06/24/05
Matrix:	Soil	Date Analyzed:	06/26-27/05
Analyst:	SEC	Batch Number:	PESTS0900

	Sample ID:	C-18	C-19	C-20
Pesticides	**RL**	mg/Kg	mg/Kg	mg/Kg
Aldrin	0.001	ND	ND	ND
Alpha-BHC	0.001	ND	ND	ND
Beta-BHC	0.001	ND	ND	ND
Delta-BHC	0.001	ND	ND	ND
Gamma-BHC (Lindane)	0.001	ND	ND	ND
Chlordane	0.010	ND	ND	ND
4,4'-DDD	0.002	ND	ND	ND
4,4'-DDE	0.002	ND	ND	ND
4,4'-DDT	0.002	ND	ND	ND
Dieldrin	0.002	ND	ND	ND
Endosulfan I	0.001	ND	ND	ND
Endosulfan II	0.002	ND	ND	ND
Endosulfan sulfate	0.002	ND	ND	ND
Endrin	0.002	ND	ND	ND
Endrin Aldehyde	0.002	ND	ND	ND
Endrin Ketone	0.010	ND	ND	ND
Heptachlor	0.001	ND	ND	ND
Heptachlor Epoxide	0.001	ND	ND	ND
Methoxychlor	0.010	ND	ND	ND
Toxaphene	0.020	ND	ND	ND

Surrogates in % Recovery (Acceptance Limits: 50 - 150%)

Sample ID:	C-18	C-19	C-20
Tetrachloro-m-xylene	91	84	79

Centrum Analytical Laboratories, Inc.

QC Sample Report - Organochlorine Pesticides by EPA 8081A

Matrix: Soil
Batch Number: PESTS0900

Batch Accuracy Results

Spike Sample ID: Laboratory Control Sample

Compound	Spike Concentration (mg/Kg)	Spike Sample % Recovery	% Recovery Acceptance Limits	Pass/Fail
Lindane	0.0067	**97**	71 - 124	**Pass**
Heptachlor	0.0067	**107**	87 - 132	**Pass**
Aldrin	0.0067	**98**	78 - 125	**Pass**
Dieldrin	0.026	**103**	85 - 113	**Pass**
Endrin	0.026	**107**	84 - 125	**Pass**
DDT	0.026	**105**	88 - 119	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Compound	MS Sample Result (mg/Kg)	MSD Sample Result (mg/Kg)	Relative Percent Difference (RPD)	RPD Acceptance Limit	Pass/Fail
Lindane	0.0064	0.0059	**8%**	25%	**Pass**
Heptachlor	0.0071	0.0065	**9%**	25%	**Pass**
Aldrin	0.0065	0.0060	**8%**	25%	**Pass**
Dieldrin	0.0276	0.0248	**11%**	25%	**Pass**
Endrin	0.0286	0.0256	**11%**	25%	**Pass**
DDT	0.0280	0.0256	**9%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike
MSD: Matrix Spike Duplicate
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate

Centrum Analytical Laboratories, Inc.

1401 Research Park Drive, Suite 100
Riverside, CA 92507
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Fax: 562.498.8617

www.centrum-labs.com lab@centrum-labs.com

Chain of Custody Record

Centrum Job # 24484

Project No: 32126.2

Project Name: CENTEX – EH

Project Manager: Mikevin Osmun

Phone: 653-1760 Fax: 653-1741

Client Name: (Report and Billing) LOR Geotechnical

Address: (Report and Billing) 6121 Quail Valley Ct Riverside CA 92507

Please Circle Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	LUFT Diesel, or EPA 8015B DRO	LUFT Gas, or EPA 8015B GRO	Fuel ID (TVH, TEH), Carbon Chain (specify ranges)	8021B: BTEX/MTBE Only	VOCs: 8260B, or 624	VOCs: BTEX/Oxygenates Only	SVOCs: 8270C, or 625	8081A/8082: Pesticides* or PCBs, or Pest/PCB	Metals: Title 22 (CAM), or RCRA, or PP	Metals: TCLP, STLC	pH, TDS, TSS	418.1 (TRPH), or 413.2, or 1664		Remarks/Special Instructions
1	C-1	6-21	808	Soil	See Plot	1-G								X						
2	C-2		812											X						
3	C-3		822											X						
4	C-4		840											X						
5	C-5		857											X						
6	C-6		908											X						
7	C-7		932											X						
8	C-8		950											X						
9	C-9		1030											X						
10	C-10		1047											X						

Turn-Around Time
- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☒ Normal TAT
- ☐ Other _____

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature) — Date: 6-21 Time: 244

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: Date: 6/21 Time: 244

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes:

To be completed by Laboratory personnel:
- Samples chilled? ☒ Yes ☐ No ☐ From Field
- Custody seals? ☐ Yes ☒ No
- All sample containers intact? ☒ Yes ☐ No
- ☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Additional Report Formats:
- ☐ LARWQCB ☐ EDF (Geotracker)
- ☐ EDD (GISKEY) ☐ EDD (Other)*

Sample Disposal
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Sample Locator No. C

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Centrum duplicate Gold Copy - Client Copy

Centrum Analytical Laboratories, Inc.
1401 Research Park Drive, Suite 100
Riverside, CA 92507
Voice: 951.779.0310 • 800.798.9336
Fax: 951.779.0344

3299 Hill Street, Suite 305
Signal Hill, CA 90755
Voice: 562.498.7005
Fax: 562.498.8617

www.centrum-labs.com lab@centrum-labs.com

Chain of Custody Record

Centrum Job # 26484

Project No: 3212612
Project Name: CENTEX - E.H
Project Manager: Mikevin Osmon
Phone: 653-1760 Fax: 653-1741
Client Name: (Report and Billing) LOR Geotechnical
Address: (Report and Billing) 6121 Quail Valley Ct Riverside CA 92507

Please Circle Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	LUFT Diesel, or EPA 8015B DRO	LUFT Gas, or EPA 8015B GRO	Fuel ID (TVH, TEH), Carbon Chain (specify ranges)	8021B: BTEX/MtBE Only	VOCs: 8260B, or 624	VOCs: BTEX/Oxygenates Only	SVOCs: 8270C, or 625	8081A/8082: Pesticides, or PCBs, or Pest/PCB	Metals: Title 22 (CAM), or RCRA, or PP	Metals: TCLP, STLC	pH, TDS, TSS	418.1 (TRPH), or 413.2, or 1664		Remarks/Special Instructions
11	C-11	6-21	1055	Soil	SEE Plot	1-G								X						
12	C-12		1110											X						
13	C-13		1121											X						
14	C-14		1135											X						
15	C-15		1204											X						
16	C-16		1228											X						
17	C-17		1239											X						
18	C-18		1253											X						
19	C-19		110											X						
20	C-20		117											X						

Turn-Around Time
- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☒ Normal TAT
- ☐ Other _____

*Requires PRIOR approval, additional charges apply

Requested due date: _____

Remarks/Special Instructions

1) Relinquished by: (Sampler's Signature) [signature] Date: 6-21 Time: 241
2) Received by: Date: Time:
3) Relinquished by: Date: Time:
4) Received by: Date: Time:
5) Relinquished by: Date: Time:
6) Received for Laboratory by: [signature] Date: 6/21 Time: 241

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

To be completed by Laboratory personnel:
Samples chilled? ☒ Yes ☐ No ☐ From Field
Custody seals? ☐ Yes ☒ No
All sample containers intact? ☒ Yes ☐ No
☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Sample Disposal
- ☐ Client will pick up
- ☐ Return to client
- ☒ Lab disposal

Laboratory Notes:

Additional Report Formats:
☐ LARWQCB ☐ EDF (Geotracker)
☐ EDD (GISKEY) ☐ EDD (Other)*

Sample Locator No.
C

TERMS AND CONDITIONS

1: By submitting the samples to Centrum the Client agrees to the following terms and conditions, unless superseded by a previous written agreement. The Client is defined as the person or entity who submits the samples to the laboratory. The Client's name, address and project manager must be identified on the Chain of Custody form. If another party pays for the analyses the paying party will be considered the Client. Third party billing must be approved in advance.

2: Centrum will perform the analyses requested on the Chain of Custody form using the methods for which Centrum is approved by the State of California unless other arrangements have been made in advance. At times it may be necessary to subcontract work to other laboratories. The Client will be informed prior to any subcontracting and must approve the subcontracting.

3: Centrum will perform the requested analyses to the best of it's ability and within holding times. Samples must be submitted to Centrum with adequate holding time remaining. If circumstances occur which prevent the completion of the samples to the satisfaction of the Client, Centrum will be liable only for the cost of the sample analysis.

4: Centrum will perform only the analyses as described on the Chain of Custody form. Centrum will not be liable for failure of the Client to mark the correct analyses or for improper sample identification. Any additional analysis requests must be submitted in writing or via fax. Verbal requests must be followed up in writing to assure that the proper analyses are preformed.

5: At the Clients request Centrum may submit preliminary results to the Client via fax. These results may not have gone through a complete quality control review. Therefore Centrum will not be liable for actions which may be taken based on preliminary results. Because field analyses have not been reviewed for quality they should be considered preliminary.

6: Centrum will release results only to the Client. Centrum will only release results to others if the original Client submits authorization to Centrum in writing. If the Client is no longer available results will not be released. Note that Centrum will release results if required to by law. All data will be discarded seven years after sample receipt.

7: Rush analyses must be approved by the laboratory prior to the Client submitting the samples to Centrum. Centrum cannot guarantee the requested turnaround unless prior approval is given.

8: All samples remain the property of the Client. Centrum will dispose of samples after 90 days. Samples will be either returned to the client or disposed of by Centrum at Centrum's discretion. Centrum may charge the Client for sample disposal per quotation.

9: Centrum reserves the right to refuse or return samples prior to analysis at our own discretion. Failure to pay previous invoices, unusual or dangerous sample matrixes, and insufficient holding time remaining are just a few of the reasons for sample refusal. Centrum will attempt to notify the client as soon as possible if samples are refused.

10: **PAYMENT TERMS:** The Client agrees to pay Centrum for the analyses requested in accordance with prices quoted, including any rush, courier or disposal charges. Payment terms are net 30 days from the date of invoice by Centrum. All overdue payments are subject to an additional interest and service charge of one and one half percent (1.5%) per month or portion thereof from the due date until the date of payment. All payment must be made in United States currency. Should default be made by Client in payment of any amount due Centrum for any order or service rendered and if action be instituted to collect said sums, the prevailing party will be entitled to such additional sum as the Court may fix as reasonable attorney's fees.

APPENDIX 6b

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

UPDATE LETTER TO THE PHASE I ENVIRONMENTAL SITE ASSESSMENT, AND LIMITED SITE CHARACTERIZATION, PHASES I THROUGH IV OF TRACT 18893, PORTION OF THE ARNOTT RANCH PROPERTY, EAST HIGHLANDS RANCH AREA, HIGHLAND, CALIFORNIA

PROJECT NO. 32126.21
FEBRUARY 5, 2015

Prepared For:

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, California 91730

Attention: Mr. Camile Bahri

6121 Quail Valley Court ▲ Riverside, CA 92507 ▲ (951) 653-1760 ▲ (951) 653-1741 (Fax) ▲ www.lorgeo.com
19-438 Ruppert Street ▲ P.O. Box 580799 ▲ N. Palm Springs, CA 92258 ▲ (760) 329-2727 ▲ (760) 329-2626 (Fax)

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

February 5, 2015

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, California 91730

Project No. 32126.21

Attention: Mr. Camile Bahri

Subject: Update Letter to the Phase I Environmental Site Assessment, and Limited Site Characterization, Phases I through IV of Tract 18893, Portion of the Arnott Ranch Property, East Highlands Ranch Area, Highland, California

Reference: Phase I Environmental Site Assessment, and Limited Site Characterization, Arnott Ranch, East Highlands Ranch Area, Highland, California, prepared by LOR Geotechnical Group, Inc., Dated July 28, 2005.

Gentlemen,

Pursuant to your request LOR Geotechnical Group, Inc. has prepared this letter to provide an Update Letter to the above referenced Phase I Environmental Site Assessment (ESA) conducted by this firm the Arnott Ranch, East Highlands Ranch area, of Highland, California. The purpose of our update is to address Phases I through IV of Tract 18893 which are within portions of the Arnott Ranch property (see Figure 1)

Our Update of the 2005 Phase I ESA report consisted of a property owner interview, site reconnaissance of the area of the Arnott Ranch currently within the Phase I through IV boundary of Tract 18893 and an update of the environmental database review.

The results of our update as well as our conclusions and recommendations are provided in the following sections of this letter.

LOR Geotechnical Group, Inc.

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19-438 Ruppert Street ▲ P.O. Box 580799 ▲ N. Palm Springs, CA 92258 ▲ (760) 329-2727 ▲ (760) 329-2626 (Fax)

Property Owner Interview

Mr. Ron Arnott was interviewed on January 16, 2015, and he indicated there were no significant changes to the property since the 2005 Phase I ESA report. The above ground fuel tanks located on the site were brought onto the site and stored. They had never been used by them for fuel storage. He was unaware of any significant environmental issues at the site, as they had not used smudge pots, or wind machines for frost protection, and there were no underground fuel storage tanks at the site.

Site Reconnaissance

Phase I through IV of Tract 18893 encompasses both the west portion of the Arnott Ranch and the Calvary Chapel of San Bernardino property west of the Arnott Ranch. The portion of Phase I through IV of Tract 18893 on the Arnott Ranch extends from the west property boundary approximately 3,000 feet to the east (see Figure 1).

No significant changes to this portion of the Arnott Ranch were noted during the current site reconnaissance features were noted on the site.

Environmental Database Review

We contracted with EDR to provide an environmental database search for the subject site. The database search provides information regarding landfills, USTs, hazardous waste generators, etc., on the site and surrounding properties in accordance with ASTM Standards and AAI. The subject site was not listed on any regulatory agency database reviewed. A copy of the EDR database report, which provides a complete list of the federal, state, tribal, and proprietary records searched is attached.

A summary of the regulatory agency records search is presented in the following table.

Database	Search Distance (miles)	Results
STANDARD ENVIRONMENTAL RECORDS		
NPL	1.0	None
Proposed NPL	1.0	None
NPL Liens	Site	None
Delisted NPL	1.0	None
CERCLIS	0.5	None
FEDERAL FACILITY	0.5	None
CERC-NFRAP	0.5	None
CORRACTS	1.0	None
RCRA-TSDF	0.5	None
RCRA-LQG	0.25	None
RCRA-SQG	0.25	None
RCRA-CESQG	0.25	None
US ENG CONTROL	0.5	None
US INST CONTROL	0.5	None
LUCIS	0.5	None
ERNS	Site	None
RESPONSE	1.0	None
ENVIROSTOR	1.0	None
SWF/LF	0.5	None
LUST	0.5	None
SLIC	0.5	None
INDIAN LUST	0.5	None
UST	0.25	None
AST	0.25	None
INDIAN UST	0.25	None
FEMA UST	0.25	None
VCP	0.5	None
INDIAN VCP	0.5	None
ADDITIONAL ENVIRONMENTAL RECORDS		
US BROWNFIELDS	0.5	None

Database	Search Distance (miles)	Results
DEBRIS REGION 9	0.5	None
ODI	0.5	None
SWRCY	0.5	None
HAULERS	Site	None
INDIAN ODI	0.5	None
WMUDS/SWAT	0.5	None
US CDL	Site	None
Hist Cal-Sites	1.0	None
SCH	0.25	None
Toxic Pits	1.0	None
CDL	Site	None
US HIST CDL	Site	None
FID UST	0.25	None
HIST UST	0.25	None
SWEEPS UST	0.25	None
LIENS 2	Site	None
LIENS	Site	None
DEED	0.5	None
HMIRS	Site	None
CHMIRS	Site	None
LDS	Site	None
MCS	Site	None
SPILLS 90	Site	None
RCRA-NonGen/NLR	0.25	None
DOT OPS	Site	None
DOD	1.0	None
FUDS	1.0	None
CONSENT	1.0	None
ROD	1.0	None
UMTRA	0.5	None
US MINES	0.25	1 Site, See Below
TRIS	Site	None

Database	Search Distance (miles)	Results
TSCA	Site	None
FTTS	Site	None
HIST FTTS	Site	None
SSTS	Site	None
ICIS	Site	None
PADS	Site	None
MLTS	Site	None
RADINFO	Site	None
FINDS	Site	None
RAATS	Site	None
RMP	Site	None
CA BOND EXP. PLAN	1.0	None
NPDES	Site	None
UIC	Site	None
Cortese	0.5	None
HIST CORTESE	0.5	None
CUPA Listings	0.25	None
Notify 65	1.0	None
DRYCLEANERS	0.25	None
WIP	0.25	None
ENF	Site	None
San Bernardino County Permit	0.25	1 Site, See Below
HAZNET	Site	None
EMI	Site	None
INDIAN RESERV	1.0	None
SCRD DRYCLEANERS	0.5	None
2020 CORRECTIVE ACTION	0.25	None
COAL ASH DOE	Site	None
US AIRS	Site	None
WDS	Site	None
HWP	1.0	None
LEAD SMELTERS	Site	None

Database	Search Distance (miles)	Results
HWT	0.25	None
PROC	0.5	None
Financial Assurance	Site	None
EPA WATCH LIST	Site	None
US FINANCIAL ASSURANCE	Site	None
PCB TRANSFORMER	Site	None
MWMP	0.25	None
COAL ASH EPA	0.5	None
PRP	Site	None
EDR HIGH RISK HISTORICAL RECORDS		
EDR MGP	1.0	None
EDR US Hist Auto Stat	0.25	None
EDR US Hist Cleaners	0.25	None
EDR RECOVERED GOVERNMENT ARCHIVES		
RGA LF	Site	None
RGA LUST	Site	None

Two mapped sites were found in EDR's search of available regulatory agency databases. One listed site was the newly opened Easy Valley Water District (EVWD) operations building, at 31111 Greenspot Road. This facility, which contains a 30,000 administrative building and 5, 286 operations building was listed as a San Bernardino County permitted facility due to the maintenance activities that are part of the EVWD operations. The other site is a closed mining operation listed as Ranch Rock located southeast of the subject site. This appears to have been a short lived mining (quarrying) operation for sand and gravel in the area.

No adverse environmental impact is anticipated from these two listed sites due to the minor quantities of hazardous materials handled by the EVWD and the closed mining operations.

Conclusions and Recommendations

Based on the investigative results of this Update Letter we believe the conclusions presented in the referenced Phase I ESA report for the Arnott Ranch property are still valid and applicable. Phases I through IV of Tract 18893 contain no levels of organochlorine pesticides above the California Human Health Screening Levels for residential properties. One pesticide sample C-13, had total DDT of 1.16 milligrams per kilogram (mg/kg) slightly above the State level of 1.0 mg/kg, which characterizes the surficial soil in that area, if removed from the site or exported, be treated as a California Hazardous Waste. Based on the levels of organochlorine pesticides detected in the site soils, no further testing is necessary. Further, our experience indicates that once grading of the site is finished, all the levels of organochlorine pesticides will be reduced to non-detect levels. Based on these pesticide test results, unrestricted use of the property appears warranted.

One domestic water well is present, and if it is located within the area to be developed then it should be abandoned in accordance with current San Bernardino County requirements. Other subsurface structures, such as irrigation lines, septic systems, and underground utilities should be anticipated during site development. There is no indication of buried trash and debris on this portion of the Arnott Ranch property. Any household trash and debris, old farm equipment, etc. encountered should be removed from areas to be graded and properly disposed of.

This Update letter has revealed no evidence of adverse environmental conditions associated with the subject site.

CLOSURE

We appreciate this opportunity to be of service and trust this Addendum Letter provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,
LOR Geotechnical Group, Inc.

M. Kevin Osmun, CE 55116
Vice President

MKO/ejt

Attachments: Figure 1
EDR Radius Map Report

Distribution: Addressee (4) and one PDF via email

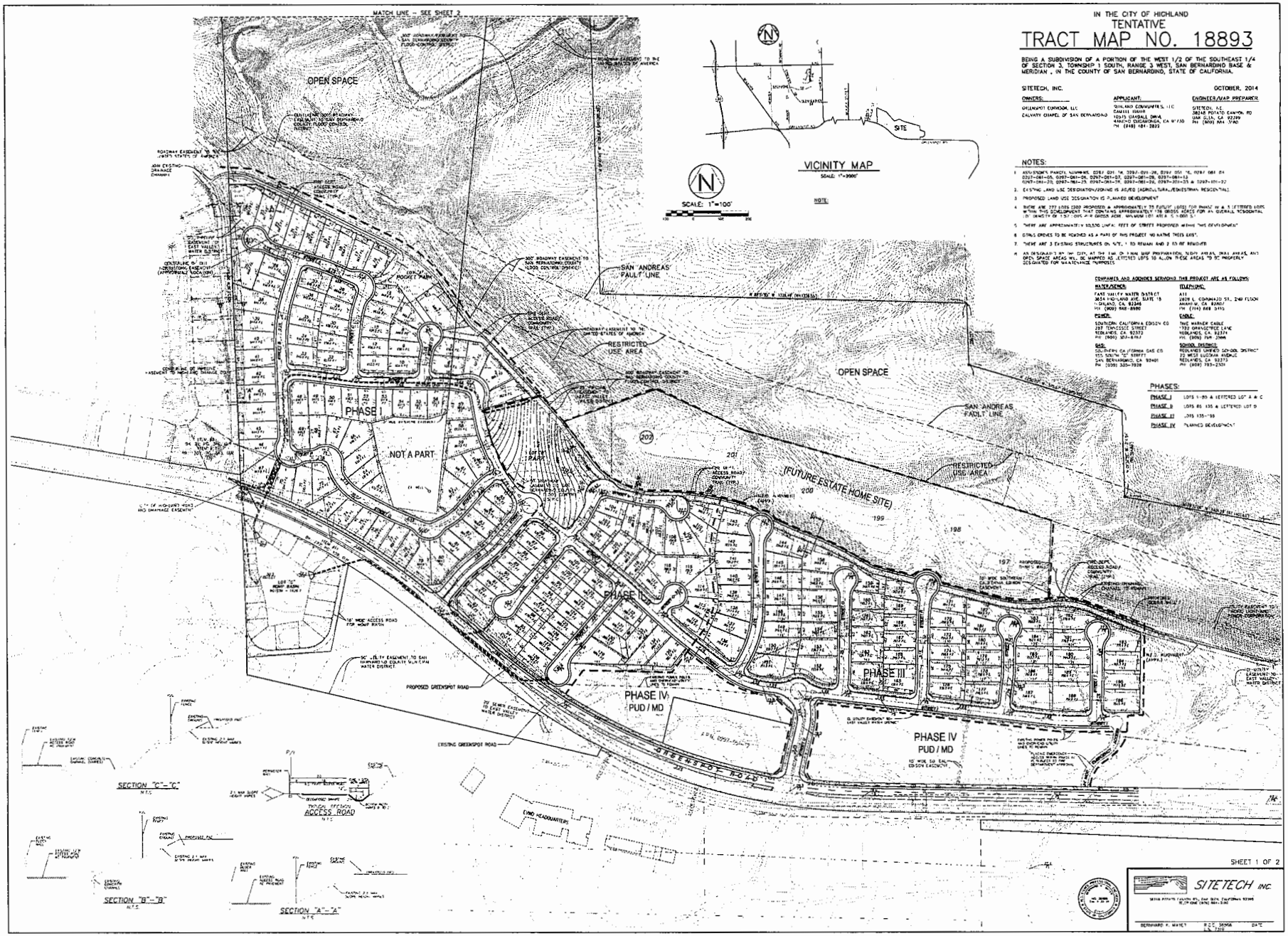
IN THE CITY OF HIGHLAND
TENTATIVE
TRACT MAP NO. 18893
BEING A SUBDIVISION OF A PORTION OF THE WEST 1/2 OF THE SOUTHEAST 1/4 OF SECTION 3, TOWNSHIP 1 SOUTH, RANGE 3 WEST, SAN BERNARDINO BASE & MERIDIAN , IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA.
SITETECH, INC.
OCTOBER, 2014
OWNERS:
APPLICANT:
ENGINEER/MAP PREPARER:
NOTES:
COMPANIES AND AGENCIES SERVICING THIS PROJECT ARE AS FOLLOWS:
WATER/SEWER:
TELEPHONE:
POWER:
CABLE:
GAS:
SCHOOL DISTRICT:
PHASES:
PHASE I
PHASE II
PHASE III
PHASE IV
VICINITY MAP
SITE
SCALE: 1"=100'
MATCH LINE - SEE SHEET 2
OPEN SPACE
SAN ANDREAS FAULT LINE
RESTRICTED USE AREA
PHASE I
NOT A PART
(FUTURE ESTATE HOME SITE)
PHASE II
PHASE III
PHASE IV
PUD / MD
GREENSPOT ROAD
PROPOSED GREENSPOT ROAD
EXISTING GREENSPOT ROAD
SECTION "C"-"C"
TYPICAL SECTION ACCESS ROAD
SECTION "B"-"B"
SECTION "A"-"A"
SHEET 1 OF 2
SITETECH INC.

FIGURE 1

Arnott Ranch
31019 Green Spot Road
Highland, CA 92346

Inquiry Number: 4185109.2s
January 19, 2015

The EDR Radius Map™ Report

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

31019 GREEN SPOT ROAD
SAN BERNARDINO County, CA 92346

COORDINATES

Latitude (North):	34.1061000 - 34˚ 6' 21.96''
Longitude (West):	117.1241000 - 117˚ 7' 26.76''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	488553.6
UTM Y (Meters):	3773732.5
Elevation:	1721 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	34117-A1 YUCAIPA, CA
Most Recent Revision:	1988
West Map:	34117-A2 REDLANDS, CA
Most Recent Revision:	1988

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120519, 20120429
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST ..... Geotracker's Leaking Underground Fuel Tank Report

SLIC ..... Statewide SLIC Cases
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
WMUDS/SWAT ..... Waste Management Unit Database

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
Toxic Pits ..... Toxic Pits Cleanup Act Sites
CDL ..... Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST ..... Facility Inventory Database
HIST UST ..... Hazardous Substance Storage Container Database
SWEEPS UST ..... SWEEPS UST Listing

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LIENS ..... Environmental Liens Listing
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System

CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
2020 COR ACTION	2020 Corrective Action Program List
COAL ASH DOE	Steam-Electric Plant Operation Data
US AIRS	Aerometric Information Retrieval System Facility Subsystem
WDS	Waste Discharge System
HWP	EnviroStor Permitted Facilities Listing
LEAD SMELTERS	Lead Smelter Sites
HWT	Registered Hazardous Waste Transporter Database
PROC	Certified Processors Database
Financial Assurance	Financial Assurance Information Listing
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
MWMP	Medical Waste Management Program Listing
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List

EXECUTIVE SUMMARY

PRP..... Potentially Responsible Parties

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat..... EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners..... EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, and dated 08/05/2014 has revealed that there is 1 US MINES site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RANCH ROCK		SE 1/8 - 1/4 (0.206 mi.)	2	8

San Bern. Co. Permit: San Bernardino County Fire Department Hazardous Materials Division.

A review of the San Bern. Co. Permit list, as provided by EDR, and dated 08/06/2014 has revealed that there is 1 San Bern. Co. Permit site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
EAST VALLEY WATER DISTRICT HQ	31111 GREENSPOT RD	SE 1/8 - 1/4 (0.132 mi.)	1	8

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 4185109.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Arnott Ranch	CLIENT: LOR Geotechnical Group, Inc.
ADDRESS: 31019 Green Spot Road Highland CA 92346	CONTACT: Kevin Osmun INQUIRY #: 4185109.2s
LAT/LONG: 34.1061 / 117.1241	DATE: January 19, 2015 1:33 pm

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DETAIL MAP - 4185109.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Arnott Ranch ADDRESS: 31019 Green Spot Road Highland CA 92346 LAT/LONG: 34.1061 / 117.1241	CLIENT: LOR Geotechnical Group, Inc. CONTACT: Kevin Osmun INQUIRY #: 4185109.2s DATE: January 19, 2015 1:34 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	1	NR	NR	NR	1
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		0	1	NR	NR	NR	1
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SE
1/8-1/4
0.132 mi.
698 ft.

EAST VALLEY WATER DISTRICT HQ
31111 GREENSPOT RD
HIGHLAND, CA 92346

San Bern. Co. Permit

S116287712
N/A

Relative:
Lower

Actual:
1719 ft.

San Bern. Co. Permit:

Region:	SAN BERNARDINO
Facility ID:	FA0015309
Owner:	EAST VALLEY WATER DIST
Permit Number:	PT0027763
Permit Category:	SMALL QUANTITY GENERATOR
Facility Status:	ACTIVE
Expiration Date:	03/31/2015

Region:	SAN BERNARDINO
Facility ID:	FA0015309
Owner:	EAST VALLEY WATER DIST
Permit Number:	PT0027761
Permit Category:	HAZARDOUS MATERIALS 4-10 CHEMICALS
Facility Status:	ACTIVE
Expiration Date:	03/31/2015

2
SE
1/8-1/4
0.206 mi.
1087 ft.

RANCH ROCK
SAN BERNARDINO (County), CA

US MINES

1012192552
N/A

Relative:
Higher

Actual:
1738 ft.

US MINES:

Mine ID:	0405793
SIC code(s):	144200 000000 000000 000000 000000 000000
Entity name:	HIGHLAND PLANT
Company:	RANCH ROCK
State FIPS code:	CA
County FIPS code:	SAN BERNARDINO
Status:	4
Status date:	20120101
Operation Class:	non-Coal Mining
Number of shops:	0
Number of plants:	0
Latitude:	34 06 15
Longitude:	117 07 15

Violations Details:

Violation Number:	8560875
Date Issued:	11/30/2010
Mine Status:	Abandoned
Status Date:	01/01/2012
Action Type:	104(a)
Date Abated:	12/03/2010
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2010

RANCH ROCK (Continued) **1012192552**

Violation Number:	8560877
Date Issued:	11/30/2010
Mine Status:	Abandoned
Status Date:	01/01/2012
Action Type:	104(a)
Date Abated:	01/03/2011
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2010

Violation Number:	8560876
Date Issued:	11/30/2010
Mine Status:	Abandoned
Status Date:	01/01/2012
Action Type:	104(a)
Date Abated:	11/30/2010
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2010

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/29/2014	Source: EPA
Date Data Arrived at EDR: 10/08/2014	Telephone: N/A
Date Made Active in Reports: 11/17/2014	Last EDR Contact: 01/08/2015
Number of Days to Update: 40	Next Scheduled EDR Contact: 04/20/2015
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 01/09/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 03/09/2015
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/07/2014	Telephone: 703-603-8704
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 01/09/2015
Number of Days to Update: 13	Next Scheduled EDR Contact: 04/20/2015
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 01/09/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 03/09/2015
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/03/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/03/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/29/2014
Date Data Arrived at EDR: 10/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 11

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 12/24/2014
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 73

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/22/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 19

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/17/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/24/2014
Number of Days to Update: 37

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/20/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/22/2014
Date Data Arrived at EDR: 09/23/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/24/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 43

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/12/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/29/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: No Update Planned

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 41

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 09/02/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 41

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 10/02/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 42

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/27/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/10/2014
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/29/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/12/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/04/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2014
Date Data Arrived at EDR: 09/04/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 74

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/14/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 50

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/28/2014
Date Data Arrived at EDR: 07/03/2014
Date Made Active in Reports: 08/21/2014
Number of Days to Update: 49

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 03/25/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 34

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/18/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 41

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Varies

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/28/2014
Date Data Arrived at EDR: 10/30/2014
Date Made Active in Reports: 12/10/2014
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 10/31/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/14/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/14/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/13/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/23/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/20/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/23/2014
Number of Days to Update: 43

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/04/2014
Date Data Arrived at EDR: 09/04/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/11/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/29/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: N/A

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/14/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 38

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 15

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 11/20/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 44

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 43

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 01/06/2015
Number of Days to Update: 48

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/14/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 36

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 09/10/2014
Date Data Arrived at EDR: 09/11/2014
Date Made Active in Reports: 09/25/2014
Number of Days to Update: 14

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/04/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 38

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/22/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/19/2014
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 35

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/21/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 76

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/17/2014
Number of Days to Update: 41

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 51

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/22/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/25/2014
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 10/20/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 07/28/2014
Date Data Arrived at EDR: 07/28/2014
Date Made Active in Reports: 08/20/2014
Number of Days to Update: 23

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 03/27/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 32

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 10/02/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 33

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 09/02/2014
Date Data Arrived at EDR: 09/05/2014
Date Made Active in Reports: 09/24/2014
Number of Days to Update: 19

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 28

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/18/2014
Date Made Active in Reports: 09/25/2014
Number of Days to Update: 7

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 30

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/10/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 35

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/10/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/22/2014
Date Data Arrived at EDR: 09/23/2014
Date Made Active in Reports: 11/21/2014
Number of Days to Update: 59

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 41

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 01/05/2015
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/25/2014
Number of Days to Update: 46

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/07/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 10/21/2014
Date Data Arrived at EDR: 10/28/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 48

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/06/2014
Date Data Arrived at EDR: 08/07/2014
Date Made Active in Reports: 09/30/2014
Number of Days to Update: 54

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/10/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/20/2014
Date Data Arrived at EDR: 06/23/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 18

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 36

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/10/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 40

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/15/2014
Date Data Arrived at EDR: 09/16/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 36

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/19/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 34

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/10/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 35

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/07/2014
Next Scheduled EDR Contact: 02/23/2015
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/31/2014
Number of Days to Update: 36

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/21/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 09/16/2014
Date Data Arrived at EDR: 09/18/2014
Date Made Active in Reports: 10/22/2014
Number of Days to Update: 34

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/05/2015
Number of Days to Update: 42

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/19/2014
Date Data Arrived at EDR: 06/26/2014
Date Made Active in Reports: 07/25/2014
Number of Days to Update: 29

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/11/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/02/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 49

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/01/2014
Date Data Arrived at EDR: 10/03/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 48

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 09/08/2014
Date Data Arrived at EDR: 09/09/2014
Date Made Active in Reports: 10/24/2014
Number of Days to Update: 45

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/28/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 44

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 10/29/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 35

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 12/12/2014
Number of Days to Update: 44

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/27/2014
Next Scheduled EDR Contact: 02/09/2015
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/26/2014
Date Data Arrived at EDR: 09/17/2014
Date Made Active in Reports: 10/28/2014
Number of Days to Update: 41

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/15/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/25/2014
Number of Days to Update: 56

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/18/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 11/17/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 42

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/24/2014
Number of Days to Update: 19

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/05/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/20/2014
Next Scheduled EDR Contact: 02/02/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/26/2014
Next Scheduled EDR Contact: 03/09/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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APPENDIX 6c

RALPH STONE AND COMPANY, INC.
Geotechnical, Environmental & Civil Engineers

REPORT ON PHASE I ENVIRONMENTAL ASSESSMENT OF PROPERTY LOCATED AT 30976 GREENSPOT ROAD HIGHLAND, CA

SUBMITTED TO:

CALVARY CHAPEL OF SAN BERNARDINO
1499 EAST BASELINE STREET
SAN BERNARDINO, CA 92410

MARCH 11, 2004

PREPARED BY

RALPH STONE AND COMPANY, INC.
10954 SANTA MONICA BLVD.
LOS ANGELES, CALIFORNIA 90025
PH: (310)478-1501 OR (800)813-9613
FAX:(310)478-7359

RALPH STONE AND COMPANY, INC.
Geotechnical, Environmental & Civil Engineers

March 11, 2004
File No. 5536p1

Calvary Chapel of San Bernardino
1499 East Baseline Street
San Bernardino, CA 92410

Attention: Robert Madrigal

SUBJECT: Report on Phase I Environmental Assessment of Property Located at 30976 Greenspot Road, Highland, CA.

Dear Mr. Madrigal:

Ralph Stone and Company, Inc. has completed the update of the original Phase I report completed in 1990.

No environmental issues were identified on the property. There are potentially asbestos containing building materials and lead-based paint in the old 1-story house and the three work sheds due to their age.

We appreciate the opportunity to be of service to you.

Very truly yours,

RALPH STONE AND COMPANY, INC.

Richard Kahle, P.E., R.E.A.
President

REGISTERED ENVIRONMENTAL ASSESSOR
RICHARD KAHLE
No. 00360
Expires: 6-30-08
STATE OF CALIFORNIA

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REPORT ON PHASE I ENVIRONMENTAL ASSESSMENT OF PROPERTY LOCATED AT 30976 GREENSPOT ROAD HIGHLAND, CA

EXECUTIVE SUMMARY

A. Property and Area Description

The property consists of about 59 acres at the foot of the San Bernardino Mountains. The lower elevation shallow slope 16 acre portion of the property is developed with an orange orchard, a two-story house, an abandoned one-story house, a collapsed wooden shed, two small work sheds and a large corrugated metal storage and maintenance shed. Water tanks and a concrete cistern are located at the end of the dirt access road at the toe of the hill on the north side of the orchard area. The property extends up and over the hills to the north which comprises another 43 acres of vacant undeveloped land, which is extends into National Forest land with steep slopes. A flood control road easement, Alder Creek Road, winds through the hill portion of the property.

The property is located in the southeast end of the City of Highland. The area has historically been used for orange orchards and is now being developed for residential housing and the proposed church facility.

B. Environmental Conclusions

Prior agricultural use as an orange orchard included spraying of pesticides and herbicides. The owner stated he has not used pesticides for a couple of years. The recent pesticide compounds are biodegradable within one year or less after application. Longer lasting pesticides would have been used over 15 years ago which is sufficient time for them to biodegrade to insignificant or undetectable levels. Stone has sampled soil in orange orchards and on farms and found no detectable levels of pesticides or herbicides. California State regulations require soil sampling if property is to be used for a school. If no school is planned then soil sampling is not considered to be necessary.

No records or observations indicated that oil or gas wells, or underground tanks, sumps or clarifiers were previously or are now on the property.

When the smudge pots and other debris items on the property are removed for disposal, the soil underneath should be visually observed for evidence of any significant(larger than 3 square feet in area and over 12 inches deep) soil stains that might indicate spillage of petroleum or chemical products. If any such areas are uncovered it is recommended that the soil be sampled and tested

for petroleum products and chemicals.

If used for water supply, the water supply well on the proeprty should be sampled and tested in accordance with drinking water standards applicable to water supply systems. Also, it is recommended that once yearly water samples be tested for pesticides/herbicides for a period of five years unless the area water quality agency recommends differently.

There are potential ACM's in the old house and small work sheds. If these buildings are to be demolished or extensively renovated the PACM's should be sampled and analyzed for asbestos prior to any such work.

No nearby known listed contaminated site is likely to environmentally impact the property.

I. PROPERTY AND AREA DESCRIPTION

A. Property Description

The property consists of about 59 acres at the foot of the San Bernardino Mountains. The lower elevation shallow slope 16 acre portion of the property is developed with an orange orchard, a two-story house, an abandoned one-story house, a collapsed wooden shed, two small work sheds and a large corrugated metal storage and maintenance shed. Water tanks and a concrete cistern are located at the end of the dirt access road at the toe of the hill on the north side of the orchard area. The property extends up and over the hills to the north which comprises another 43 acres of vacant undeveloped land, which is extends into National Forest land with steep slopes. A flood control road easement, Alder Creek Road, winds through the hill portion of the property. The property layout is shown Figure 1. Figure 1 shows the shallow sloped area of the orchard and buildings enlarged, and the entire property in the inset.

The Assessor's Parcel Number is 0297-021-12-0-00.

B. Property Location

The property is located in the southeast quadrant of the City of Highland as shown on Figure 2. The C30 Freeway is 4 miles to the east, San Bernardino International Airport is 5 miles to the east, the I10 Freeway is 6 miles to the southwest, Redlands Municipal Airport is 2 miles to the southwest, and San Bernardino National Forest is adjacent to the north of the property.

C. Surrounding Land Use

The property adjacent to the east is a new single family residential

development, to the north and northeast is the undeveloped San Bernardino National Forest, to the southeast is a house and mobile homes, and to the south is vacant land. A concrete drainage channel runs along the west property line/housing tract border.

D. Topography and Drainage Assessment

The orchard area of the property varies in elevation from 1,630 to 1,680 feet above sea level(asl), and the hill area varies in elevation from 1,680 to about 2,000 feet asl. The surface ground slope in the orchard area varies from about 5.7 to 10 percent towards the southwest, and the hill area slope is about 60 percent to the southwest and northeast.

The property is not in any flood zone. Natural drainage runs down three small ravines from the hill area into a drainage ditch running along the north edge of the orchard area that runs parallel to the toe of the hill. Drainage runs easterly in the ditch from the water tanks at the end of the property dirt access road until it ends at Sunrise Drive. The western drainage ravine discharges west of the water tanks and flows westerly into a newly constructed concrete drainage channel that flows south along the west property line and separates the 30976 property from the adjacent housing development. Drainage in Oak Creek from the hills to the west flows easterly along the toe of the hills in the concrete channel and then south in the concrete channel along the east property line to Greenspot Road.

The abovementioned ravines are intermittent flow streams from rainfall and are not classified for any use in the RWQCB basin plan.

E. Geological, Soils, and Hydrogeological Assessment

Geology - The geology on the property varies in the hills and flatter areas. The hills are comprised of Gneissose granitoid rock and gneiss from the Mesozoic Age and older. The rock and Gneiss are compositionally and texturally heterogeneous plutonic and metamorphic complex.

The south facing hill slopes consist of two geological structures: young alluvial fan deposits, Unit 1(early Holocene and latest Pleistocene); and very old residuum and/or pedogenic soil(middle to early Pleistocene) surficial weathering profile developed on San Timoteo beds.

The flatter area occupied by the orchard is young alluvial fan deposits, Unit 3(middle Holocene).

The south branch of the San Andreas fault traverses through the property approximately along the toe of the hills.

Soil - Soil on the orchard portion of the property is of the Hanford Series, which are well-drained, moderately rapidly permeable, slow to medium runoff, and the erosion hazard is slight to moderate where the soil is left unprotected. The Hanford Series surface soils formed in recent granitic alluvium on alluvial fans. The surface layer is light brownish-gray coarse sandy loam about 10 inches deep. The subsoil is pale brown and very pale brown sandy loam to a depth of 60 inches or more. These soils are used for irrigated crops such as citrus and others.

The soil on the hill area of the property is of the Cieneba Series which are excessively drained and rapidly permeable, and have rapid runoff and moderate erosion hazard if soils are burned over or are overgrazed. The surface layer is brown, slightly acid sandy loam about 8 inches deep. The underlying material is pale-brown, neutral sandy loam from 8 to 14 inches deep that overlies reddish-yellow weathered granitic rock.

Hydrogeology - Groundwater 0.8 miles to the east at two East Valley Water District/North Fork Water Co.(EVWD) wells located where the east end of Sunrise Drive ends at Greenspot Road is 62 feet below ground surface and flow is to the southwest. The groundwater on the property is expected to be at a similar depth and flow direction. No uses are listed for groundwater in the RWQCB Basin Plan, however, the EVWD wells and a well on the 30976 property are used for local water supply.

II. SITE ASSESSMENT

A. Property History

Building Permits - There were no building permits in the City of Highland records. San Bernardino County Building and Safety Dept. showed permits for construction of a house dated 6/1/88, which showed as completed on a 2/6/95 permit of final inspection. A permit was issued for replacement of a natural gas line on 5/12/95. Permits showed the property has a private sewer system(septic tank) and a private water well. There were no building permits in the County records for the three sheds nor the old one-story house on the property.

Aerial Photo's - Photo's were observed from 1938, 1955, 1965, 1970, 1978, 1986 and 1995, and all showed the property as an orchard. A small one-story house shows near the center of the east side of the north/south running dirt access road starting in 1955, which is still on the property but is abandoned. In the 1955 and later photo's a house is adjacent to the southeast at another orchard area. The 1970 photo shows the water tanks at the north end of the dirt road. On the 1978 photo, a house shows at the location of the existing two-story house, and two small sheds show on the east side of the dirt road north of the old house. In the 2/25/86 and 10/3/95 photo's the large work shed in the northeast corner of the orchard shows. The 1995 photo is shown on

Figure 4.

Sanborn Maps - No Sanborn Maps were available for the property.

History Summary - The property has been used as an orchard, now oranges, since before 1938. Houses and sheds have been the structures that showed on the property since 1938. Water tanks were installed at the north end of the dirt road some time between 1965 and 1970.

B. Property Survey Results

1. On-Site Sources

a. Chemicals, PCB's, Herbicides/Pesticides

Buildings.

The 2-story house is the residence of the owner and is not used to store hazardous materials. The old 1-story house is not used. The collapsed shed did not have any materials stored in it. The two work sheds were primarily used to repair equipment and storage was mostly metal, wood and plastic items.

The large maintenance and storage shed at the northeast corner of the property had a boat on a trailer, various machines for metal and wood working, 3 vehicle batteries, cans of paint, shelving with paint thinner and small paint and degreaser cans, and several 2-gallon plastic containers of Roundup. About two-thirds of the floor area was concrete, which is where the machinery/work shop was located. The drive-in area where the boat was stored was dirt.

The old 1-story house and work sheds may have lead-based paint.

Grounds.

Some appliances, tires, a vehicle camper cab, car body and other items were stored outside around the maintenance shed at the northeast corner of the property. Minor items and debris were spotted east of the dirt access road. None of the debris or items were observed to have hazardous materials and they were all solids. No soil stains were observed around the items or debris.

There is a private sewer system on the property which includes an underground septic tank and leachfield or seepage pit to serve the house. Household sewage will comprise the waste that will be discharged into the sewerage system, which typically does not include hazardous wastes.

No areas of major soil staining were observed. A few small stains were on the graded soil area west of the 2-story house which were several inches in

diameter. These stains appeared to be oil and were in the top inch of the soil surface which is not considered to be significant.

No records indicated that any other underground tanks, sumps or clarifiers were on the property. No oil or gas wells were previously or are now on the property.

No electrical transformers were observed on the property.

Orchard Operations

Operations that occurred on the property are related to use as an orange grove and include irrigation(drip and sprinkler), pest control, smudge pot firing to prevent freezing, and orange picking. Pest control and smudge pot operation are the operations that involve chemicals that can cause contamination.

Use of smudge pots is limited to freezing temperature/wind chill conditions. The smudge pots typically use modified heating oils. Contamination results when smudge pots overturn or spillage occurs during fueling. Spillage causes surface soil contamination by the fuel oil. Since smudge pots carry relatively small quantities of oil, spillage is typically a small quantity. Only one soil stain was observed in the grove that might have been a smudge pot spill. Fuel oils will easily biodegrade in aerobic conditions such as on the ground surface. Mr. Olsen stated that he had only used smudge pots once in the 1970's. Some smudge pots were in the orchard around the trees, but no soil stains were observed that would indicate leakage or spills of fuel oil. There was no way to tell when the smudge pots were last used.

Several full and empty 2-gallon containers of Roundup were stored on the concrete floor area of the maintenance shed. The empty containers indicate that Roundup has been applied within the past year or two. Roundup is a common ~~pesticide~~ herbecide ? and biodegrades.

Pesticide spraying is typically done using a tractor that pulls a trailer with sprayers down the aisles between the orange trees. The owner/farmer, Mr. Olsen, stated that he had not used pesticides for several years.

Pesticides typically used in California orange orchards are not persistent in the environment. Typical orange orchard pesticides and herbicides are as follows:

Citrus Fix - 2,4 D isopropyl ester compound used as a plant growth regulator, applied 2.5 ounces per acre.

Direx(Diuron) - herbicide for pre-emergent insects; persists for about 6 months, sprayed.

Bromacil - herbicide, same characteristics and sprayed as Direx.

Kocide 101 - copper fungicide containing 51% metallic copper, applied at 4 pounds per acre and is effective for 1 month.

Lorsban(Dursban) - is an organophosphate for ant control, sprayed and spread on the ground in granular form, have to wait 42 days after spraying before picking the oranges, last sprayed on the property in June 1998. Same pesticide as the Dursban used for ants in houses.

Progibb(4%) - is gibberellic acid compound used as a soil treatment. Is not listed as a hazardous waste in California Title 22.

Sabidella - is a botanical alkaloid derived from lily plant seeds used for thrit control.

The chemicals listed above are used for control of ants, other pests and fungus where biological controls are difficult to apply.

The copper component of Kocide is listed as a persistent and bioaccumulative toxic substance(Title 22, Sec. 66699, paragraph (b), page 1800.77). Copper threshold concentration limits in Title 22 are 2,500 mg/kg for total copper in soil, and for the wet test 25 mg/kg(equal to 250 mg/kg dry weight in soil) for soluble copper in soil. At the recommended Kocide application rate of 4 pounds per acre, the top 1 inch(to account for infiltration) of soil would receive 5 mg/kg of copper if none ran off in surface water. This rate of accumulation would require 500 sprayings of Kocide for the copper content to accumulate in soil to equal the total copper limit in soil. Since the orchard was planted before 1938, Kocide has been in use for less than 50 years. If Kocide was applied once a year and assuming all applied copper remained in place, the copper accumulation in the topsoil over a 50-year period would be at most about 250 mg/kg, which is below both the CA acceptable limit for total and soluble copper.

None of the other above listed pesticide/growth regulator compounds are listed as a persistent or bioaccumulative toxic substance in California Title 22, Sec. 66699, paragraph (c), page 1800.78.

More persistent pesticide/fungicide chemicals that would leave residues more than 2 years would have occurred more than 15 years ago and most of them would have degraded by year 2000. A persistent pesticide that has turned up after many years is DDT which was banned from use in 1972. DDT was primarily used on root and leafy vegetables. DDT has a half life of from 2 to 15 years, depending on local rainfall, temperature and soil bacterial conditions. DDT use for pest control started in the late 1940's, and if used on the property it might have started around 1950 until it was banned in 1972. If DDT had ever been used on the property, biodegradation residues including DDE and DDD might be found in trace amounts. No indication of DDT or other pesticide contamination of agricultural crop land converted to development has been identified. The new residential housing development adjacent to the east of the property was

formerly an orchard which is considered safe for residential use. RSC has sampled orange orchards for pesticides/herbicides and has not detected any.

In general, chlorinated hydrocarbon pesticides may be found at trace levels for up to 20 years, according to the CA Dept. of Food and Agriculture. The trace levels are typically below toxic levels and local soil and irrigation conditions can effect the length of time residues will remain.

b. Asbestos Containing Materials

The 2-story house was constructed from 1988 to 1995 and is not likely to have asbestos containing building materials(ACM's). The old 1-story house may have some ACM's due to its age. Potential ACM's are roofing materials, plaster, drywall joint compound, transite heater vent pipe, and any linoleum or tile flooring.

Potential ACM's were not observed in the visible part of the collapsed shed. The two work sheds have potential ACM roofing materials. The large maintenance and storage shed is a sheet metal building and did not have any ACM's.

2. Off-Site Sources

A search of regulatory agency files for known listed contaminated sites and underground tank and hazardous materials/wastes operating permit sites within 1 mile of the property was completed and is included in Appendix III. The sites identified, by type of agency, are as follows: Federal - No sites; CA State - 1 Well Investigation Program and 3 Drinking Water Program; Regional - No sites; Operating Permits - No sites.

The State of California uses 2,000 feet as the buffer zone of influence around landfill sites. The State assumes that little or no environmental effects will occur to property beyond the 2,000 foot zone of influence. Therefore typical contaminated sites that are more than 2,000 feet away will not likely adversely impact on the subject property.

No NPL or CERCLIS sites are within 1 mile of the property.

No leaking underground tank sites or other known listed contaminated sites are within 1 mile of the property.

No operating permits for hazardous materials or wastes are listed as being within 1 mile of the property.

III. POTENTIAL FOR CONTAMINATION

A. Material Threats

A Material Threat(MT) is defined per the ASTM E1527-2000 standard as a physically observable or obvious threat, which is reasonably likely to lead to a release that, in the opinion of the Environmental Professional, is threatening and might result in a negative impact to public health or the environment.

No MT was identified on the property.

B. Historical Recognized Environmental Conditions

A HREC is a case where a past release of any hazardous substances or petroleum products has been remediated and a written "No Further Action" (NFA) letter has been issued by a governmental agency. The potential for HREC's to have a negative environmental impact upon the property is considered minimal due to the presence of the NFA letter, however, the "risk tolerance" of a regulatory agency could change, as could be the case if information is later uncovered to suggest that the existing conditions are of greater significance than once thought.

No records of past releases were found thus no HREC is likely to be on the property.

C. Business Environmental Risks

A BER is an environmental condition that, although it does not constitute a negative impact upon the public health or the environment, it could impact the future site development either through limitations of property usage or elevated costs.

If any potential ACM's analyze as containing asbestos, demolition/renovation costs will be increased a moderate amount for abatement. If any significant soil stain areas are uncovered some additional cost will be incurred to test the soil and, if required, to dispose or treat the soil.

The old house and sheds may have lead-based paint(LBP). It is recommended that prior to any demolition or paint removal that the paint on these sheds be sampled and tested for lead content. If the paint is LBP then additional costs for the testing as well as abatement would be incurred.

D. Conclusions and Recommendations

Prior agricultural use as an orange orchard included spraying of pesticides and herbicides. The owner stated he has not used pesticides for a couple of years. The recent pesticide compounds are biodegradable within one year or less after application. Longer lasting pesticides would have been used over 15 years ago which is sufficient time for them to biodegrade to insignificant or undetectable levels. Stone has sampled soil in orange orchards and on farms, and found no detectable levels of pesticides or herbicides. California State regulations require soil sampling if former agricultural property is to be used for a school. If no school is planned then soil sampling is not considered to be necessary.

No records or observations indicated that oil or gas wells, or underground tanks, sumps or clarifiers were previously or are now on the property.

When the smudge pots and other debris items on the property are removed for disposal, the soil underneath should be visually observed for evidence of any significant(larger than 3 square feet in area and over 12 inches deep) soil stains that might indicate spillage of petroleum or chemical products. If any such areas are uncovered it is recommended that the soil be sampled and tested for petroleum products and chemicals.

If used for water supply, the water supply well on the property should be sampled and tested in accordance with drinking water standards applicable to water supply systems. Also, it is recommended that once yearly water samples be tested for pesticides/herbicides for a period of five years unless the area water quality agency recommends differently.

There are potential ACM's in the old house and small work sheds. If these buildings are to be demolished or extensively renovated the PACM's should be sampled and analyzed for asbestos prior to any such work.

No nearby known listed contaminated site is likely to environmentally impact the property.

Warranty

The above conclusions and recommendations are based on data available to Ralph Stone and Company, Inc. at the time of the audit. No building materials, sub-surface chemical, water or soil testing was performed for this Update Phase I report. No warranty, either expressed or implied, is made beyond the opinions cited in this assessment.

This Phase I Environmental Audit meets the applicable ASTM Practice Standard E1527-2000.

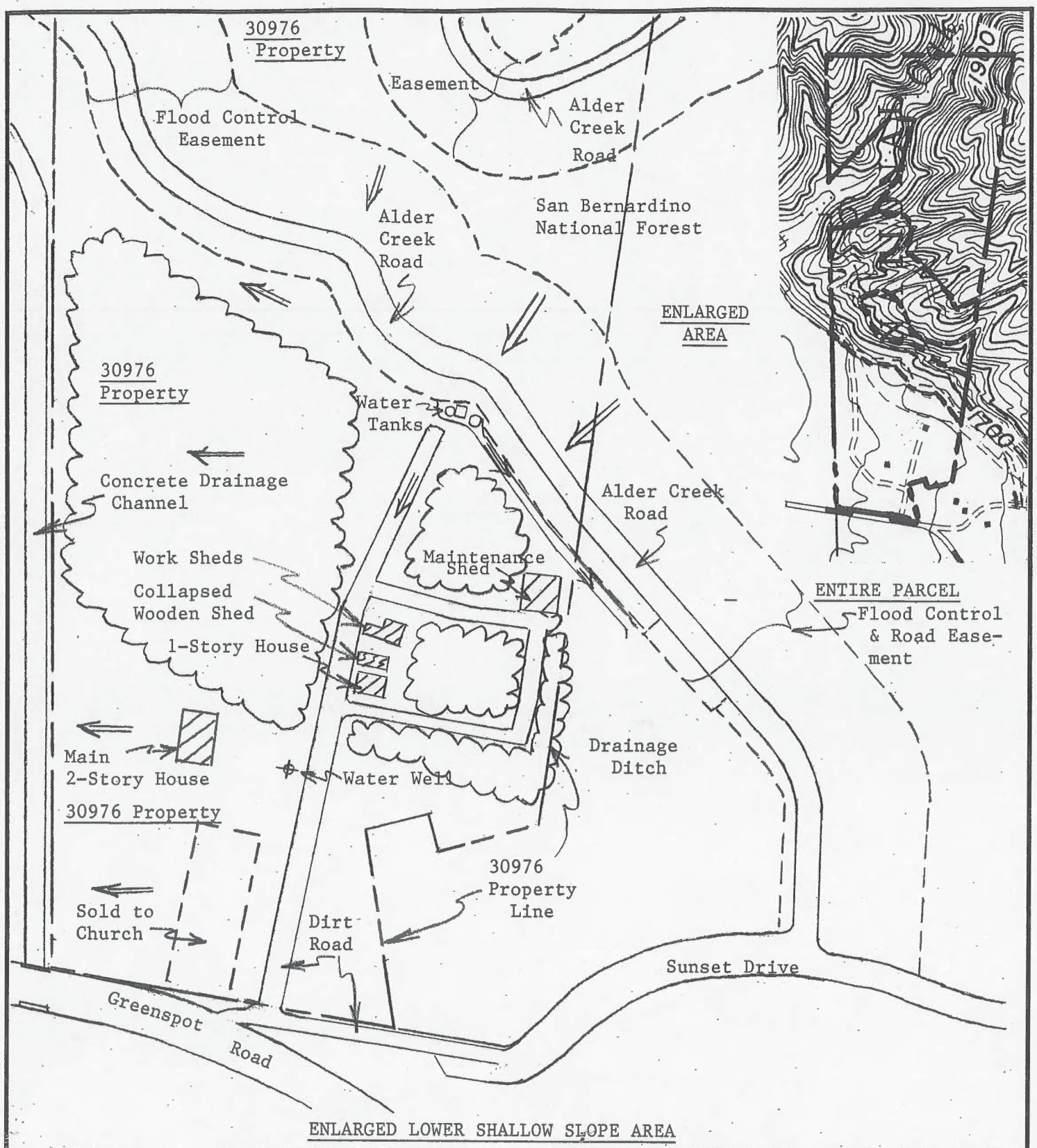


FIGURE 1: PROPERTY LAYOUT

LEGEND:

- Surface drainage flow
- Orchard areas
- Buildings
- Water well

N

RALPH STONE AND COMPANY, INC.
10954 Santa Monica Blvd.
Los Angeles, CA 90025
(800)813-9613 or (310)478-1501
Fax: (310) 478-7359

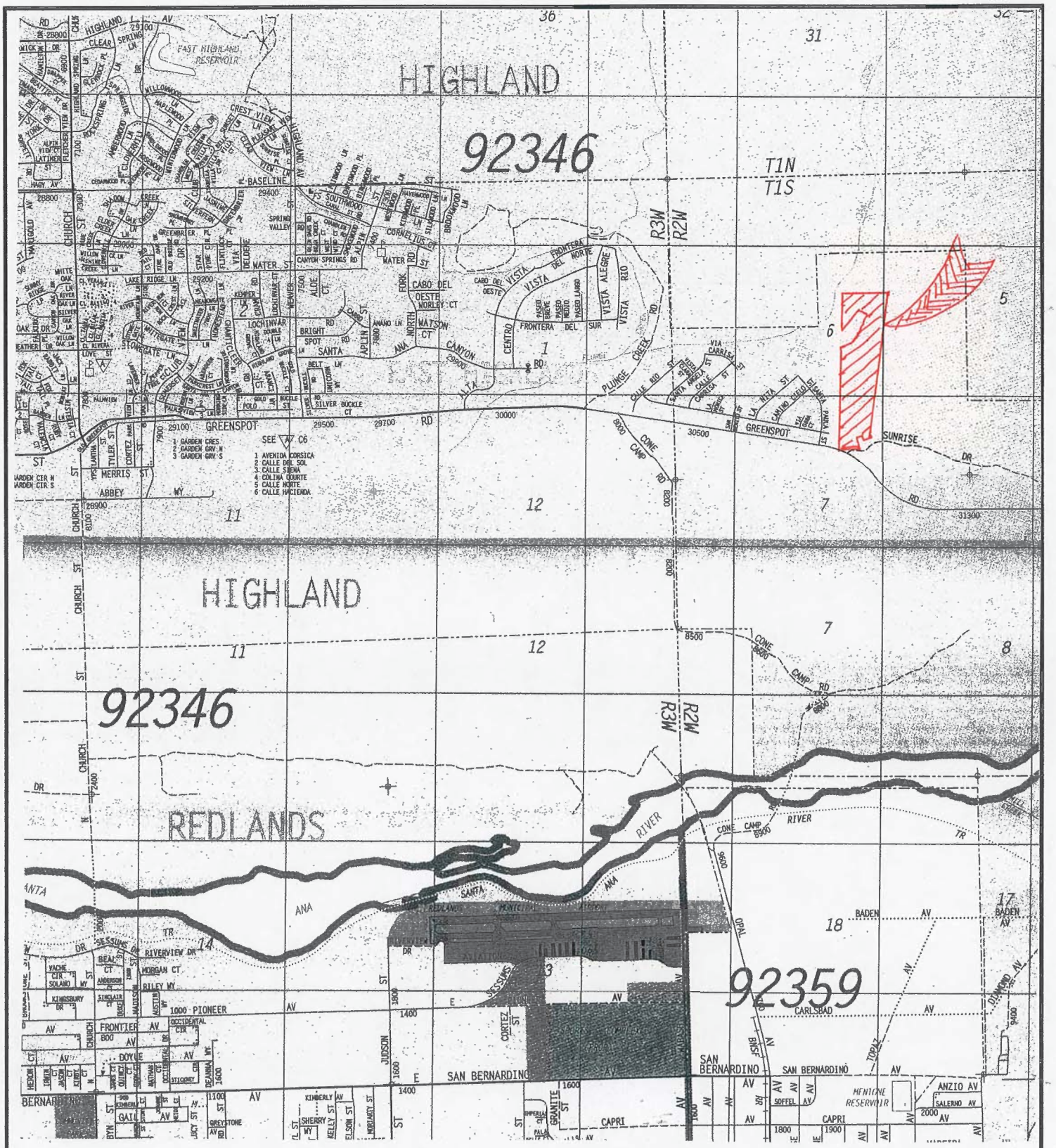
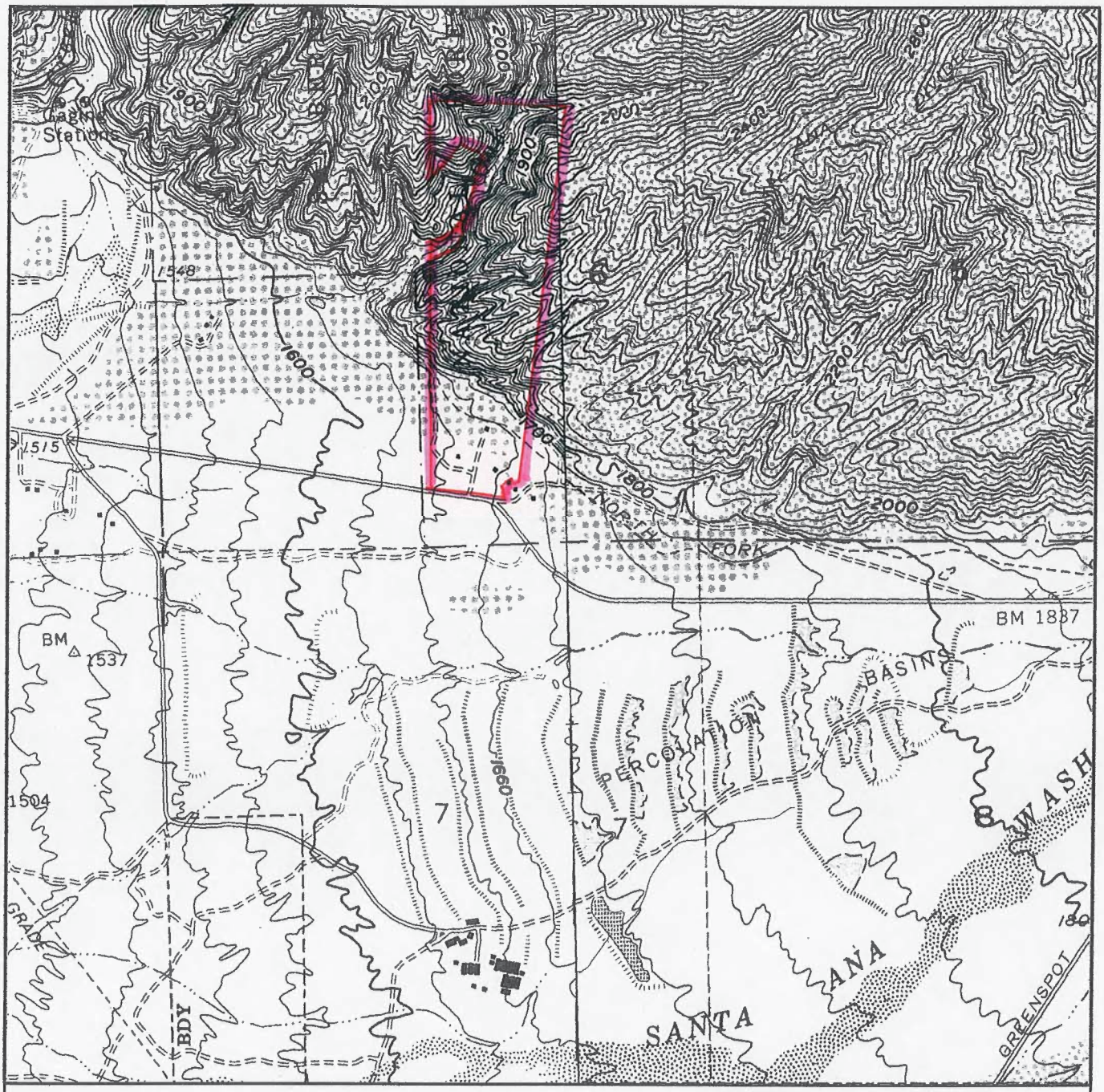


FIGURE 2: PROPERTY LOCATION

RALPH STONE AND COMPANY, INC.
10954 Santa Monica Blvd.
Los Angeles, CA 90025
(800)813-9613 or (310)478-1501
Fax: (310) 478-7359



longitude: -117° 7' 31.9"
latitude: 34° 6' 21.8"

utm easting: 488421 meters
utm northing: 3773729 meters
utm zone: NAD 11

township: 01S/02W-06

1.8 inches to 1/2 mile
Universal Transverse Mercator North is straight up

AREA RADON ESTIMATES

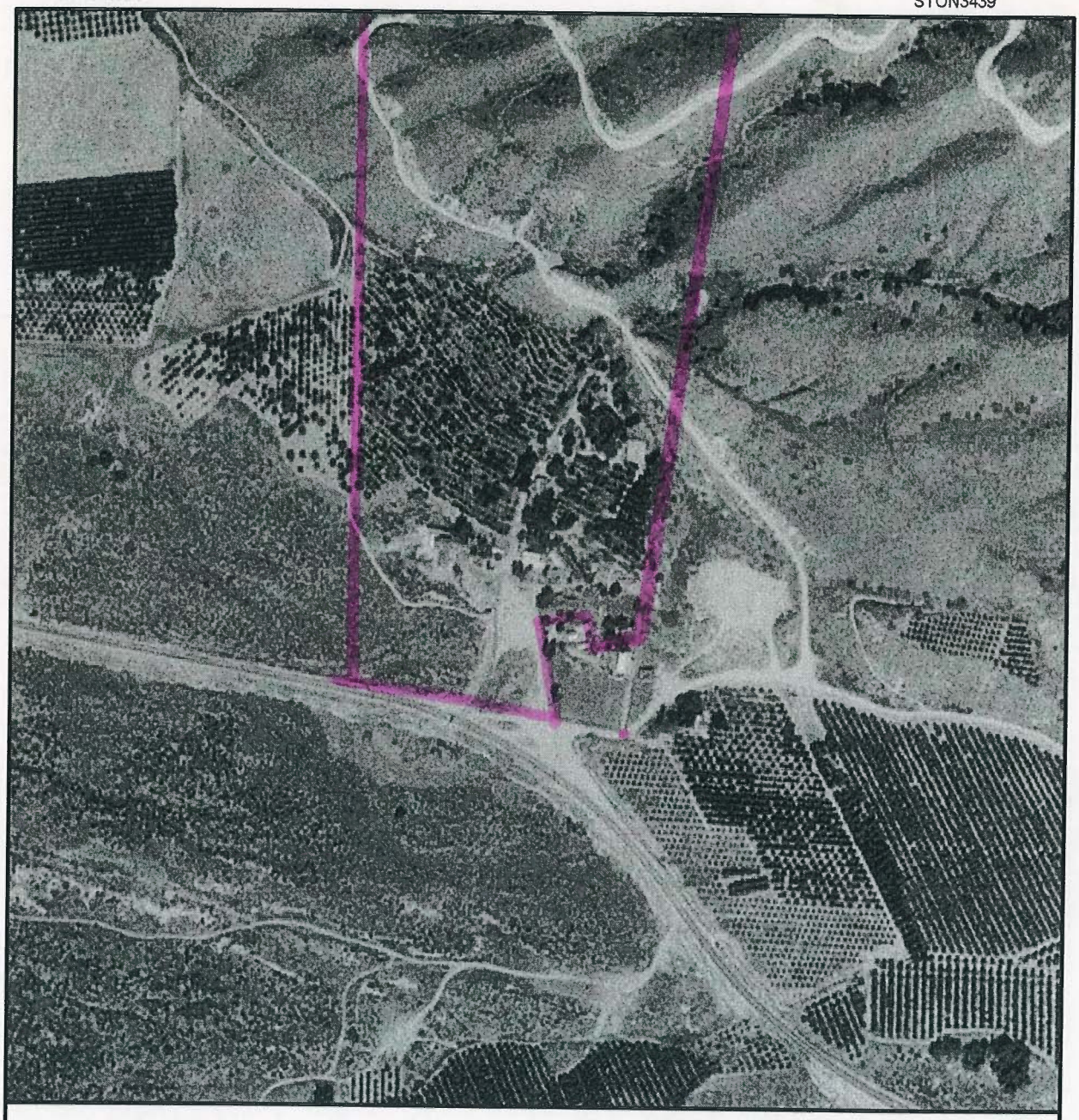
<2	pCi/L	88.2%
2-4	pCi/L	11.8 %
4-8	pCi/L	0.0 %
8-20	pCi/L	0.0 %
4-8	pCi/L	0.0 %
8-20	pCi/L	0.0 %
20 >	pCi/L	0.0%

U.S. Dept of Interior, Geological Survey

REDLANDS (1967 1988)
YUCAIPA (1967 1988)

TOPOGRAPHIC MAP OF THE VICINITY OF THE SUBJECT SITE LOCATED AT
30976 GREENSPOT RD,HIGHLAND

Figure 3: 1967/1988 USGS Topographic Map



Longitude: -117° 7' 39.1"
Latitude: 34° 6' 31.5"

UTM Easting: 488237 meters
UTM Northing: 3774029 meters
UTM Zone: NAD 11

County: SAN BERNARDINO

Project: NAPP 6875 88
Quadrangle: REDLANDS NE
Date: 1995 10 03
Film Type: "BLACK AND WHITE FILM"

Scale: 1 inch to 400 feet
UTM North is straight up

Source: U.S. Dept of Interior, Geological Survey

AERIAL PHOTOGRAPH OF THE VICINITY OF THE SUBJECT SITE LOCATED AT GREENSPOT RD, HIGHLAND

Figure 4: 1995 Aerial Photograph

APPENDIX I

PURPOSE, SCOPE OF SERVICES,

DATA SOURCES & REFERENCES

IA. Purpose

Perform an environmental assessment of the property and surrounding area that will identify actual and potential environmental impairments, or risks of impairment that represent existing or potential financial and legal liabilities to responsible parties, and make recommendations regarding any such risks.

IB. Scope of Services

The Phase I Environmental Audit was performed as described below. The audit did not include sampling and testing of building materials, soils or surface or groundwater.

1. Site Inspection

The subject property and surrounding area was inspected on February 10, 2004, by Richard Kahle, P.E., R.E.A., Certified Asbestos Consultant. The inspection included the following:

- Visual inspection of the entire property with special attention given to any hazardous materials storage and handling, distressed vegetation, stains that could indicate contamination, adjacent electrical power lines, and transformers,

- Survey of the surrounding area to determine if other potential contaminated sites exist that could environmentally impact the property,

- Observation of property and area drainage patterns for potential contamination migration pathways,

- Observe building materials for potential to contain asbestos that were accessible without destruction of building structures in the building on the property,

- Interviews with persons familiar with property usage,

2. Data Review

The data sources that were reviewed are listed in section IC, below. The review included searches of various Federal, California State, Regional and Local agencies data bases for contaminated sites(leaking underground tanks,

surface spills, emergency response actions, various other categories of substances releases), and operating permits for RCRA generators, hazardous wastes and underground tanks. Local agency building permit, fire, planning, flood control, and mapping departments records searches were completed for information specific to the property and adjacent sites. Interviews of agency and private persons with knowledge of the property and adjacent sites were conducted as needed. Other available data sources were reviewed for aerial photo's and oil and gas wells.

IC. Data Sources and References

The following sources of data were reviewed as part of this Environmental Audit:

Federal Sources:

- US EPA (CERCLA) Superfund and National Priority List (NPL) sites,
- CERCLA 'No Further Remedial Action Planned' (NFRAP) sites,
- CERCLA Federal Facilities List (FEDFAC), Hazardous Waste Compliance Docket for federal facilities with known or suspected environmental problems,
- Emergency Response Notification System (ERNS) listing of unauthorized releases of oil and hazardous substances,
- CERCLA Site Enforcement Tacking System (SETS) listing of potentially responsible parties (PRPs),
- Enforcement Docket System (DOCKET)/ Consent Decree Tracking System (CDETS), tracks civil judicial cases and court settlements against environmental polluters,
- Criminal Docket System (C-DOCKET), tracking system for criminal enforcement actions for all environmental statues and tracks enforcement actions from initial stages through conclusion,
- RCRA Violators List,
- Federal Enforcement Dockets, list of sites under enforcement by the US EPA,

California State Sources:

- California EPA (Cal-EPA), Annual Work Plan, AWP (formerly Bond Expenditure Plan, BEP) listing,
- Cal-EPA, Toxic Substances Division, Calsites (formerly Abandoned Sites Survey Program) listing,

- Cal-EPA, Toxic Substances Division, Calsites - No Further Action listing,

- California Office of Planning and Research (CORTESE),

- California Water Resources Control Board, Leaking Underground Storage Tanks (LUST) listing,

- California Integrated Waste Management Board listing (SWIS), listing of closed, inactive and active solid waste disposal sites and inactive and closed Transfer facilities,

- California Department of Health Services, Well Investigation Program (WIP), identifies groundwater that is already contaminated, focus of program is monitoring and protecting drinking water,

- Cal-EPA, Drinking Water Program, provides information on the quality of public drinking water wells under the California Drinking Program,

California Regional Sources:

- Toxic Releases Listing,

- California Regional Water Quality Control Board, Toxic Pits Inventory,

- California Regional Water Quality Control Board, Solid Waste Audit Test (SWAT), for disposal sites with more than 50,000 cubic yards of waste must provide information to determine if discharge of hazardous materials has occurred,

- California Regional Water Quality Control Board - Santa Ana Region, "Water Quality Control Plan for the Santa Ana Basin(8)," 1995,

- USDA, Soil Conservation Service, "Soil Survey of San Bernardino County, Southwestern Part, California," Jan. 1980,

Operating Permits:

- US EPA RCRA Generators and TSD Facilities,

- US EPA SARA Title III, section 313 (TRIS),

- US EPA Nuclear Regulatory Commission Licensees.

- US EPA, PCB Waste Handlers,

- US EPA, FIFRA/TSCA tracking system,

- Federal Facilities Information System (FFIS),

- Cal-EPA Hazardous Waste Information System (HWIS),

- California Regional Water Quality Control Board, Permitted Underground Storage Tanks (between 1974 to 1987 and 1993),

- Local agencies operating permits,

Other:

- USGS topographic map of the area, Redlands Quadrangle, 1967, photorevised 1988,

- Sanborn Fire Insurance Maps, BBL, Inc.,

- Munger Map Book, 1990, for oil and gas wells,

- USDA, Soil Conservation Service, "Report and General Soil Map, Los Angeles County, CA," Jun. 1967, Rev. 1969,

- San Bernardino County Flood Control Dept., for flood zone maps and floodplain designation,

- City of Highland and County of San Bernardino Departments of Building and Safety for building permit and UST information,

- San Bernardino County Fire Dept. and Department of Environmental Health Services, Underground Tank Division for underground tank and contamination information.

- San Bernardino County,Dept. of Public works, Cartographic Unit, for aerial photo's,

- Individuals familiar with the property history - Mr. Olsen, owner from 1977 to 2004.

APPENDIX II

LIST OF NEARBY KNOWN CONTAMINATED SITES
AND
SITES WITH HAZARDOUS WASTE
AND
UNDERGROUND TANK OPERATING PERMITS

INTRODUCTION

This document, prepared on the request of RALPH STONE & COMPANY, reports the findings of BBL's investigation of environmental concerns in the vicinity of 30976 Greenspot Rd,highland CA. It is divided in the following segments:

- Map - showing the location of the identified sites relative to the subject site. A total of 3 separate sites were identified.
- Topographic Map - showing the surrounding area of the subject site.
- Summary - listing the identified sites by street names.
- Final Report - describing the sources investigated and the resulting findings:

- Federal sources			
National Priority List	no sites	within 1 mile radius.	Page: 1
CERCLIS	no sites	within 1 mile radius.	1
NFRAP	no sites	within 1 mile radius.	2
Federal Facilities	no sites	within 1 mile radius.	2
Emergency Response Notification System	no sites	within half of a mile.	2
Hazardous Material Incident Report System	no sites	at the subject site.	3
Site Enforcement Tracking System	no sites	within 1 mile radius.	3
Enforcement Docket (DOCKET/CDETS)	no sites	within half of a mile.	3
C-Docket	no sites	within half of a mile.	3
RCRA Violators List	no sites	within 1 mile radius.	3
RCRA - TSD Facilities	no sites	within 1 mile radius.	4
Federal Enforcement Dockets	no sites	within 1 mile radius.	4
- California State sources			
Annual Work Plan	no sites	within 1 mile radius.	4
CALSITES	no sites	within 1 mile radius.	5
Voluntary Cleanup Program	no sites	within half of a mile.	5
Properties Needing Further Evaluation	no sites	within half of a mile.	6
Referred Unconfirmed Properties	no sites	within half of a mile.	6
School Property Evaluation Program	no sites	within half of a mile.	6
CALSITES - No Further Action	no sites	within half of a mile.	7
Cortese	no sites	within 1 mile radius.	7
Leaking Underground Storage Tanks	no sites	within 1 mile radius.	7
Solid Waste Information System	no sites	within 1 mile radius.	8
Well Investigation Program	1 site	within 1 mile radius.	8
Drinking Water Program	3 sites	within 1 mile radius.	8
- Regional sources			
Toxic Releases	no sites	within 1 mile radius.	10
Toxic Pits	no sites	within 1 mile radius.	11
Solid Waste Assessment Test - Regional	no sites	within 1 mile radius.	11
- Operating permits			
RCRA Generators	no sites	within half of a mile.	12
SARA Title III,section 313 (TRIS)	no sites	within half of a mile.	12
Nuclear Regulatory Commission Licensees	no sites	within half of a mile.	12
PCB Waste Handlers Database	no sites	within half of a mile.	13
Permit Compliance System (PCS)	no sites	within half of a mile.	13
AIRS Facility System (AFS)	no sites	within half of a mile.	13
Section Seven Tracking System	no sites	within half of a mile.	13
FIFRA/TSCA tracking system	no sites	within half of a mile.	13
Federal Facilities Information System (FFIS)	no sites	within half of a mile.	14
Chemicals in Commerce Information System	no sites	within half of a mile.	14
FINDS EPA Facility Index System	no sites	within half of a mile.	14
Hazardous Waste Information System	no sites	within half of a mile.	14
Underground Storage Tanks	no sites	within half of a mile.	14

ENVIRONMENTAL CONCERNS - HIGH PRIORITY

ENVIRONMENTAL CONCERNS

ENVIRONMENTAL CONCERNS - WITH A 'NO FURTHER ACTION' STATUS'

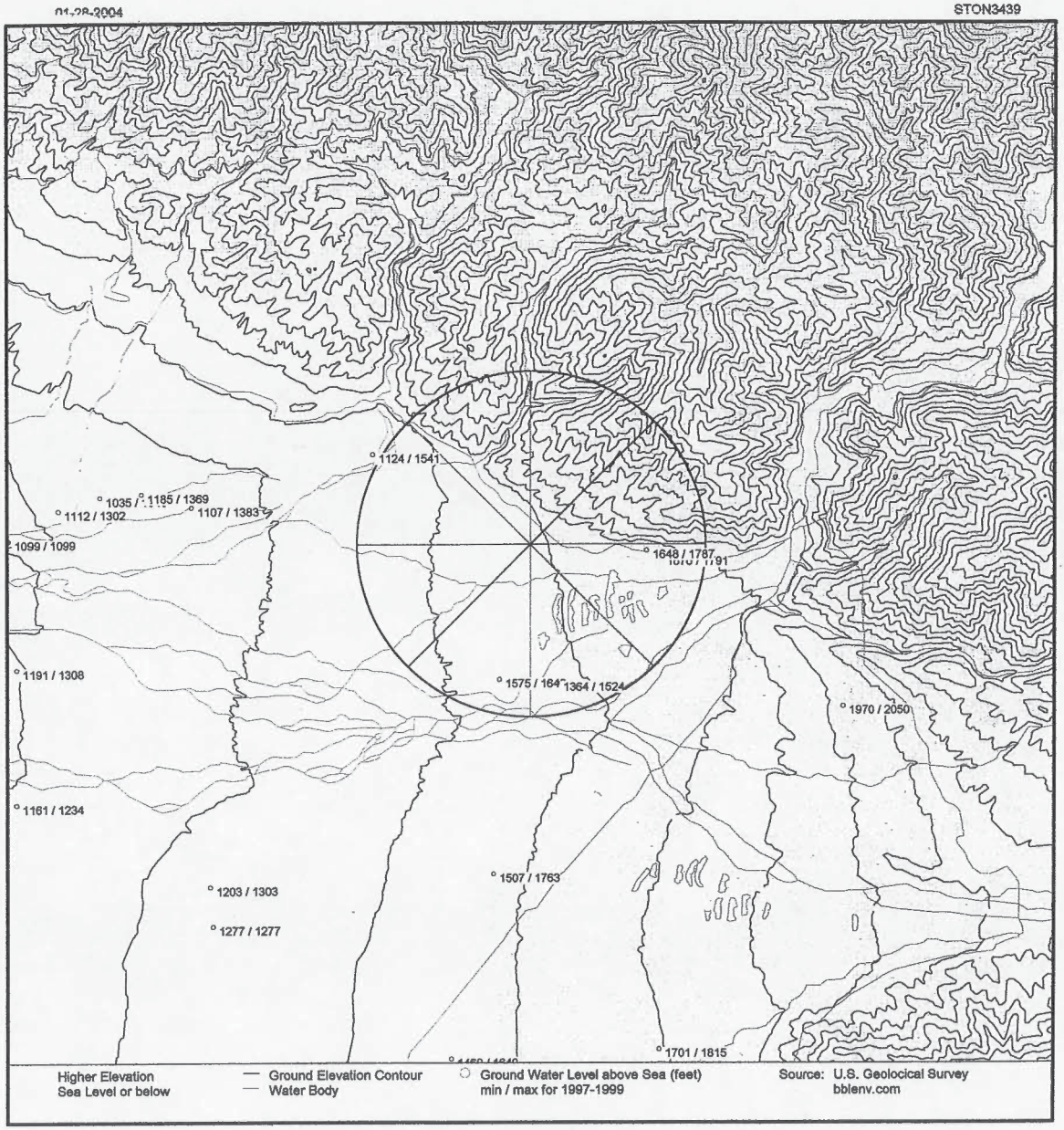
OPERATING PERMITS ONLY

WATER WELLS

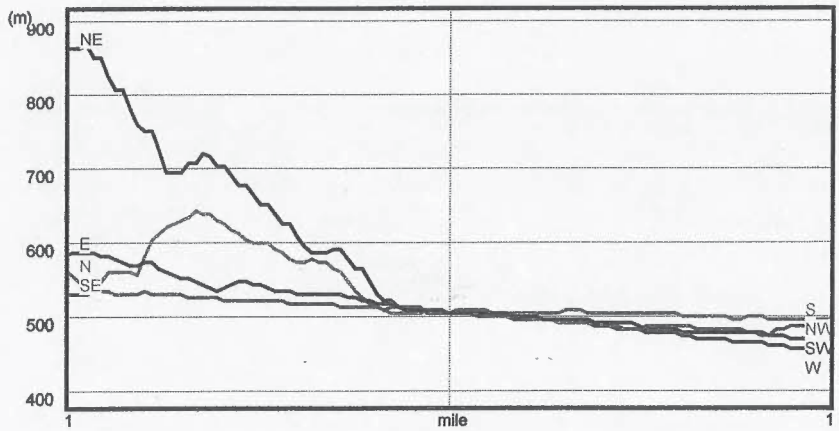
3.2 inches to 1 mile (the circles do not include any buffer zone)

APPROXIMATE LOCATION OF IDENTIFIED SITES IN THE VICINITY OF SUBJECT SITE
AT 30976 GREENSPOT RD,HIGHLAND

2.	EAST VALLEY WD/	PLANT 125
3.	EAST VALLEY WD/	WELL 142
4.	Inland Valley Development Agen	WELL 05



Elevation Contour overview map (6*6 mile)



Elevation Profiles (±1 mile)

CONTOUR DATA IN THE VICINITY OF THE SUBJECT SITE LOCATED AT
30976 GREENSPOT RD,HIGHLAND

ENVIRONMENTAL RECORDS SEARCH

SUMMARY

KNOWN ENVIRONMENTAL CONCERNS FOR SB CALVARY 30976 GREENSPOT RD,HIGHLAND CA	Page: 1 Job : STON3439 Date: 01-28-2004

ADDRESS	CITY	LOCATION	SOU-RCE	STA-TUS	PAGE	MAP LOC	DIR
KNOWN ENVIRONMENTAL CONCERNS, WITHIN 1/4 - 1/2 MILE OF THE SUBJECT SITE							
PLANT 125	01S/02W-07F01 S	EAST VALLEY WD/	WQ	AR	10	2	SW
KNOWN ENVIRONMENTAL CONCERNS, WITHIN 3/4 - 1 MILE OF THE SUBJECT SITE							
WELL 142	01S/03W-01H01 S	EAST VALLEY WD/	WQ	AR	9	3	NW
WELL 05	01S/03W-12J02 S	Inland Valley Development Agen	WQ	AR	9	4	SW

OPERATING PERMITS ONLY FOR
SB CALVARY
30976 GREENSPOT RD,HIGHLAND CA

Job : STON3439
Date: 01-28-2004

ADDRESS	CITY	LOCATION	SOU-RCE	STA-TUS	PAGE	MAP LOC	DIR

REFERENCED SOURCES

Job : STON3439
Date: 01-28-2004

&d0DFEDERAL SOURCES&d@

NPL	NATIONAL PRIORITY LIST (10/15/03)					
CERCLA	CERCLIS (10/15/03)					
NFRAP	NFRAP (10/15/03)					
FedFac	FEDERAL FACILITIES (10/15/03)					
ERNS	EMERGENCY RESPONSE NOTIFICATION SYSTEM					
HM	HAZARDOUS MATERIAL INCIDENT REPORT SYSTEM					
SETS	SITE ENFORCEMENT TRACKING SYSTEM (10/12/03)					
CDETS	ENFORCEMENT DOCKET (DOCKET/CDETS)					
CD	C-DOCKET (11/03)					
RV	RCRA VIOLATORS LIST (10/03)					
TSD	RCRA - TSD FACILITIES (09/03)					
	I	Incinerator	D	Land Disposal	T	Storage/Treatment
FD	FEDERAL ENFORCEMENT DOCKETS					

&d0DCALIFORNIA STATE SOURCES&d@

AnnWrk	ANNUAL WORK PLAN (10/27/03)					
	BKLG	Backlog	DLST	Delisted from the AWP	AWP	Active AWP site
	REFRW	Referred to the RWQB	COM	Certified, maint mode	REFRC	Referred to RCRA
	CERT	Certified after remediation				
CalSite	CALSITES (10/27/03)					
VC	VOLUNTARY CLEANUP PROGRAM (10/27/03)					
FE	PROPERTIES NEEDING FURTHER EVALUATION (10/27/03)					
RF	REFERRED UNCONFIRMED PROPERTIES (10/27/03)					
SC	SCHOOL PROPERTY EVALUATION PROGRAM (10/27/03)					
CS-nfa	CALSITES - NO FURTHER ACTION (10/27/03)					
CS	CORTESE (10/03)					
LUST	LEAKING UNDERGROUND STORAGE TANKS (11/03)					
	0	No action	3B	Prel site assmnt underway	7	Remedial action underway
	1	Leak being confirmed	5C	Pollution characterization	8	Post remedial action monitoring
	3A	Site workplan submitted	5R	Remediation plan	9	Case closed
SWIS	SOLID WASTE INFORMATION SYSTEM (11/03)					
WIP	WELL INVESTIGATION PROGRAM					
WQ	DRINKING WATER PROGRAM					

&d0DREGIONAL SOURCES&d@

NT	TOXIC RELEASES
TP	TOXIC PITS (01/03)
SR	SOLID WASTE ASSESSMENT TEST - REGIONAL (01/03)

&d0DOPERATING PERMITS&d@

RCRA	RCRA GENERATORS (10/03)					
	L	Large Generator	T	Transporter	S	Small Generator
SARA	SARA TITLE III,SECTION 313 (TRIS) (10/03)					
Nucl	NUCLEAR REGULATORY COMMISSION LICENSEES (10/03)					
PCB	PCB WASTE HANDLERS DATABASE (01/03)					
PCS	PERMIT COMPLIANCE SYSTEM (PCS) (10/03)					
AFS	AIRS FACILITY SYSTEM (AFS) (10/03)					
PE	SECTION SEVEN TRACKING SYSTEM (10/03)					
FIFRA	FIFRA/TSCA TRACKING SYSTEM (01/03)					
FIFS	FEDERAL FACILITIES INFORMATION SYSTEM (FFIS) (10/03)					
CICIS	CHEMICALS IN COMMERCE INFORMATION SYSTEM (10/03)					
FN	FINDS EPA FACILITY INDEX SYSTEM (10/03)					
HWIS	HAZARDOUS WASTE INFORMATION SYSTEM (1984-2003)					
UST	UNDERGROUND STORAGE TANKS					

ENVIRONMENTAL RECORDS SEARCH

LISTED BY SOURCE

INTRODUCTION

BBL has used its best effort but makes no claims as to the completeness or accuracy of the referenced government sources or the completeness of the search. Our records are frequently updated but only as current as their publishing date and may not represent the entire field of known or potential hazardous waste or contaminated sites. To ensure complete coverage of the subject property and surrounding area, sites may be included in the list if there is any doubt as to the location because of discrepancies in map location, zip code, address, or other information in our sources. For additional information call 858 793-0641.

In accordance with ASTM E-1527-00, the following government sources have been searched for sites at the street address, unless otherwise stated, of the subject location.

FEDERAL SOURCES

NPL National Priority List

EPA has prioritized sites with significant risk to human health and the environment. These sites receive remedial funding under the Comprehensive Environmental Response Conservation and Liability Act (CERCLA).

No listings within 1 mile radius of the subject site.

CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS is a database used by the EPA to track activities conducted under the Comprehensive Environmental Response and Liability Act CERCLA (1980) and the amendment the Superfund Amendments and Reauthorization Act SARA (1986).

Sites to be included are identified primarily by the reporting requirements of hazardous substances Treatment, Storage and Disposal (TSD) facilities and releases larger than specific Reportable Quantities (RQ), established by EPA.

Using the National Oil and hazardous Substance Pollution Contingency Plan(National Contingency Plan) the EPA set priorities for cleanup.

The EPA rates National Contingency Plan sites according to a quantitative Hazard Ranking System (HRS) based on the potential health risk via any one or more pathways: groundwater, surface water, air, direct contact, and fire/explosion.

The EPA and state agencies seek to identify potentially responsible parties(PRP) and ultimately Responsible Parties (RP) who can be required to finance cleanup activities, either directly or through reimbursement of federal Superfund expenditures.

No listings within 1 mile radius of the subject site.

NFRAP No Further Remedial Action Planned sites (CERCLIS)

As of February 1995, CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

EPA has removed these NFRAP sites from CERCLIS to lift unintended barriers to the redevelopment of these properties. This policy change is part of EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens promote economic redevelopment of unproductive urban sites.

No listings within 1 mile radius of the subject site.

FEDFAC Federal Facilities

As part of the CERCLA program, federal facilities with known or suspected environmental problems, the Federal Facilities Hazardous Waste Compliance Docket is tracked separately to comply with a Federal Court order.

No listings within 1 mile radius of the subject site.

ERNS Emergency Response Notification System

The ERNS is a national computer database used to store information on unauthorized releases of oil and hazardous substances. The program is a cooperative effort of the Environmental Protection Agency, the Department of Transportation Research and Special Program Administration's John Volpe National Transportation System Center and the National Response Center.

There are primarily five Federal statutes that require release reporting the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) section 103; the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304; the Clean Water Act of 1972(CWA) section 311(b)(3); and the Hazardous Material Transportation Act of 1974(HMTA section 1808(b).

No listings within half of a mile radius of the subject site.

HMIRS Hazardous Material Incident Report System

The Hazardous Material Report Incident Report Subsystem HMIRS of the Research and Special Programs Administration (RSPA) Hazardous Material Information System was established in 1971 to fulfill the requirements of the Federal hazardous material transportation law. Part 171 of Title 49, Code of Federal Regulations (49 CFR) contains the incident reporting requirements of carriers of hazardous materials. An unintentional release of hazardous materials meeting the criteria set forth in Section 171.16, 49 CFR, must be reported on DOT Form 5800.1. The data from the reports received are subsequently entered in the HAZMAT database.

No listings within the street address of the subject site.

SETS Site Enforcement Tracking System (SETS)

When expanding Superfund monies at a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) Site, EPA must conduct a search to identify parties with potential financial responsibility for remediation of uncontrolled hazardous waste sites. EPA regional Superfund Waste Management Staff issue a notice letter to the potentially responsible party (PRP). The status field contains the EPA ID number and name of the site where the actual pollution occurred.

No listings within 1 mile radius of the subject site.

DO Enforcement Docket System (DOCKET)/Consent Decree Tracking System (CDETS)

DOCKET tracks civil judicial cases against environmental polluters, while CDETS processes court settlements, called consent decrees.

No listings within half of a mile radius of the subject site.

CD Criminal Docket System (C-DOCKET)

The Criminal Docket System is a comprehensive automated system for tracking criminal enforcement actions. C-Docket handles data for all environmental statues and tracks enforcement actions from the initial stages of investigations through conclusion.

No listings within half of a mile radius of the subject site.

RCRA RCRA Violators List (CORRACTS)

The Resource Conservation and Recovery Act of 1976 provides for "cradle to grave" regulation of hazardous wastes. RCRA requires regulation of hazardous waste generators, transporters, and storage/treatment/disposal sites. Evaluation to potential violations, ranging from manifest requirements to hazardous waste discharges, is typically conducted by the US EPA. This database

is also known as Corrective Action Report (CORRACTS)

If enforcement is required, it is typically delegated to a state agency.

No listings within 1 mile radius of the subject site.

RCRA-D Resource Conservation and Recovery Information System - Treatment, Storage & Disposal

The Environmental Protection Agency regulates the treatment, storage and disposal of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form as well as part A (EPA form 8700-23) and Part B of their Hazardous Waste Permit Application.

Status Codes:		
	I	Incinerator
	T	Storage/Treatment facility other than Incinerator
	D	Land Disposal Facility

No listings within 1 mile radius of the subject site.

FD Federal Enforcement Dockets

The US EPA, Office of Enforcement, maintains a list of sites under enforcement by the US EPA.

No listings within 1 mile radius of the subject site.

CALIFORNIA STATE SOURCES

AW Annual Work Plan (previously known as Bond Expenditure Plan)

The California Health and Safety code, as amended by AB 129, requires the California Environmental Protection Agency to develop a site-specific expenditure plan as the basis for an appropriation of California Hazardous Substance Cleanup Bond Act of 1984 funds.

The Agency is also required to update the report annually and report any significant adjustments to the Legislature on an ongoing basis. The plan identifies California hazardous waste sites targeted for cleanup by responsible parties, the California and the Federal Environmental Protection Agency over the next five years.

Status Codes: BKLG Backlog, Potential Annual Work Plan Site

AWP	Active Annual Work Plan site
COM	Certified, but still in Operation & Maintenance mode
CERT	Certified after remediation
DLST	Delisted from the AWP
REFRC	Former AWP site referred to RCRA
REFRW	Former AWP site referred to the Regional Water Quality Board

No listings within 1 mile radius of the subject site.

CALS CALSITES

The Historical Abandoned Site Survey Program identified certain potential hazardous waste sites. The identification of these sites were generally not made via sampling and site characterization, they were made as a result of file searches and windshield surveys. Some of the sites may have had a site inspection with sampling.

The information has been compiled into this database by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

This database was previously known as The Abandoned Sites Program Information System ASPIS.

Status Codes:		
	PEARL	Preliminary Endangerment Assessment Required,Low priority
	PEARM	Preliminary Endangerment Assessment Required,Medium priority
	PEARH	Preliminary Endangerment Assessment Required,High priortiy
	SSR	Site Screening Required
	HRR	Hazard Ranking Required
	PRPR	Potential Responsible Party Search Required
	EPA	EPA is the lead agency
	RCRA	Mitigated under the RCRA permitting program
	RWQCB	Mitigated under the lead of the Regional Water Quality Boar
	CNTY	County lead
	OAL	Other Agency lead

No listings within 1 mile radius of the subject site.

VCP Voluntary Cleanup Program

This category contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have requested that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Status Codes:		
	VCP	Property with either confirmed or unconfirmed releases and project proponents have requested that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSCs costs.
	VCOMP	- The scope of work in the VCP Agreement has been completed.
	PEAP	Preliminary Endangerment Assessment in Progress.
	NFA	No Further Action Required
	VTERM	VCP agreement Terminated was terminated prior to the completion of the scope of work in the agreement.

BZHW	Border Zone/Hazardous Waste Properties chapter 6.5 of the Health and Safety Code, commencing with section 25220.
COM	Certified, but still in Operation & Maintenance mode
CERT	Certified after remediation
HWDLU	Hazardous Waste Disposal Land Use with a voluntary deed restrictions.
NA	CalMortgage Properties. DTSC is conducting a Phase I Assessment

No listings within half of a mile radius of the subject site.

FE Properties Needing Further Evaluation

This category of The Site Mitigation and Brownfields Reuse Program Database (SMBRPD), contains properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the PEA process.

Status Codes:		
	PEAP	Preliminary Endangerment Assessment (PEA) in Progress
	PEAR	Preliminary Endangerment Assessment (PEA) is Required
	RR	Removal Action Required

No listings within half of a mile radius of the subject site.

REF Referred Unconfirmed Properties

This category of The Site Mitigation and Brownfields Reuse Program Database (SMBRPD), contains properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.

Status Codes:		
	REFRW	Referred to Regional Water Quality Control Board
	REFRC	Referred to DTSC's Hazardous Waste Program (RCRA).
	REFOA	Referred to other agencies.

No listings within half of a mile radius of the subject site.

SCH School Property Evaluation Program Properties

This category of The Site Mitigation and Brownfields Reuse Program Database (SMBRPD) contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Status Codes:		
	VCP	Active school property where DTSC has entered into a VCP Agreement.
	PEAR	Preliminary Endangerment Assessment (PEA) required.
	PEAP	Preliminary Endangerment Assessment (PEA) in Progress
	VCOMP	The scope of work in the VCP Agreement has been completed.
	NA	No Action - potential school property where a Phase I Assessment has been comple
	NFA	The property does not pose a problem to the public health or the environment.
	CERT	The potential school property was previously identified as a confirmed release site a it has been subsequently certified by DTSC as having been remediated satisfactoril

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under DTSC oversight.

No listings within half of a mile radius of the subject site.

CALS CALSITES - No Further Action

This section includes the sites on the Calsite list, which have been flagged for no further action by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

Status Codes:	NFA	No Further Action for DTSC
	RED	Closed Case marked for removal from list

No listings within half of a mile radius of the subject site.

CORTESE State of California Office of Planning and Research

This database is a consolidation of information from various sources. It is maintained by the State Office of Planning and Research and lists potential and confirmed hazardous waste or substances sites.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

Status Codes:	WRCBT	Tank leaks. Compiled by Water Resource Control Board
	DHS1	Abandoned hazardous waste site. Compiled by Toxic Substance Control Div. of DHS
	DHS2	Contaminated public water drinking wells serving less than 200 connections. Compiled by Env. Health Div. of DHS
	DHS3	Contaminated public water drinking wells serving more than 200 connections
	DHS5	Sites pursuant to section 25356 of the Health and Safety Code (see BEP)
	CWMB	Solid waste disposal sites with known migration of hazardous waste

No listings within 1 mile radius of the subject site.

LUST Leaking Underground Storage Tanks - California State

The Leaking Underground Storage Tanks Information System is maintained by the State Water Resource Board pursuant to Section 25295 of the Health and Safety Code.

Status Codes:	0	No action
	1	Leak being confirmed
	3A	Prel site assessment workplan submitted
	3B	Prel site assessment underway

5C	Pollution characterization
5R	Remediation plan
7	Remedial action underway
8	Post remedial action monitoring
9	Case closed
P	Case purged from agency list

No listings within 1 mile radius of the subject site.

SWIS Solid Waste Information System

As legislated under the Solid Waste Management and Resource Recovery Act of 1972, the California Waste Management Board maintains lists of certain facilities, i.e. Active solid waste disposal sites, Inactive or Closed solid waste disposal sites and Transfer facilities.

No listings within 1 mile radius of the subject site.

WIP Well Investigation Program

The Well Investigation Program (AB1803) identifies groundwater that is already contaminated and empowers the California Department of Health Services and local health officers to order ongoing monitoring programs. The focus of this program is to monitor and protect drinking water.
This list has been researched within 1 mile radius of the subject site.

Site: WELL 05 dhs3
Address: USAF CLINIC/SGPB
City: 01S/03W-12J02 S
Map Loc: 4 - within 3/4 - 1 mile SW of the subject
Status:
1.20 ppb of DBCM (action level 100.0) was reported on 07/25/89 by DHS-AB21.
2.20 ppb of CHLOROFORM (action level 100.0) was reported on 07/25/89 by DHS-AB21.
2.400 ppb of 1,1,1-TCA (action level 200.0) was reported on 08/03/87 by DHS-AB21.
3.60 ppb of METHYLN CL (action level 40.0) was reported on 07/06/87 by DHS-AB21.
0.70 ppb of NAPHTHALENwas reported on 04/03/89 by DHS-AB21.
1.40 ppb of PCE (action level 5.0) was reported on 06/04/87 by DHS-AB21.

WQ Drinking Water Program

The California Health and Safety Code section 116275-116300 stipulates that it is the intent of the Legislature to improve laws governing drinking water quality to improve upon the minimum requirements of the federal Safe Drinking Water Act Amendments of 1986, to establish primary drinking water standards that are at least as stringent as those established under the federal Safe Drinking Water Act, and to establish a program under this chapter that is more protective of public health than the minimum federal requirements.

In order to provide for the orderly and efficient delivery of safe drinking water the State Department of Health Services collect information on the quality of public drinking water wells under the California Drinking Program.

Below, the latest and maximum analysis of contaminants are reported (only positive reading are included). MCL is the Maximum Contaminant Level or enforceable drinking water standard. RPHL is the Recommended Public Health Level. Additional information is available from BBL upon request.

This list has been researched within 1 mile radius of the subject site.

Owner: EAST VALLEY WD/
Well: WELL 142
WellNo: 01S/03W-01H01 S
Map Loc: 3 - within 3/4 - 1 mile NW of the subject
Status: AR - Active Raw (sampled before treatment)

Owner: Inland Valley Development Agen
Well: WELL 05
WellNo: 01S/03W-12J02 S
Map Loc: 4 - within 3/4 - 1 mile SW of the subject
Status: AR - Active Raw (sampled before treatment)

WATER QUALITY:

	units	latest		maximum		MCL/RPHL
SOURCE TEMPERATURE C	C	20	0/0/80	20.6	6/23/94	
ODOR THRESHOLD @ 60 C	TON	1	7/16/97	1	6/23/94	3/-
SPECIFIC CONDUCTANCE	US	263	0/0/80	250	8/24/89	2200/-
PH, FIELD		7.8	7/16/97	8	6/23/94	
PH, LABORATORY		8	0/0/80	7.89	8/24/89	
ALKALINITY (TOTAL) AS CACO3	MG/L	104	0/0/80	101	8/24/89	
BICARBONATE ALKALINITY	MG/L	127	0/0/80	123	8/24/89	
HARDNESS (TOTAL) AS CACO3	MG/L	106	7/18/1	63.5	8/24/89	
CALCIUM	MG/L	22	0/0/80	9.5	8/24/89	
MAGNESIUM	MG/L	2	0/0/80	9.7	8/24/89	
SODIUM	MG/L	22.7	7/18/1	36	8/24/89	
POTASSIUM	MG/L	3	0/0/80	2.9	8/24/89	
CHLORIDE	MG/L	5.6	7/18/1	5.3	8/24/89	600/-
SULFATE	MG/L	16.5	7/18/1	17	8/24/89	600/-
FLUORIDE (TEMPERATURE DEPENDENT)	MG/L	1	0/0/80	.5	8/24/89	1.7/-
ARSENIC	UG/L	3.44	1/3/1	4	0/0/80	50/-
BORON	UG/L	130	7/11/96	.3	6/18/91	
CHROMIUM, HEXAVALENT	UG/L	3.2	0/0/80	3.2	0/0/80	
IRON	UG/L	1548	6/12/92	1548	6/12/92	300/-
ALUMINUM	UG/L	63	6/14/93	63	6/14/93	1000/-
GROSS ALPHA	PCI/L	1.26	10/3/1	5	4/28/97	15/-
GROSS ALPHA COUNTING ERROR	PCI/L	.53	10/3/1	1	4/28/97	
DIBROMOCHLOROMETHANE (THM)	UG/L	1.2	9/1/87	1.2	9/1/87	100/-
CHLOROFORM (THM)	UG/L	.9	12/5/88	.9	9/1/87	100/-
DICHLOROMETHANE	UG/L	3.6	7/6/87	1.4	11/4/86	5/-
TETRACHLOROETHYLENE	UG/L	1.1	4/2/91	1.4	6/4/87	5/-
1,1,1-TRICHLOROETHANE	UG/L	.7	6/10/88	2.4	8/3/87	200/-
NAPHTHALENE	UG/L	.7	4/3/89	.7	4/3/89	
DIBROMOCHLOROPROPANE (DBCP)	UG/L	.12	1/24/90	.12	1/24/90	.2/-
HEPTACHLOR	UG/L	.013	11/20/89	.013	11/20/89	
TOTAL DISSOLVED SOLIDS	MG/L	192	7/18/1	176	8/24/89	1500/-
LANGELIER INDEX @ 60 C		1	0/0/80	.6	6/23/94	
LANGELIER INDEX AT SOURCE TEMP.		.3	7/16/97	.1	6/23/94	
NITRATE (AS NO3)	MG/L	5.5	7/18/1	2	8/24/89	45/-
ETHYLENE DIBROMIDE (EDB)	UG/L	.02	1/24/90	.02	1/24/90	.1/-
TURBIDITY, LABORATORY	NTU	.1	7/16/97	.1	6/23/94	5/-
RADON 222 COUNTING ERROR	PCI/L	26	0/0/80	26	0/0/80	
RADON 222	PCI/L	388	0/0/80	388	0/0/80	
AGGRSSIVE INDEX (CORROSIVITY)		12	0/0/80	11.7	6/23/94	

NITRATE + NITRITE (AS N)	UG/L	1374	7/16/97	501	7/20/95

Owner: EAST VALLEY WD/
Well: PLANT 125
WellNo: 01S/02W-07F01 S
Map Loc: 2 - within 1/4 - 1/2 mile SW of the subject
Status: AR - Active Raw (sampled before treatment)

WATER QUALITY:

	units	latest		maximum		MCL/RPHL
SOURCE TEMPERATURE C	C	15.1	7/25/1	14.4	6/23/89	
COLOR	UNITS	10	6/8/92	10	6/8/92	15/-
ODOR THRESHOLD @ 60 C	TON	1	0/0/80	1	6/8/92	3/-
SPECIFIC CONDUCTANCE	US	260	7/12/1	250	8/21/84	2200/-
PH, FIELD		7.2	7/25/1	7.69	6/23/89	
PH, LABORATORY		7.3	7/12/1	7.2	8/21/84	
ALKALINITY (TOTAL) AS CACO3	MG/L	130	7/12/1	95	8/21/84	
BICARBONATE ALKALINITY	MG/L	160	7/12/1	108.3	9/16/88	
PHOSPHATE	UG/L	.11	0/0/80	.11	0/0/80	
HARDNESS (TOTAL) AS CACO3	MG/L	120	7/12/1	93	8/21/84	
CALCIUM	MG/L	30	7/12/1	27	8/21/84	
MAGNESIUM	MG/L	9.5	7/12/1	6	8/21/84	
SODIUM	MG/L	22	7/12/1	16	8/21/84	
POTASSIUM	MG/L	1.9	7/12/1	2	8/21/84	
CHLORIDE	MG/L	8.3	7/12/1	9	8/21/84	600/-
SULFATE	MG/L	21	7/12/1	16	8/21/84	600/-
FLUORIDE (TEMPERATURE DEPENDENT	MG/L	.17	7/12/1	.5	8/21/84	1.7/-
IRON	UG/L	220	11/26/84	220	11/26/84	300/-
ALUMINUM	UG/L	205	6/8/92	205	6/8/92	1000/-
GROSS ALPHA	PCI/L	9.4	10/16/1	4.1	10/3/86	15/-
GROSS ALPHA COUNTING ERROR	PCI/L	1.4	10/16/1	.2	10/3/86	
RADIUM 226	PCI/L	.072	10/16/1	.072	0/0/80	3/-
RADIUM 226 COUNTING ERROR	PCI/L	.044	10/16/1	.18	0/0/80	
RADIUM 228 COUNTING ERROR	PCI/L	.45	10/16/1	.53	0/0/80	
COMBINED RA 226 + RA 228 COUNTING ERROR	PCI/L	.494	10/16/1	.71	0/0/80	
URANIUM (PCI/L)	PCI/L	5	12/17/99	8.7	7/16/99	20/-
DIBROMOCHLOROPROPANE (DBCP)	UG/L	.01	12/12/90	.03	5/12/89	.2/-
TOTAL DISSOLVED SOLIDS	MG/L	170	7/12/1	141.1	9/16/88	1500/-
LANGELIER INDEX @ 60 C		.21	0/0/80	.37	6/23/89	
LANGELIER INDEX AT SOURCE TEMP.		.63	0/0/80	.45	6/23/89	
NITRATE (AS NO3)	MG/L	3.9	7/12/1	4	8/21/84	45/-
TURBIDITY, LABORATORY	NTU	.1	0/0/80	4.7	6/8/92	5/-
AGGRSSIVE INDEX (CORROSIVITY)		11.4	0/0/80	11.6	6/23/89	
URANIUM COUNTING ERROR	PCI/L	1.4	12/17/99	1.3	7/16/99	
NITRATE + NITRITE (AS N)	UG/L	880	7/12/1	836	0/0/80	

REGIONAL SOURCES

NT Toxic Releases

The California Regional Water Quality Control Boards or local Department of Health Services keeps track of toxic releases to the environment. These lists are known as Unauthorized Releases, Spill, Leaks, Investigations and Cleanups (SLIC), Non-Tank Releases, Toxics List or similar, depending on the local agency.

No listings within 1 mile radius of the subject site.

TPC Toxic Pits

The Toxic Pits Clean-Up Act (Katz Bill) places strict limitations on the discharge of liquid hazardous wastes into surface impoundment, toxic ponds, pits and lagoons. Regional Water Quality Control Boards are required to inspect all surface impoundment annually, in addition, every facility was required to file a Hydrogeological Assessment Report. Recent legislation allows the Department of Health Services to exempt facilities that closed on or before December 31, 1985, if a showing is made that no significant environmental risk remains (AB1046).

Special exemption provisions have been created for surface impoundment that receive mining wastes.

No listings within 1 mile radius of the subject site.

SWAT(R) Solid Waste Assessment Test - Regional

This program, provided for under the Calderon legislation (Section 13273 of the Water Code), requires that disposal sites with more than 50,000 cubic yards of waste provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment.

Site operators are required to file Solid Waste Assessment Test reports on a staggered basis. Operators of the 150 highest ranking (Rank 1) sites were required to submit Solid Waste Assessment Tests by July 1, 1987, Rank 2 in 1988 and so on.

Operators submit water quality tests to the Regional Water Quality Control Board, describing surface and groundwater quality and supply; and the geology within 1 mile of the site. Air quality tests are submitted to the local Air Quality Management District or Air Pollution Control District.

This program is currently not funded and thus not updated.

Status Codes: Facilities or sites are ranked within each region on a scale 1-15 according to priority.

No listings within 1 mile radius of the subject site.

OPERATING PERMITS

Various agencies issue operating permits or regulate the handling, movements, storage and disposal of hazardous materials and require mandatory reporting. The inclusion in this section does not imply that an environmental problem exists presently or has in the past.

RCRA-G Resource Conservation and Recovery Information System - Generators

The Environmental Protection Agency regulates generators of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste generators are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form. The notification form provides basic identification information and specific waste activities.

Status Codes: L - Generators who generate at least 1000 kg/mo of non-acutely hazardous waste (or 1 kg/mo of acutely hazardous waste).
S - Generators who generate 100 kg/mo but less than 1000 kg/mo of non-acutely hazardous waste.
T - Transporter.

No listings within half of a mile radius of the subject site.

SARA SARA Title III,section 313 (TRIS)

Title III of the Superfund Amendments and Reauthorization Act,Section 313, also known as Emergency Planning and Community Right-to-Know Act of 1986 requires owners or operators of facilities with more than 10 employees and are listed under Standard Industrial Classification(SIC) Codes 20 through 39 to report the manufacturing, processing or use of more than a threshold of certain chemical or chemical categories listed under section 313. This data base is also known as Toxic Release Information System (TRIS).

Below summary information for the last five year period is reported grouping the releases into air, water, underground injection, land, public offsite treatment (potw) and transportation offsite.

No listings within half of a mile radius of the subject site.

NC Nuclear Regulatory Commission Licensees

The Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards has been mandated (10 CFR Ch 1.42) to protect the public health and safety, the common defense and security, and the environment by licensing, inspection, and environmental impact assessment for all nuclear facilities and activities, and for the import and export of special nuclear material.

No listings within half of a mile radius of the subject site.

PCB PCB Waste Handlers Database

The U.S. Environmental Protection Agency tracks generators, transporters, commercial stores and/or brokers and disposers of PCB's in accordance with the Toxic Substance Control Act.

No listings within half of a mile radius of the subject site.

PCS Permit Compliance System

PCS is a database which contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS was developed by The U.S. Environmental Protection Agency to meet the information needs of the NPDES program under the Clean Water Act. PCS tracks permit, compliance, and enforcement states of NPDES facilities.

No listings within half of a mile radius of the subject site.

AFS AIRS Facility System

AFS contains emissions and compliance data on air pollution point sources tracked by the U.S. EPA and state and local environmental regulatory agencies. There are seven "criteria pollutants" for which data must be reported to EPA and stored in AIRS: PM10 (particulate matters less than 10 microns in size), carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, reactive volatile organic compounds (VOC), and ozone.

AFS replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aeromatic Data (SAROAD).

No listings within half of a mile radius of the subject site.

PE Section Seven Tracking System (SSTS)

SSTS evolved from the FIFRA and TSCA Enforcement System (FATES). SSTS tracks the registration of all pesticide producing establishments and tracks annually the types and amounts of pesticides, active ingredients, and devices that are produced, sold or distributed each year.

No listings within half of a mile radius of the subject site.

FIFRA FIFRA/TSCA Tracking System/ National Compliance Database (FTTS/NCDB)

NCDB supports implementation of the Federal Insecticide, Fungicide and Rodenticide Control Act (FIFRA) and the Toxic Substance Control Act (TSCA).

No listings within half of a mile radius of the subject site.

FFIS Federal Facilities Information System (FFIS)

Federal Facilities Information System (FFIS) contains a list of all Treatment Storage and Disposal Facilities (TSDs) owned and operated by federal agencies.

No listings within half of a mile radius of the subject site.

CICIS Chemicals in Commerce Information System (CICIS)

Chemicals in Commerce Information System contains an inventory of chemicals manufactured in commerce or imported for Toxic Substances Control Act regulated commercial purposes. CICIS allows EPA to maintain a comprehensive listing of over 70,000 chemical substances that are manufactured or imported and are regulated under TSCA.

No listings within half of a mile radius of the subject site.

FINDS FINDS EPA Facility Index System

The U.S. Environmental Protection Agency maintains an index system of all facilities which are regulated or have been assigned an identification number for other purposes.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

No listings within half of a mile radius of the subject site.

HWIS Hazardous Waste Information System

The Department of Toxic Substance Control, California Environmental Protection Agency, maintains a a data base keeping track of the movement and disposal of hazardous waste. The data is used to support the Tanner legislation, AB 2948.

Status Codes: EPA Facility Permit Number

No listings within half of a mile radius of the subject site.

UST Permitted Underground Storage Tanks - State Water Quality Control Board

The Corteses Bill (AB2013), enacted in 1983, required registration of all underground storage tanks (UST) with the State Water Quality Control Board by July 1, 1984. About 176,000 tanks and surface impounds were registered between 1984 and 1987. An amendment (AB 1413) was passed in 1987, effectively removing the State Board from the registration process starting January 1, 1988. The data reflects the information collected by the state between 1984 and 1987 as well as recent time and includes all tanks and surface impounds in use or closed after 1974.

Home and farm heating fuel tanks with capacities of 1,100 gallons or less and "structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons" except those defined as UST under HSWA or may be regulated to protect water quality under the Porter-Cologne Water Quality Control Act are excluded.

No listings within half of a mile radius of the subject site.

APPENDIX 6d

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

PHASE I ENVIRONMENTAL SITE ASSESSMENT UPDATE AND LIMITED SITE CHARACTERIZATION CALVARY PROPERTY 30976 GREENSPOT ROAD APN 0297-021-26 HIGHLAND, CALIFORNIA

OCTOBER 15, 2013
PROJECT NO. 33007.2

Prepared For:

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, California 91730

Attention: Mr. Camile Bahri

6121 Quail Valley Court ▲ Riverside, CA 92507 ▲ (951) 653-1760 ▲ (951) 653-1741 (Fax) ▲ www.lorgeo.com
19-438 Ruppert Street ▲ P.O. Box 580799 ▲ N. Palm Springs, CA 92258 ▲ (760) 329-2727 ▲ (760) 329-2626 (Fax)

LOR GEOTECHNICAL GROUP, INC.
Soil Engineering ▲ Geology ▲ Environmental

October 13, 2013

Sunland Communities
10575 Oakdale Drive
Rancho Cucamonga, California 91730

Project No.: 33007.2

Attention: Mr. Camile Bahri

Subject: Phase I Environmental Site Assessment Update, and Limited Site Characterization, Calvary Property, 30976 Greenspot Road, APN 0297-021-26 Highland, California

Attached herewith is the Phase I Environmental Site Assessment Update and Limited Site Characterization report for the Calvary Property, 30976 Greenspot Road, APN 0297-021-26, Highland, California.

This Phase I Environmental Site Assessment Update and Limited Site Characterization was planned and executed based upon a scope of services generally outlined in our proposal dated July 3, 2013.

We appreciate the opportunity to provide this environmental assessment for the subject property. If you have any questions or comments regarding this evaluation, please do not hesitate to contact this firm at your convenience.

LOR Geotechnical Group, Inc.

6121 Quail Valley Court ▲ Riverside, CA 92507 ▲ (951) 653-1760 ▲ (951) 653-1741 (Fax) ▲ www.lorgeo.com
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INTRODUCTION

During September of 2013, a Phase I Environmental Site Assessment (ESA) Update and Limited Site Characterization (LSC) was performed by this firm for 30976 Greenspot Road, Assessor's Parcel Number (APN) 0297-021-26 approximately 59 acres of agricultural (citrus grove) land, located in the East Highlands area of the City of Highland, California.

This Phase I ESA Update was conducted for Sunland Communities and their affiliates, in general accordance with the Standard Practice for Environmental Site Assessments, American Society for Testing and Materials (ASTM) E 1527-05 and All Appropriate Inquiries (AAI) set forth in 40 CFR (Code of Federal Regulations) Part 312. This Phase I ESA Update was based upon the previously conducted Report on Phase I Environmental Assessment, dated March 11, 2004, prepared by Ralph Stone and Company, Inc., for the subject site. This Phase I ESA Update will use information contained in this previously prepared report for the site.

The subject site is approximately 59 acres, of which approximately 43 acres is steep hillside and undeveloped. The remaining approximate 16 acres was citrus grove and residentially developed. When the property was purchased by Calvary Chapel of San Bernardino in 2004 the existing residences and small structures were demolished and some grading and other site improvements were made. Structures that still remain are a metal storage building, and irrigation related structures.

The subject site has had agricultural (citrus grove) use prior to 1938, the earliest aerial photographs reviewed. Due to this extended agricultural history, we performed a Limited Site Characterization which involved sampling of the near surface soils for organochlorine pesticides (OCPs) and arsenic. Organochlorine pesticides, such as DDT (dichlorodiphenyltrichloroethane), were historically used for pest control on agricultural properties. Arsenic was used in both fertilizers and pesticides. In addition, two surficial soil samples were obtained from the area of the demolition of the old residence and sheds for analyses of residual asbestos and lead from the demolition activities.

The location of the site, within its regional settings, is presented on the enclosed Index Map, Enclosure A-1, within Appendix A.

SCOPE OF WORK

The purpose of this Phase I ESA Update is to document environmental issues for the time period from the previous Phase I ESA report (2004) to the present. To meet this objective, LOR Geotechnical Group, Inc. (LOR) performed the following scope of work:

- Conducted a site reconnaissance, interviewed a representative of the current site owners, and reviewed the Phase I ESA report previously prepared for the site and regulatory agency records and databases to identify and evaluate potential sources of hazardous and/or toxic materials on or adjacent to the subject site.

- Conducted a limited site characterization to determine if persistent pesticides from past agricultural use were present, and if asbestos or lead based paint was present in the area of the demolished residence and outbuildings.

- Preparation of this report, outlining our methodology and procedures in conducting this update, and providing conclusions and recommendations based on our findings.

The Phase I scope of work was conducted in general conformance with ASTM E 1527-05 and AAI set forth in 40 CFR Part 312. LOR assessed whether the use of the subject site during the period from 2004 to the present has created any recognized environmental conditions in connection with the property. Recognized environmental conditions (RECs) means the presence or likely presence of any hazardous substance or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground, or surface of the property. RECs do not include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of any enforcement action if brought to the attention of appropriate governmental agencies.

NON-SCOPE CONSIDERATIONS

The following environmental issues are outside the scope of ASTM E 1527-05 and 40 CFR Part 312, and may not have been addressed in this report:

- Lead in Drinking
- Lead-Based Paint
- Wetlands
- Methane
- Radon
- Cultural Land Historical Resources
- Industrial Hygiene
- Health and Safety
- Ecological Resources
- Endangered Species
- Indoor Air Quality
- Mold and Mildew
- Mineral Resources
- Regulatory Compliance
- Natural Hazards
- High Voltage Power Lines
- Vapor Intrusion Assessment

USER PROVIDED INFORMATION

Under ASTM E 1527-05 and AAI, specific tasks are assigned to the User that will help identify the possibility of RECs in connection with the property. These tasks do not require the technical expertise of an environmental professional and are generally not performed by environmental professionals performing a Phase I ESA. The User may provide the information gathered from these tasks, including the following:

- Review title and judicial records for environmental cleanup liens or activity and use limitations (AULs);

- Specialized knowledge or experience (that is material to RECs in connection with the property) of the User;

- Actual knowledge (of environmental cleanup liens or AULs) of the User;

- Reason for significantly lower purchase price;
- Commonly known or reasonably ascertainable information (that is material to RECs in connection with the property); and
- Other information, including the purpose for performing the Phase I ESA.

The information provided by the User with regard to the above list, was the purpose for performing the Phase I ESA Update, which was to evaluate the subject site for RECs, prior to executing a purchase agreement, by the User (client), for the site.

REVIEW OF PREVIOUS ENVIRONMENTAL REPORTS

The following Phase 1 ESA report was previously prepared for the subject site, and was used as the basis for this update:

Ralph Stone and Company, Inc.

Report of Phase I Environmental Assessment of Property located at 30976 Greenspot Road, Highland, California, File No. 5536p1, Dated March 11, 2004

The Phase I ESA documented the site history through a review of available historical aerial photographs, building records, and an interview with the current owners of the property. A review of this data indicated that the area of the subject site that was not steep hillside (approximately 16 acres) was citrus grove prior to 1938. The initial residential use of the property was by 1955, with the construction of a residence. Additional structures were constructed over the years including tank, sheds and a new residence in 1978.

At the time of the Phase I report by Ralph Stone, the citrus operations at the site had ceased. Structures at the site included the newer 2-story residence, abandoned residence, small sheds, large metal shed, well, tank and irrigation structures, On-site septic systems were present.

Trash and debris, suitable for disposal in a Class III landfill, and numerous tires were noted on portions of the site. Within the metal shed were containers of paint thinner, paint, degreaser, and roundup. A few areas of oil-stained soil were observed, but were

minor in extent.

The Phase I report by Ralph Stone concluded that current pesticides used at the site were biodegradable and not an issue. Prior pesticide use that may have been more persistent in the environment would have been used over 15 years ago which is sufficient time for them to biodegrade to undetectable levels. No underground structures, such as tanks, sumps, or clarifiers were or are present on the site. They recommended that when the smudge pots are removed, the area should be examined and any significant areas of stained soil be removed at that time. An asbestos survey should be conducted in concert with the demolition of the older residence and sheds on the site. The well on-site, if it is to be used for domestic supply, should be tested for compliance with current regulatory standards.

In general the Phase I report concluded the subject site exhibited no evidence of recognized environmental conditions, and no further tests or investigations were recommended. It should be noted that the well identified by Ralph Stone is not a well but irrigation related structures. There are no wells on the subject site.

SITE HISTORY (2004 TO PRESENT)

To update the history of the subject site, since September of 2004, we conducted a aerial photograph review of electronic aerial photographs of the site taken in 2005 and 2006, provided by Environmental Data Resources, Inc. (EDR), conducted a site reconnaissance and interviewed the current property owner, Mr. Lee Coe, Senior Pastor at Calvary Chapel of San Bernardino.

Aerial Photograph Review

The EDR aerial photographs from 2005, 2006, 2009, 2010, and 2012, at a scale of 1" = 500', were reviewed. The 2005 aerial photograph showed the site with the 2-story residence, metal storage building, tank, and mobile home are visible. The site is cleared of citrus trees. The surrounding land use is the same as it is today. On the 2006 aerial photograph there is no change as to the site structures, but some grading/clearing activity has commenced. The 2009 aerial photograph shows the residence has been removed and the site has had substantial grading. There is a large stockpile of rock in the northwest portion of the property. The block wall is present on the west side of the graded pad, and the mobile home has been moved to the west

of its previous location. There grading equipment is still present. The surrounding land use is unchanged. In the 2010 aerial photograph it appears that all the grading is completed, and the site is similar to today except for the lack of vegetation in the cleared/graded areas. The 2012 aerial photograph shows some vehicles, and trailers present in the area east of the graded pad, otherwise the site is relatively unchanged. No significant changes to the adjacent land use were noted.

A copy of the aerial photographs from EDR, with the approximate site boundary outlined, is provided within Appendix B.

Property Owner Interview

Mr. Lee Coe, the Senior Pastor at Calvary Chapel of San Bernardino was interviewed via telephone to obtain the history of the subject site since the took ownership in 2004.Mr. Coe was the lead on the project for Calvary Chapel during their purchase and the subsequent improvements at the subject site. He indicated that when they purchased the property most of the citrus trees were dead and many had been removed during the fires in the area in 2003. The dead and remaining trees, as well as the residences and other structures were removed by Calvary Chapel. The removal of the residences generated asbestos waste which was removed and properly disposed of during the demolition process. There was also the removal of oil stained soils from the site from the previous owner's housekeeping practices and in the area of some smudge pots. All this soil was properly disposed of. The clearing of the site and subsequent grading of the building pad in the southwest portion of the site was all conducted by the church. The masonry wall was constructed after the pad grading. The North Fork Ditch which was open through the site was placed in a 39-inch concrete pipe, and a distribution box was also constructed. Mr. Coe was unaware of any adverse environmental conditions associated with the subject site.

Site Reconnaissance

A site reconnaissance was conducted on August 22, 2013 by Mr. M. Kevin Osmun of this firm. An Assessor's Parcel Map and recent color aerial photograph were used to orient our site reconnaissance. The Assessor's Parcel Map, and color aerial photograph are presented on Enclosure A-2 and A-3 Respectfully, within Appendix A.

The subject site is irregular in shape, comprised of Assessor's Parcels, 0297-021-26, located on the north side of Greenspot, and Santa Ana Canyon Roads in the East Highlands area of the City of Highland San Bernardino County, California. The subject site is approximately 59 acres in size. The majority of the site, approximately 43 acres is steep hillside with the only access being the Alder Creek Road (dirt) which meanders through it. The southern approximate 16 acres of the site was previously developed residentially and with a citrus grove. This portion of the site is relatively flat with an overall slope to the south. The former structures are now demolished, except for a metal storage shed, and irrigation related structures (tank, standpipe, pipe, distribution boxes) and the citrus trees have been removed. The removal of the former structures and citrus trees occurred in the mid 2000s when the site was purchased by Calvary Chapel of San Bernardino for a new church site. Grading by Calvary Chapel include the construction of a building pad and masonry wall in the southwest portion of the site. Other improvements conducted at that time were the installation of a large diameter pipe to reroute the North Fork Ditch and the clearing and stockpiling of the large boulders that were prevalent at the site.

Currently at the site is a backhoe and truck trailer by the metal shed. It appears that some of the large rock, is being sold at the site. No other significant features were noted at the site.

There are power poles running along the south property line adjacent to Greenspot Road with no transformers present.

No significant areas of stained soil, unusual odors, or distressed vegetation were noted.

Adjacent Properties

The subject site is bordered to the north by rugged and steep hillside, to the southwest is a relatively new residential subdivision, to the southeast is rural residential property and to the south, across Greenspot Road, is vacant land.

Observations of the adjacent properties did not reveal any aboveground sources of potential contamination which might adversely affect the site.

Color photographs of the site and adjacent properties are presented within Appendix A.

REGULATORY AGENCY RECORDS REVIEW

For records relating to environmental compliance and hazardous materials/waste within the County of San Bernardino, the County of San Bernardino, Fire Department, Hazardous Materials Division (SBCFD-HMD), generally acts as the lead agency. The Regional Quality Control Board (RWQCB), Santa Ana Region or SBCFD-HMD may act as the lead agency for soil or ground contamination investigations and remediation. According to the Phase I report by Ralph Stone the SBCFD-HMD was contacted for records in 2004, and no records for the subject site were found. We contacted the SBCFD-HMD on August 29, 201, to see if they had any records on file for the site address of 30976 Greenspot Road. At the time of this report we have not had a response to our request for records. However, based on the work that was conducted from 2004 until the present we do not expect any records will be found. If records are found for the subject site they will be evaluated by this firm and forwarded under separate cover.

ENVIRONMENTAL DATABASE REVIEW

LOR Geotechnical Group, Inc., contracted with EDR to provide an environmental database search for the subject site. The database search provides information regarding landfills, USTs, hazardous waste generators, etc., on the site and surrounding properties in accordance with ASTM Standards and AAI. A copy of the EDR database report, which provides a complete list of the federal, state, tribal, and proprietary records searched is provided within Appendix C.

The subject site was listed on two of the databases in EDR's search of available government records. A summary of the records searched, the respective search radius, and results are tabulated below:

Database	Search Distance (miles)	Results
STANDARD ENVIRONMENTAL RECORDS		
NPL	1.0	None

Database	Search Distance (miles)	Results
Proposed NPL	1.0	None
NPL Liens	Site	None
Delisted NPL	1.0	None
CERCLIS	0.5	None
FEDERAL FACILITY	1.0	None
CERC-NFRAP	0.5	None
CORRACTS	1.0	None
RCRA TSDF	0.5	None
RCRA LQG	0.25	None
RCRA SQG	0.25	None
RCRA CESQG	0.25	None
US ENG CONTROL	0.5	None
US INST CONTROL	0.5	None
ERNS	Site	None
RESPONSE	1.0	None
ENVIROSTOR	1.0	None
SWF/LF	0.5	None
LUST	0.5	None
SLIC	0.5	None
INDIAN LUST	0.5	None
UST	0.25	None
AST	0.25	None
INDIAN UST	0.25	None
FEMA UST	0.25	None
VCP	0.5	None
INDIAN VCP	0.5	None
ADDITIONAL ENVIRONMENTAL RECORDS		
US BROWNFIELDS	0.5	None
DEBRIS REGION 9	0.5	None
ODI	0.5	None
WMUDS/SWAT	0.5	None

Database	Search Distance (miles)	Results
SWRCY	0.5	None
HAULERS	Site	None
INDIAN ODI	0.5	None
US CDL	Site	None
Hist Cal-Sites	1.0	None
SCH	0.25	None
Toxic Pits	1.0	None
CDL	Site	None
US HIST CDL	Site	None
CA FID UST	0.25	None
HIST UST	0.25	None
SWEEPS UST	0.25	None
LIENS 2	Site	None
LIENS	Site	None
DEED	0.5	None
HMIRS	Site	None
CHMRS	Site	None
LDS	Site	None
MCS	Site	None
Spills 90	Site	None
RCRA-NonGen/NLP	0.25	None
DOT OPS	Site	None
DOD	1.0	None
FUDS	1.0	None
CONSENT	1.0	None
ROD	1.0	None
UMTRA	0.5	None
MINES	0.25	None
TRIS	Site	None
TSCA	Site	None
FTTS	Site	None
HIST FTTS	Site	None

Database	Search Distance (miles)	Results
SSTS	Site	None
ICIS	Site	None
PADS	Site	None
MLTS	Site	None
RADINFO	Site	None
FINDS	Site	None
RAATS	Site	None
RMP	Site	None
CA Bond Exp. Plan	1.0	None
UICS	Site	None
NPDES	Site	Site, See Below
Cortese	0.5	None
HIST CORTESE	0.5	None
Notify 65	1.0	None
DRYCLEANERS	0.25	None
WIP	0.25	None
ENF	Site	None
San Bernardino County Permit	0.25	None
HAZNET	Site	Site, See Below
EMI	Site	None
INDIAN RESERV	1.0	None
SCRD DRYCLEANERS	0.5	None
MWMP	0.25	None
COAL ASH DOE	Site	None
COAL ASH EPA	0.5	None
HWT	0.25	None
HWP	1.0	None
Financial Assurance	Site	None
Lead Smelters	Site	None
2020 Corr. Action	0.25	None
US Airs	Site	None

Database	Search Distance (miles)	Results
PRP	Site	None
WDS	Site	None
EPA Watchlist	Site	None
US Financial Assurance	Site	None
PCB TRANSFORMER	Site	None
PROC	0.5	None
EDR PROPRIETARY RECORDS		
Manufactured Gas Plants	1.0	None
EDR Historical Auto Stations	0.25	None
EDR Historical Cleaners	0.25	None

The subject site was listed on the National Pollution Discharge Elimination System Database (NPDES) for the permitted grading conducted at the site. The NPDES construction permit went into effect in September of 2008 and was terminated in March, 2013.

The subject was also listed twice on the Facility and Manifest Data database. The Facility and Manifest Data (HAZNET) is extracted from the hazardous waste manifests received each year by the Cal EPA, Department of Toxic Substance Control. The subject site was listed for the disposal of 15.17 tons of "contaminated soil from site cleanup" in 2008. According to Mr. Lee Coe they removed petroleum hydrocarbon contaminated soil from areas of smudge pot storage and areas of poor housekeeping by the former owner. These hydrocarbon impacted soils were removed from the site manifested and properly disposed of. The subject site was also listed on the HAZNET database for the disposal of asbestos containing material, also in 2008, generated during the demolition of a former residence and sheds on the subject site.

No adverse environmental impact to the subject site is anticipated from these HAZNET listings, due to the proper manifesting and disposal of these materials.

Orphan Summary

The Orphan Summary which is a list of all sites whose location is not readily identified

(mapped), and may be near the subject site, was reviewed. The subject site and adjoining properties are not listed in the Orphan Summary.

ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS

Under AAI and ASTM E 1527-05, a search for environmental cleanup liens and AULs must be conducted, typically by the User. The subject site, whose researched historical use has been agricultural and residential use, did not appear in the state and/or federal liens, deed, or activity/use limitation databases in the EDR Radius Map™ Report with GeoCheck® and no records are know to be on file with the SBCFD-HMD suggesting there are no environmental cleanup liens or AULs are associated with the subject site.

DATA GAPS

Under All Appropriate Inquires, data gaps that remain after the conduct of all required activities must be identified. The source of information consulted to address the data gaps should be identified, and the significance of the data gaps with respect to our ability to identify conditions indicative of releases or threatened release of hazardous substances on, at, in, or to the property should be addressed.

There are no significant data gaps remaining after our conduct of the All Appropriate Inquiries.

LIMITED SITE CHARACTERIZATION

The subject site has had agricultural (citrus grove) use, on a portion of the site, prior to 1938, the earliest aerial photographs reviewed. Due to this agricultural history, we performed a Limited Site Characterization which involved sampling of the near surface soils for organochlorine pesticides and arsenic. Organochlorine pesticides, such as DDT (dichlorodiphenyltrichloroethane), were historically used for pest control on agricultural properties. These types of pesticides can be highly persistent in the environment. Arsenic has also been historically used in pesticides and fertilizers.

Our initial sampling was conducted on the relatively undisturbed grove portion of the site (2 samples), the graded portion of the site (2 samples), and at the metal storage

shed (1 sample). The five soil samples were obtained using a hand trowel to obtain samples at depths of 6 to 12 inches deep. In addition, two surficial soil samples were obtained from the area of the demolition of the old residence and sheds for analyses of residual asbestos and lead from the demolition activities. The locations of the samples collected are presented on the enclosed Soil Sample Location Map, on a color site aerial photograph, Enclosure D-1, within Appendix D.

Soil Sampling Methodology and Procedures

The field sampling equipment consisted of clean, laboratory-supplied glass jars. The samples were obtained by collecting soil directly into the jars. The soil was examined for signs of staining, discoloration, or odors. None of the samples exhibited any noticeable staining, discoloration, or odors. The glass jars were sealed with a Teflon-lined cap for transport to the laboratory. Chain-of-Custody (CoC) documentation was maintained and accompanied the sample to the laboratory.

All field work was documented in the following manner. The sample labels were filled out with the sample number, location, and the date and time of sampling. Upon delivery of the samples to the laboratory for analysis, the CoC form was signed by authorized personnel and a copy was retained by a representative from this firm. The samples were analyzed by A and RI Laboratories, Inc. (A&R), a state-certified hazardous waste testing laboratory.

The quality assurance/quality control (QA/QC) program in effect during the performance of all field activities included the following items:

- Complete documentation of all field activities.
- Use of appropriate CoC forms.
- Use of clean sampling equipment.

Laboratory Analytical Results

Laboratory analysis was conducted on all four soil samples for organochlorine pesticides using EPA Method 8081A and for lead and arsenic using EPA Method 6010B. The results are summarized in the following table:

Sample No.	Sample Location	Pesticide (mg/kg)	Arsenic (mg/kg)	Asbestos	Lead (mg/kg)	Lead (mg/L
S-1-P	Northwest portion of former grove	0.026 DDD 0.114 DDE	ND	NA	7.6	NA
S-2-P	North-Center portion of former grove	0.011 DDE	2.05	NA	**95.0**	NA
S-3-P	Graded building pad	0.062 DDD 0.171 DDE	ND	NA	3.38	NA
S-4-P	Southeast portion of site	0.004 DDE	ND	NA	3.10	NA
S-5-P	Equipment entrance at the metal shed	0.006 DDE	ND	NA	5.72	NA
S-1-A/Pb	Old demolished residence and shed	NA	NA	ND	14.8	NA
S-2-A/Pb	Old demolished residence and shed	NA	NA	ND	**212**	13.1*

mg/kg - milligrams per kilogram (parts per million), mg/l - Milligrams per liter ND - none detected, NA - Not Analyzed
DDD - Dichlorodiphenyldichloroethane, DDE - dichlorodiphenyldichloroethylene
Bold = exceeds the residential CHHSLs of 80mg/kg
* Levels above 5 mg/l are California hazardous waste if removed offsite.

The results of this initial analysis indicate trace concentrations of organochlorine pesticides are present in the near surface soils at all of the five locations sampled. The trace concentrations of DDD, and DDE, typical metabolites of DDT, reported in the soil samples, indicates that DDT was used on the site a long time ago. The trace concentrations of DDD and DDE are well below the California Human Health Screening Levels (CHHSLs) for residential soils of 1.7 mg/kg..

The concentrations of arsenic, ranging from non-detect to 2.05 mg/kg, are consistent with expected background levels of arsenic in California soils (Bradford et al., 1996). These analytical results indicate no further testing for organochlorine pesticides or arsenic is deemed necessary.

There was no asbestos in the two samples taken in the area of the demolished older residence and sheds. The concentrations of lead in these soils were 14.8 and 212 mg/kg respectfully. The concentration of 14.8 is below the residential CHHSls and is of no concern. However the concentration of 212 mg/kg in sample S-2-A/Pb is above the residential CHHSLs of 80 mg/kg. To determine the solubility of the lead detected in sample S-2-A/Pb the CA WET or soluble threshold limit concentration was conducted. The results indicate the lead with a concentration of 212 mg/kg had a solubility of 13 mg/l and if the soil is moved offsite it must be disposed of as a hazardous waste.

Based on the level of lead found in sample S-2-A/Pb we had the laboratory run the total lead in the all five pesticide and arsenic samples (S-1-P through S-5-P). These results indicated that one of the former grove sample locations (S-2-P) had lead at 95 mg/kg, above the residential CHHSLs.

Based on these initial lead results additional sampling for lead in the soil was conducted in an area of former grove (by the former old residence and sheds) to determine the lead concentration in the upper 0-6 inches and then 6-12 inches below the ground surface. If the level of lead was below the residential CHHSL in the 0-6 inch sample then the deeper sample was not analyzed. The results are tabulated in the following table.

Sample No.	Depth	Lead (mg/kg)
Pb-5	0-6"	13.5
Pb-6	0-6"	**84.0**
Pb-6A	6-12"	**146.0**
Pb-7	0-6"	57.7
Pb-8	0-6"	13.3

Sample No.	Depth	Lead (mg/kg)
Pb-9	0-6"	48.5
Pb-10	0-6"	25.0
Pb-11	0-6"	**142.0**
Pb-11A	6-12"	37.4
Pb-12	0-6"	28.5

mg/kg - milligrams per kilogram (parts per million) NA - Not Analyzed
Bold = exceeds the residential CHHSLs

Three of the 10 soil sample locations had lead above the residential CHHSLs of 80 mg/kg. Based on the non-specific and diverse areas where lead above the residential CHHSLs was found, it may be that a lead based pesticide, such as lead arsenate was used at the site. Lead arsenate is a common insecticide which was used up until the late 1940s when DDT took its place. Or these could be from lead based paint used on the structures.

The concentrations of lead obtained in the surface soils at the site are below EPA Region 9, Risked Based Screening Levels (RSLs) for lead, which is 400 mg/kg for residential property. The EPA's RSLs are derived from equations combining exposure assumptions (dermal, inhalation, and ingestion) with lead toxicity values. The highest reported lead concentration(212 mg/kg) was in the area of the former old residences and may be elevated due to lead based paint residue. Concentrations of lead were also present in the graded areas of the site but at typical background levels.

The A&R laboratory analytical reports, including CoCs, for the soil sample analysis are provided within Appendix D.

CONCLUSIONS AND RECOMMENDATIONS

The subject site is approximately 59 acres, of which approximately 43 acres is steep hillside and undeveloped. The remaining approximate 16 acres was citrus grove and residentially developed. When the property was purchased by Calvary Chapel of San Bernardino in 2004 the existing residences and small structures were demolished and some grading and other site improvements were made. Structures that still remain are a shed and irrigation structure. A Phase I report by Ralph Stone, conducted for

Calvary Chapel of San Bernardino in 2004, concluded the subject site exhibited no evidence of recognized environmental conditions.

There are no listed environmentally impaired properties within a one mile radius of the subject site.

The Limited Site Characterization indicated there was no residual asbestos in the area of the older residential and shed demolition area. There were no residual pesticides or arsenic from past pesticide application on the grove portion of the site. However, lead was present sporadically across the former grove portion of the site with some concentrations above the residential CHHSLs. The variable lead concentrations in the upper soils in the former grove area are most likely the remnant of lead arsenate application to the grove. The levels of lead suggest that if the soil from the area of the former grove is to be exported it first should be tested to ensure it is not a California defined hazardous waste. If the soil is to remain onsite then testing to determine if it is a California waste is unnecessary as under the California Health and Safety Code pesticide impacted soil at agricultural properties if remnant from normal application processes is not considered a waste.

The lead present in the surface soils (12-inches) of the former grove, which in some areas is above the residential CHHSLs, is not identifiable in any way except through laboratory analysis and there is no clear pattern as to its location. We believe that grading of the site, with the anticipated removal and replacement of the approximate upper 10 feet of soil, will effectively redistribute the lead containing soil to levels that will be below residential CHHSLs, and/or place them at a depth where there is no pathway to any potential receptor. This procedure has been conducted on many former agricultural properties in California. The viability of this procedure is evident by the results obtained in the graded areas of the site, soil samples S-3-P and S-4-P which had 3.38, and 3.10 mg/kg of lead, respectfully. The area of S-3-P and S-4-P were graded for the church building pad and other site improvements a few years ago and incorporated some soils from the grove area in that grading.

If desired confirmation sampling can be conducted at the completion of grading to ensure the levels of lead at the building pad finish grade are below residential CHHSLs.

We have performed this Phase I ESA Update in general conformance with the Scope of Work required by ASTM E 1527-05, for the property addressed 30976 Greenspot Road, Highland, California. Based on the findings of this Phase I ESA Update, the subject property exhibits no evidence of recognized environmental conditions at the subject site.

STATEMENT OF QUALIFICATIONS

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

Mr. M. Kevin Osmun has over 25 years experience in the environmental field. Mr. Osmun directs LOR Geotechnical Group's environmental operations and has conducted over 500 Phase I Environmental Site Assessments for the private and public sectors. The properties have ranged from agricultural to commercial/industrial. In addition to his experience with environmental assessments for property transfers, he has managed projects that require mitigation prior to and during development. Mr. Osmun is well versed in hazardous waste sampling and characterization methodologies in soil and ground regimes and risk assessments. Projects have ranged from leaking USTs, solid waste landfills, TSD facility closures to single spill response. LOR Geotechnical Group, Inc. is one of three firms that provides report review for underground storage tank closure for the County of San Bernardino, Fire Department Hazardous Materials Division.

Mr. Osmun has a B.S. in geology from Wayne State University, Detroit, Michigan. He is a Registered Professional Civil Engineer in the State of California.

LIMITATIONS

This report was prepared solely for the use and benefit of LOR's client, Sunland Communities and their affiliates. They may release this information to third parties, who may use and rely upon this information at their discretion. However, any use of or reliance upon this information by a party other than Sunland Communities and their affiliates, shall be solely at the risk of such third party and without legal recourse against LOR Geotechnical Group, Inc.; its subsidiaries and affiliates; or their respective employees, officers, or directors; regardless of whether the action in which recovery of damages is sought is based upon contract, statute, or otherwise.

The content and conclusions provided by LOR in this assessment are based on information collected during our investigation, which may include, but is not limited to, visual site inspections, interviews with the site owner, regulatory agencies and other pertinent individuals, a review of available public documents, and our professional judgement based on said information at the time of preparation of this document. Any subsurface samples results and observations presented herein are considered to be representative of the area of investigation; however, soil conditions

may vary between sample locations and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which may vary from these findings, the newly-revealed conditions must be evaluated and may invalidate the conclusions of this report.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. LOR Geotechnical Group, Inc. (LOR) is not responsible for the accuracy of information provided by other individuals or entities which is used in this report. This report presents our professional judgement based upon data and findings identified in this report, and the interpretation of such data based upon our experience and background, and no warranty, either expressed or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

TIME LIMITATIONS

The findings of this report are valid as of this date. Changes in the condition of a property can, however, occur with the passage of time, whether they be due to natural processes or the work of man on this or adjacent properties. In addition, changes in the Standards-of-Practice and/or Governmental Codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by changes beyond our control. Therefore, this report should not be relied upon after a significant amount of time without a review by LOR Geotechnical Group, Inc., verifying the suitability of the conclusions and recommendations.

CLOSURE

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR Part 312.

We appreciate this opportunity to be of service and trust this report provides the information desired at this time. Should questions arise, please do not hesitate to contact this office.

Respectfully submitted,
LOR Geotechnical Group, Inc.

M. Kevin Osmun, CE 55116
Vice President

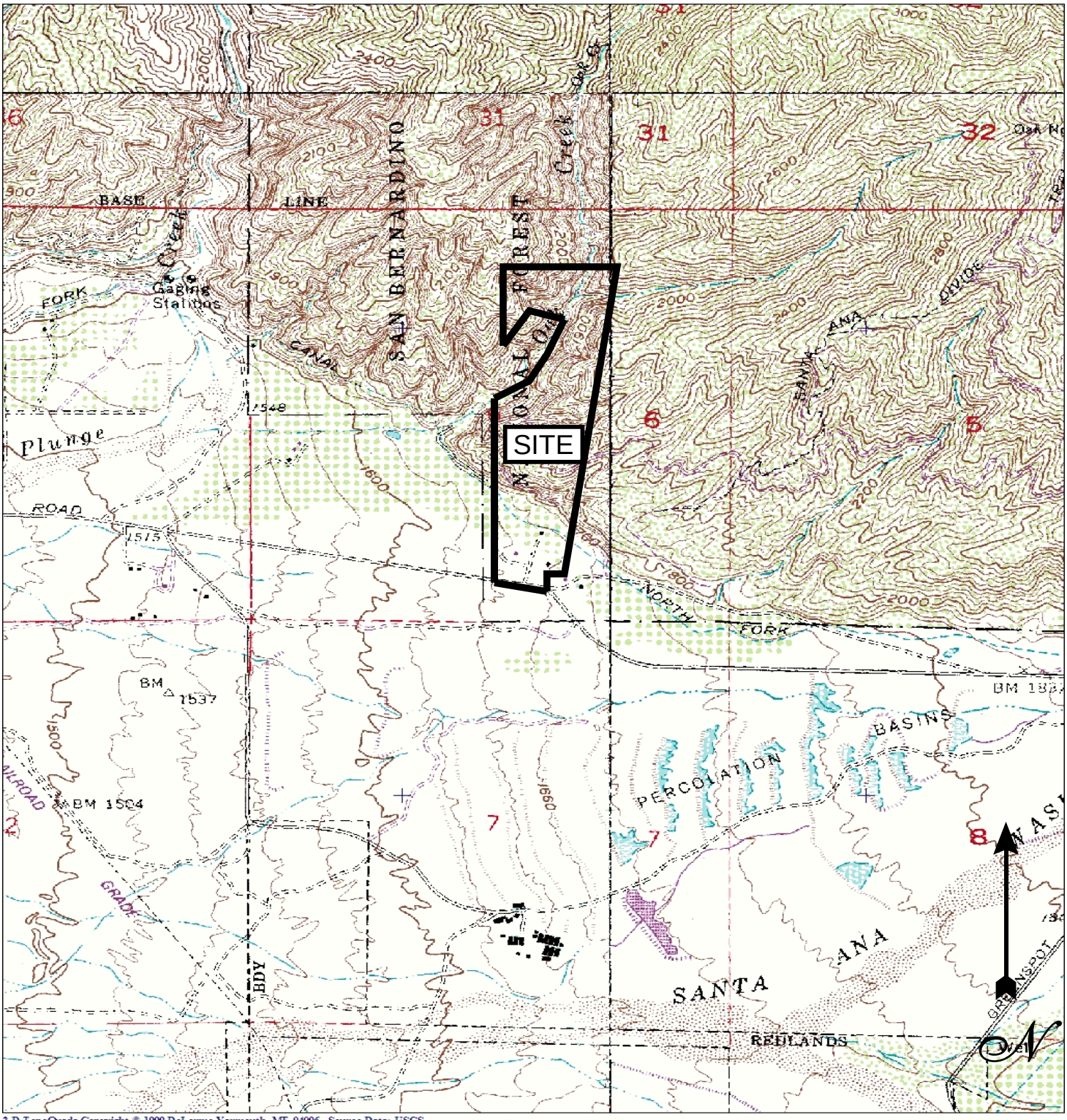
REGISTERED PROFESSIONAL ENGINEER
M. KEVIN OSMUN
NO. C55116
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

MKO:amp

Distribution: Addressee (1) and PDF

APPENDIX A

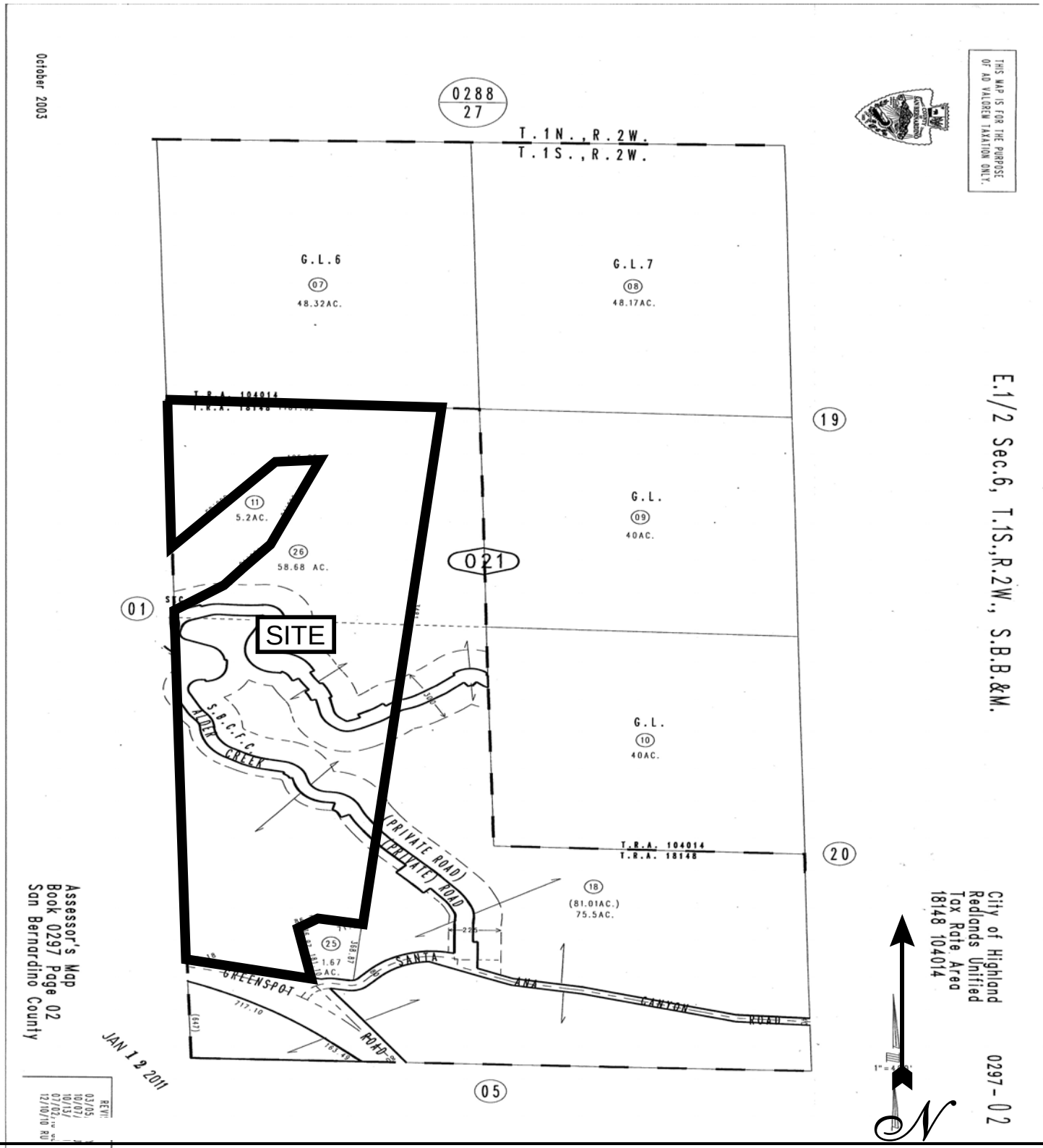
Index Map, Assessor's Parcel Map, Color Aerial Photograph, and Color Photographs



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 500 ft Scale: 1 : 24,000 Detail: 13-0 Datum: WGS84

INDEX MAP

PROJECT:	30976 GREENSPOT ROAD, HIGHLAND, CA	PROJECT NO.:	33007.2
CLIENT:	SUNLAND COMMUNITIES	ENCLOSURE:	A-1
LOR Geotechnical Group, Inc.		DATE:	OCTOBER, 2013
		SCALE:	As Shown



ASSESSORS PARCEL MAP

PROJECT:	**30976 GREENSPOT ROAD, HIGHLAND, CA**	**PROJECT NO.:**	**33007.2**
CLIENT:	**SUNLAND COMMUNITIES**	**ENCLOSURE:**	**A-2**
LOR Geotechnical Group, Inc.		**DATE:**	OCTOBER, 2013
		SCALE:	**Not to Scale**

COLOR AERIAL PHOTOGRAH

PROJECT:	30976 GREENSPOT ROAD, HIGHLAND, CA	PROJECT NO.:	33007.2
CLIENT:	SUNLAND COMMUNITIES	ENCLOSURE:	A-3
LOR Geotechnical Group, Inc.		DATE:	OCTOBER, 2013
		SCALE:	Not to Scale

PHOTO 1 VIEW FACING NORTH FROM THE SEC OF THE SITE SHOWING THE SITE TO THE LEFT (WEST) AND THE OFFSITE RESIDENCE TO THE RIGHT (EAST). THIS AREA IS LOWER AND MAY HAVE BEEN A BORROW AREA FOR THE PREVIOUS SITE GRADING.

PHOTO 2 VIEW LOOKING NORTHWESTERLY ACROSS THE SITE FORM THE SEC. THE BLOCK WALL IN THE BACKGROUND IS PART OF THE FORMER GRADING IN THIS AREA.

PHOTO 3 VIEW FACING WEST FROM THE SEC OF THE SITE SHOWING THE SITE TO THE RIGHT (NORTH) AND GREENSPOT ROAD FOLLOWED BY VACANT LAND TO THE LEFT (SOUTH).

PHOTO 4 VIEW FACING NORTH AT THE ENTRANCE TO THE SITE THE DRASH POST ARE TO PROTECT A WATER LINE.

PHOTO 5 VIEW FACING NORTHWESTERLY SHOWING THE GRADED PORTION OF THE SITE WITH THE BLOCK WALL MARKING THE WESTERLY LIMITS OF GRADING.

PHOTO 6 VIEW FACING SOUTHERLY FROM THE DIRT FIRE ACCESS ROAD NEAR THE NEC SHOWING THE METAL SHED AND THE STOCKPILED ROCK IN THIS AREA. IN THE BACKGROUND IS THE OFFSITE RESIDENCE.

PHOTO 7 VIEW FROM THE ABOVE LOCATION LOOKING SOUTHWESTERLY ACROSS THE SITE. THE METAL SHED IS IN THE LOWER LEFT.

PHOTO 8 FROM THE DIRT ACCESS ROAD SHOWING AN AERIAL VIEW OF THE CENTER OF THE SITE. THE PALM TREES IS THE LOCATION OF A FORMER RESIDENCE AND SHEDS.

PHOTO 9 VIEW FROM THE ACCESS ROAD OF A SMALL WATER TANK IN THE CENTRAL PORTION OF THE SITE.

PHOTO 10 CLOSE UP OF THE ABOVE PICTURED WATER TANK.

PHOTO 11 VIEW FROM THE DIRT ACCESS ROAD SHOWING THE SOUTH PORTION OF THE SITE WITH AN OLD MOBILE HOME VISIBLE.

PHOTO 12 VIEW FACING SOUTHWESTERLY SHOWING THE SOUTHWEST PORTION OF THE SITE FROM THE DIRT ACCESS ROAD. IN THE BACKGROUND IS A SINGLE FAMILY RESIDENTIAL DEVELOPMENT.

PHOTO 13 VIEW FACING WESTERLY FROM THE DIRT ACCESS ROAD SHOWING THE WEST PORTION OF THE SITE WITH THE RESIDENTIAL TRACT IN THE BACKGROUND. ROCK HAS BEEN PLACED IN THIS AREA ALSO.

PHOTO 14 VIEW FROM NEAR THE NWC OF THE DEVELOPABLE PORTION OF THE SITE SHOWING THE SITE TO THE LEFT AND THE SINGLE FAMILY RESIDENTIAL DEVELOPMENT TO THE RIGHT (WEST).

PHOTO 15 VIEW FACING EAST FROM NEAR THE NWC OF THE DEVELOPABLE PORTION OF THE SITE SHOWING THE NATIVE CONDITION OF THE SITE.

PHOTO 16 VIEW FACING WESTERLY FROM NEAR THE NORTH-CENTER PORTION OF THE SITE. THE TREES TO THE LEFT ARE THE LOCATION OF THE WATER TANK. THE METAL SHED IS VISIBLE IN THE BACKGROUND.

PHOTO 17 VIEW OF THE WATER PRESSURE TANK AND CONCRETE DISTRIBUTION STRUCTURES LOCATED SOUTH OF THE WATER STORAGE TANK IN THE TREES.

PHOTO 18 WALKING UP TO THE WATER TANK THERE IS A 4 FOOT CMP THAT IS DRAINS WATER FROM THE OTHER SIDE OF THE DIRT ACCESS ROAD. THE WATER ENTERS INTO AN ONSITE DRAINAGE.

PHOTO 19 VIEW OF A CONCRETE AND ROCK STRUCTURE BELOW THE WATER TANK, WITH DISTRIBUTION BOXES AND PIPE IN IT. THE PIPE LEADS TOWARD THE METAL SHED. THE BLUE 55-GALLON DRUM WAS FOR WATER.

PHOTO 20 VIEW OF THE DISTRIBUTION PIES ON TOP OF THE CONCRETE PAD PICTURED PREVIOUSLY.

PHOTO 21 VIEW OF THE WATER TANK.

PHOTO 22 VIEW OF THE METAL SHED LOCATED ON THE NORTHWEST PORTION OF THE DEVELOPABLE PORTION OF THE SITE. THE ROCK HAS BEEN STOCKPILED AND IS LOADER FOR SALE BY THE BACKHOE.

PHOTO 23 VIEW OF THE METAL SHED.

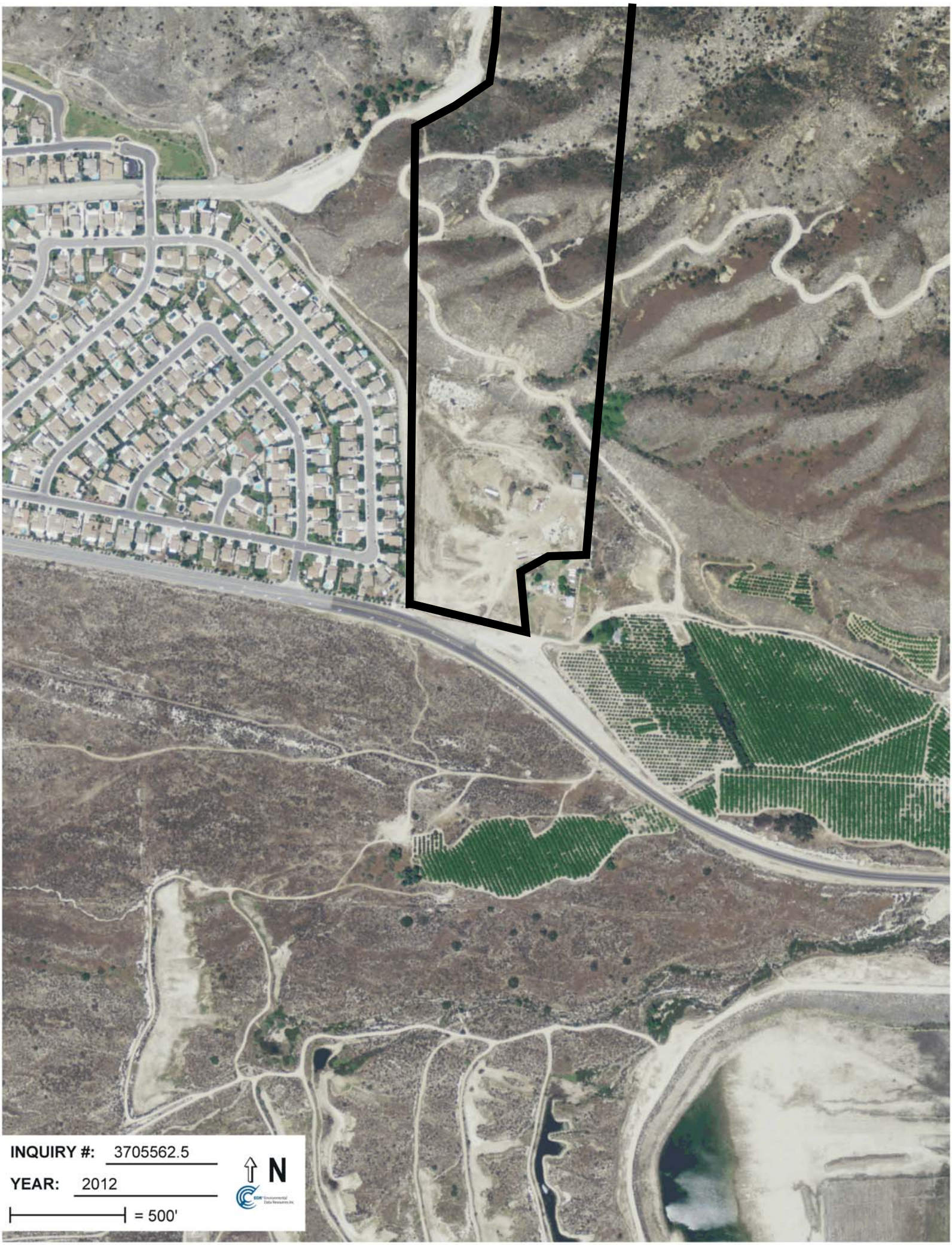
PHOTO 24 VIEW OF THE SHED WITH THE NORTH FORK DITCH WATER DISTRIBUTION BOX IN THE FOREGROUND.

PHOTO 25 VIEW OF THE AREA OF THE NORTH OF THE FORMER RESIDENCES AND SHEDS IN THE CENTER PORTION OF THE DEVELOPABLE PORTION OF THE SITE, WITH GREEN WASTE AND ROCKS PILED UP.

PHOTO 26 VIEW FACING SOUTHERLY SHOWING THE GRADED AREA IN THE SOUTHWEST PORTION OF THE SITE. THE FENCE WITH TELEPHONE LINES IS GREENSPOT ROAD FOLLOWED BY VACANT LAND.

APPENDIX B

2005 through 2012 Aerial Photographs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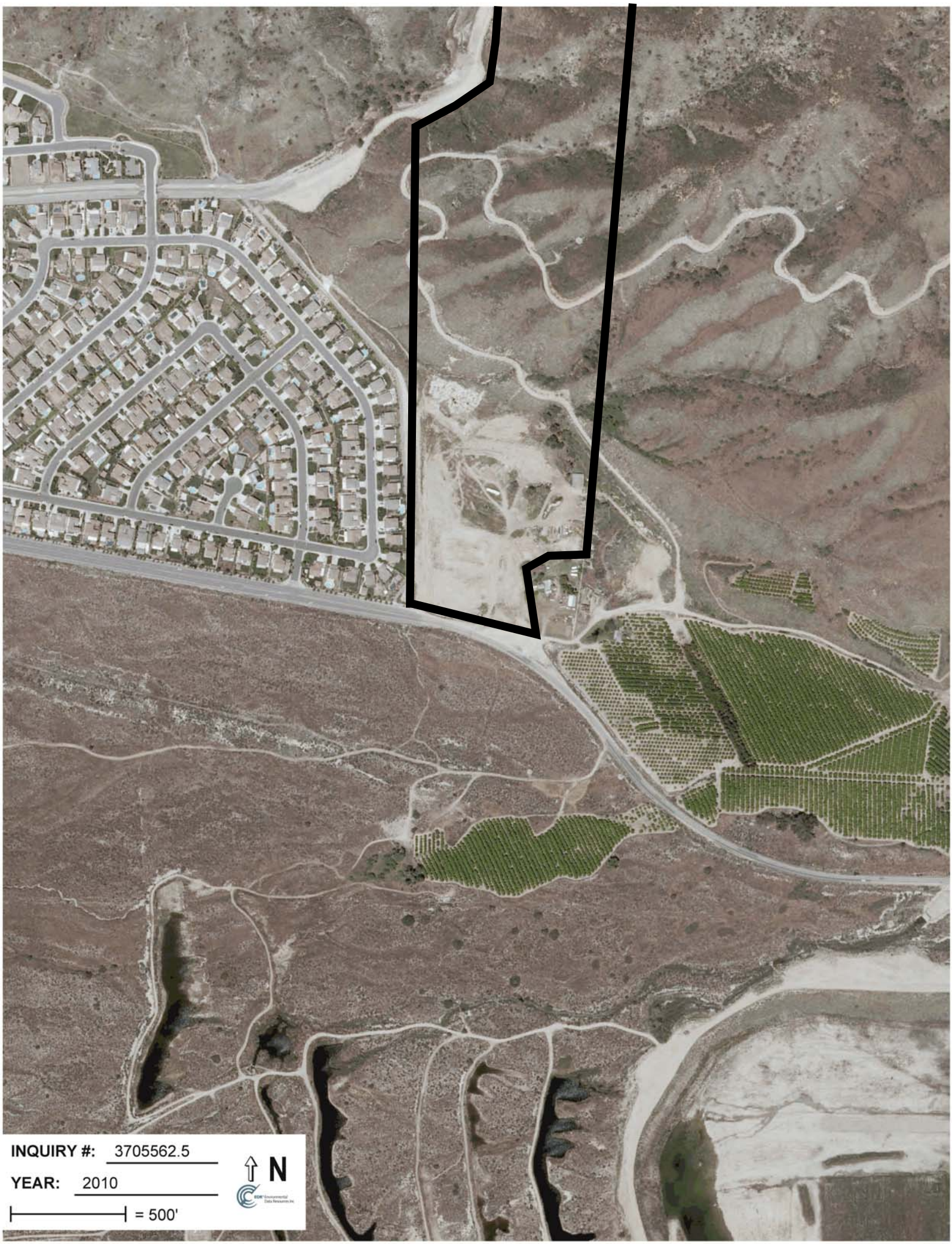
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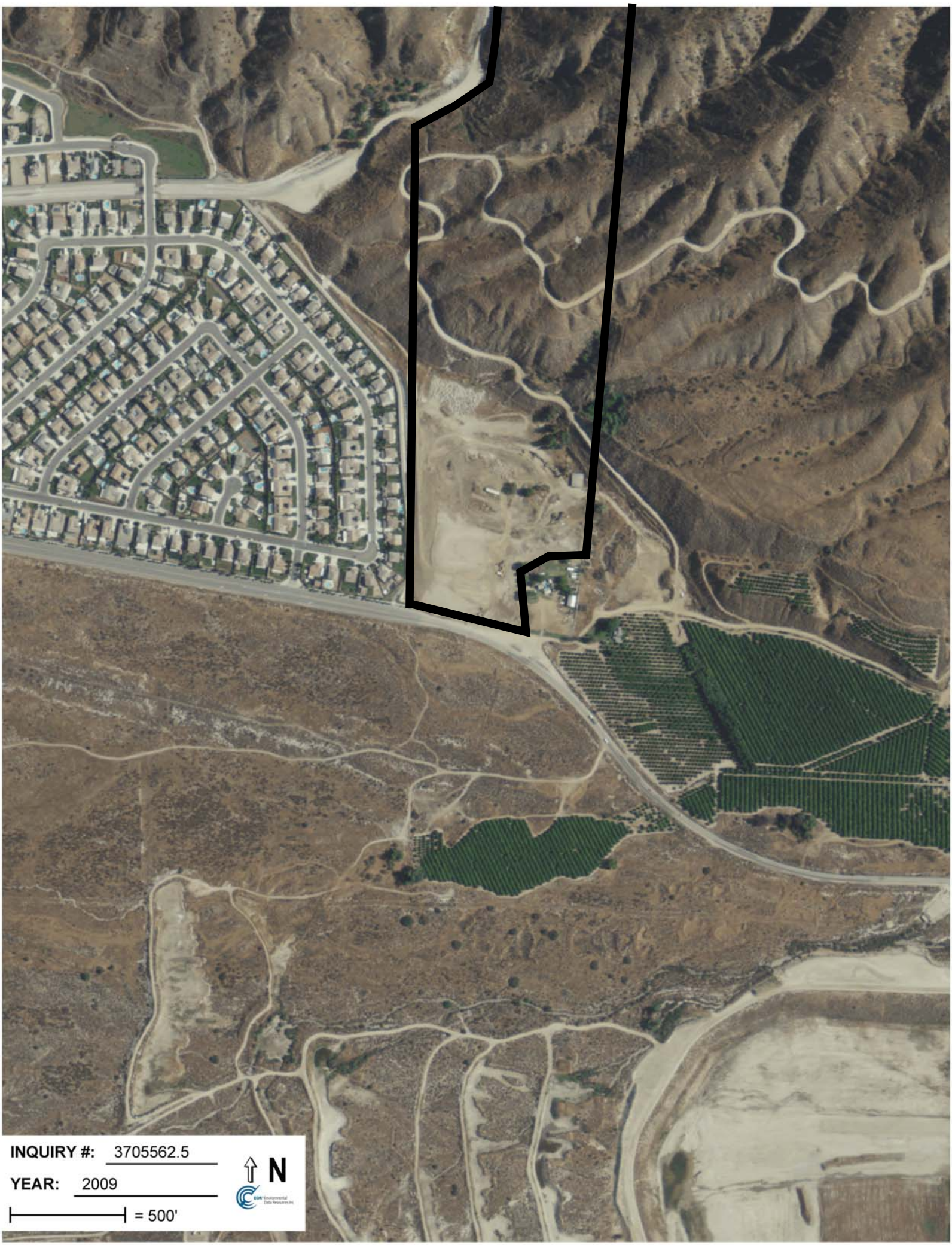
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INQUIRY #: 3705562.5
YEAR: 2005
= 500'
N

APPENDIX C

The EDR Radius Map™ Report

Calvary Chapel Property
30976 Greenspot Road
Highland, CA 92346

Inquiry Number: 3705562.2s
August 23, 2013

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	10
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

30976 GREENSPOT ROAD
HIGHLAND, CA 92346

COORDINATES

Latitude (North):	34.1077000 - 34˚ 6' 27.72''
Longitude (West):	117.1291000 - 117˚ 7' 44.76''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	488092.7
UTM Y (Meters):	3773910.2
Elevation:	1651 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	34117-A2 REDLANDS, CA
Most Recent Revision:	1988
East Map:	34117-A1 YUCAIPA, CA
Most Recent Revision:	1988

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
CALVARY CHAPEL SAN BERNARDINO PHA 30976 GREENSPOT RD HIGHLAND, CA 92346	NPDES	N/A
LEE COE 30976 GREENSPOT RD HIGHLAND, CA 92346	HAZNET	N/A
CALVARY CHAPEL SAN BERNADINO 30976 GREENSPOT RD HIGHLAND, CA 92346	HAZNET	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

EXECUTIVE SUMMARY

State- and tribal - equivalent NPL

RESPONSE State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF Solid Waste Information System

State and tribal leaking storage tank lists

LUST Geotracker's Leaking Underground Fuel Tank Report
SLIC Statewide SLIC Cases
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land
FEMA UST Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP Voluntary Cleanup Program Properties
INDIAN VCP Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL Clandestine Drug Labs
HIST Cal-Sites Historical Calsites Database
SCH School Property Evaluation Program
Toxic Pits Toxic Pits Cleanup Act Sites
CDL Clandestine Drug Labs
US HIST CDL National Clandestine Laboratory Register

EXECUTIVE SUMMARY

Local Lists of Registered Storage Tanks

CA FID UST	Facility Inventory Database
HIST UST	Hazardous Substance Storage Container Database
SWEEPS UST	SWEEPS UST Listing

Local Land Records

LIENS 2	CERCLA Lien Information
LIENS	Environmental Liens Listing
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
San Bern. Co. Permit	Hazardous Material Permits
EMI	Emissions Inventory Data

EXECUTIVE SUMMARY

INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
MWMP	Medical Waste Management Program Listing
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing
Financial Assurance	Financial Assurance Information Listing
LEAD SMELTERS	Lead Smelter Sites
2020 COR ACTION	2020 Corrective Action Program List
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PRP	Potentially Responsible Parties
WDS	Waste Discharge System
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
PROC	Certified Processors Database

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 6 records.

Site Name	Database(s)
FORT IRWIN LUCKY FUSE DISPOSAL	WMUDS/SWAT, HIST CORTESE, CHMIRS
CIMA ROAD MINE WASTE SITE	CERCLIS
SCE-SAR #3 POWERHOUSE/OFFICE/SHOPS	AST, San Bern. Co. Permit
PLUNGE CREEK LANDFILL LEVEES	WMUDS/SWAT
SCE EAST END HYDRO SAR3	RCRA-LQG
ABANDONED PROPERTY	San Bern. Co. Permit

OVERVIEW MAP - 3705562.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Calvary Chapel Property ADDRESS: 30976 Greenspot Road Highland CA 92346 LAT/LONG: 34.1077 / 117.1291	CLIENT: LOR Geotechnical Group, Inc. CONTACT: Kevin Osmun INQUIRY #: 3705562.2s DATE: August 23, 2013 2:19 pm

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DETAIL MAP - 3705562.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Calvary Chapel Property	CLIENT: LOR Geotechnical Group, Inc.
ADDRESS: 30976 Greenspot Road Highland CA 92346	CONTACT: Kevin Osmun INQUIRY #: 3705562.2s
LAT/LONG: 34.1077 / 117.1291	DATE: August 23, 2013 2:21 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
NPDES	TP	1	NR	NR	NR	NR	NR	1
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		0	0	NR	NR	NR	0
HAZNET	TP	2	NR	NR	NR	NR	NR	2
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property | **CALVARY CHAPEL SAN BERNARDINO PHASE 1**
30976 GREENSPOT RD
HIGHLAND, CA 92346 | **NPDES** | **S108212001**
N/A

Site 1 of 3 in cluster A

Actual: 1651 ft.

NPDES:

Npdes Number:	CAS000002
Facility Status:	Terminated
Agency Id:	0
Region:	8
Regulatory Measure Id:	351866
Order No:	2009-0009-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	8 36C353333
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	09/08/2008
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	03/08/2013
Discharge Name:	Calvary Chapel San Bernardino
Discharge Address:	1499 E Baseline St
Discharge City:	San Bernardino
Discharge State:	California
Discharge Zip:	92410

A2 Target Property | **LEE COE**
30976 GREENSPOT RD
HIGHLAND, CA 92346 | **HAZNET** | **S112942805**
N/A

Site 2 of 3 in cluster A

Actual: 1651 ft.

HAZNET:

Year:	2005
Gepaid:	CAC002585973
Contact:	LEE COE
Telephone:	9512364683
Mailing Name:	Not reported
Mailing Address:	1499 E BASELINE S
Mailing City,St,Zip:	SAN BERNARDINO, CA 92410
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Contaminated soil from site clean-up
Disposal Method:	Disposal, Land Fill
Tons:	15.17
Facility County:	San Bernardino

A3 Target Property | **CALVARY CHAPEL SAN BERNADINO**
30976 GREENSPOT RD
HIGHLAND, CA 92346 | **HAZNET** | **S112969357**
N/A

Site 3 of 3 in cluster A

Actual: 1651 ft.

HAZNET:

Year:	2008
Gepaid:	CAC002629036
Contact:	TROY HODGES H & H GENEWN CONTRACT
Telephone:	9098911877
Mailing Name:	Not reported
Mailing Address:	1499 E BASELINE ST
Mailing City,St,Zip:	SAN BERNARDINO, CA 92410
Gen County:	Not reported
TSD EPA ID:	CAD009007626
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.4
Facility County:	San Bernardino

Count: 6 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HIGHLAND	1012176350	SCE EAST END HYDRO SAR3	7865 SANTA ANA CANYON RD	92346	RCRA-LQG
HIGHLAND	S108205655	SCE-SAR #3 POWERHOUSE/OFFICE/SHOPS	7865 SANTA ANA CANYON RD	92346	AST, San Bern. Co. Permit
HIGHLAND	S113663438	ABANDONED PROPERTY	7607 TIPPECANOE ST	92346	San Bern. Co. Permit
HIGHLAND-EAST HIGHLA	S103702339	PLUNGE CREEK LANDFILL LEVEES	NORTH SIDE OF SANTA ANA RIVER	92346	WMUDS/SWAT
SAN BERNARDINO COUNT	S103442535	FORT IRWIN LUCKY FUSE DISPOSAL	FORT IRWIN		WMUDS/SWAT, HIST CORTESE, CHI
SAN BERNARDINO COUNT	1016139697	CIMA ROAD MINE WASTE SITE	1 MIL W OF INTE. 15 OFF CIMA R		CERCLIS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 07/08/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 05/09/2013
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/17/2013
Date Made Active in Reports: 02/15/2013
Number of Days to Update: 29

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/01/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 162

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-327-5092
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 45

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/03/2012
Date Made Active in Reports: 11/05/2012
Number of Days to Update: 94

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/07/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 156

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/02/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/16/2013
Number of Days to Update: 60

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/26/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 20

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/12/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 59

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/14/2013
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/14/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 71

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 55

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 55

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 10

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 01/15/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/04/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 114

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 112

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013
Date Data Arrived at EDR: 04/11/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013
Date Data Arrived at EDR: 03/21/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 111

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/30/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 22

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 03/05/2013
Date Data Arrived at EDR: 03/19/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 8

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 04/01/2013
Date Data Arrived at EDR: 04/02/2013
Date Made Active in Reports: 05/14/2013
Number of Days to Update: 42

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/11/2012
Date Data Arrived at EDR: 12/12/2012
Date Made Active in Reports: 01/04/2013
Number of Days to Update: 23

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/29/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 17

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 06/22/2012
Date Made Active in Reports: 07/06/2012
Number of Days to Update: 14

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 58

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/01/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/02/2013
Date Data Arrived at EDR: 06/13/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 41

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/14/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/21/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 36

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/16/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: N/A

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 04/04/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 97

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List
Cupa Facility List

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 16

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 43

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 8

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 08/09/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/26/2012
Date Data Arrived at EDR: 06/27/2012
Date Made Active in Reports: 08/17/2012
Number of Days to Update: 51

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 58

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/08/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/24/2013
Date Data Arrived at EDR: 04/24/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 23

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/22/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 03/25/2013
Number of Days to Update: 32

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 04/29/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 18

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 04/16/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 31

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 11/26/2012
Date Data Arrived at EDR: 11/28/2012
Date Made Active in Reports: 01/21/2013
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/21/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2013
Date Data Arrived at EDR: 05/30/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 46

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 28

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 14

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/20/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 6

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 16

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 46

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2013
Date Data Arrived at EDR: 05/31/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 45

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2012
Date Data Arrived at EDR: 11/06/2012
Date Made Active in Reports: 11/30/2012
Number of Days to Update: 24

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 57

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 49

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 06/10/2013
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/04/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 41

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/06/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 39

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/16/2013
Date Data Arrived at EDR: 05/17/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 39

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 53

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 61

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 07/05/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 47

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 69

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/14/2013
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 42

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 34

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 49

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/30/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 64

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/07/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 37

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/27/2012
Number of Days to Update: 70

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CALVARY CHAPEL PROPERTY
30976 GREENSPOT ROAD
HIGHLAND, CA 92346

TARGET PROPERTY COORDINATES

Latitude (North):	34.1077 - 34˚ 6' 27.72''
Longitude (West):	117.1291 - 117˚ 7' 44.76''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	488092.7
UTM Y (Meters):	3773910.2
Elevation:	1651 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	34117-A2 REDLANDS, CA
Most Recent Revision:	1988
East Map:	34117-A1 YUCAIPA, CA
Most Recent Revision:	1988

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

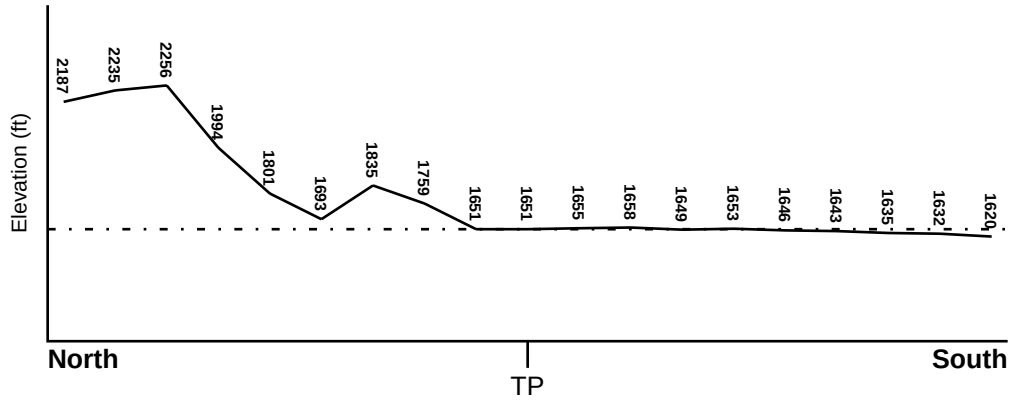
TOPOGRAPHIC INFORMATION

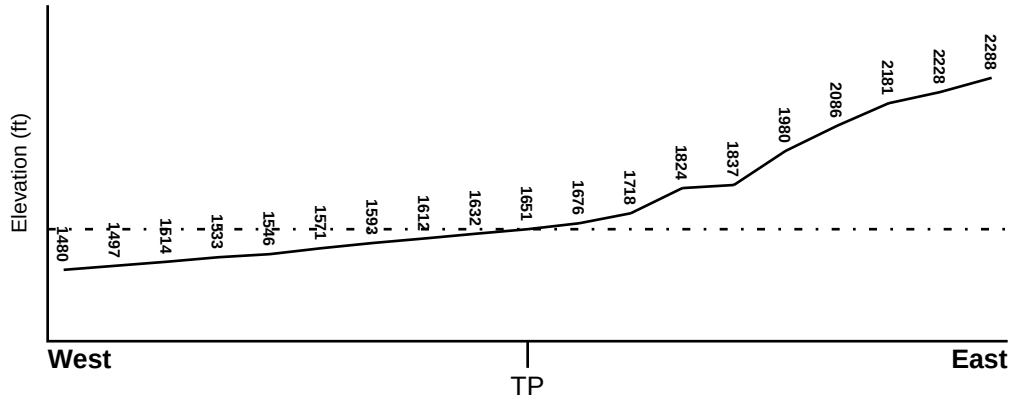
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 1651 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN BERNARDINO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06071C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

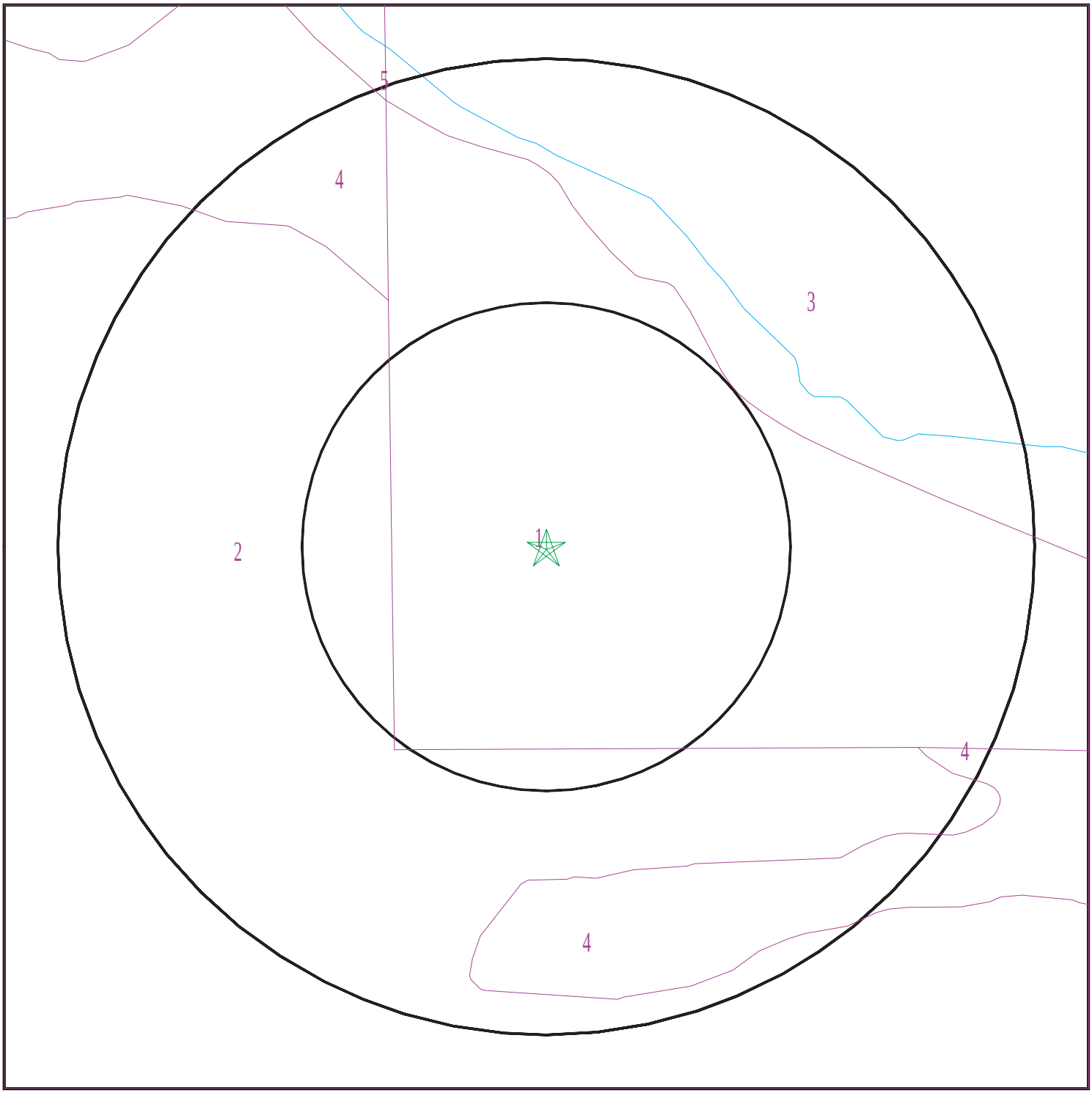
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3705562.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Calvary Chapel Property ADDRESS: 30976 Greenspot Road Highland CA 92346 LAT/LONG: 34.1077 / 117.1291	CLIENT: LOR Geotechnical Group, Inc. CONTACT: Kevin Osmun INQUIRY #: 3705562.2s DATE: August 23, 2013 2:21 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Soboba family

Soil Surface Texture: stratified very cobbly sand to very cobbly loamy fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	24 inches	59 inches	stratified very cobbly sand to very cobbly loamy fine sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1
2	7 inches	24 inches	very cobbly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1
3	0 inches	7 inches	very cobbly loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1

Soil Map ID: 2

Soil Component Name: Soboba

Soil Surface Texture: very stony loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	very stony loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 7.8 Min: 6.6
2	9 inches	59 inches	very stony sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 7.8 Min: 6.6

Soil Map ID: 3

Soil Component Name: Trigo family

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 45 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	3 inches	11 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	11 inches	15 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: Hanford

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
2	11 inches	59 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

Soil Map ID: 5

Soil Component Name: CIENEBA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	14 inches	18 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
5	USGS40000141311	1/2 - 1 Mile ENE
6	USGS40000141158	1/2 - 1 Mile West
A7	USGS40000141128	1/2 - 1 Mile East
8	USGS40000141329	1/2 - 1 Mile WNW
B10	USGS40000140949	1/2 - 1 Mile South
B11	USGS40000140947	1/2 - 1 Mile South
B12	USGS40000140948	1/2 - 1 Mile South
B13	USGS40000140944	1/2 - 1 Mile South
B14	USGS40000140945	1/2 - 1 Mile South

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B15	USGS40000140946	1/2 - 1 Mile South
22	USGS40000141115	1/2 - 1 Mile ESE
C24	USGS40000140940	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

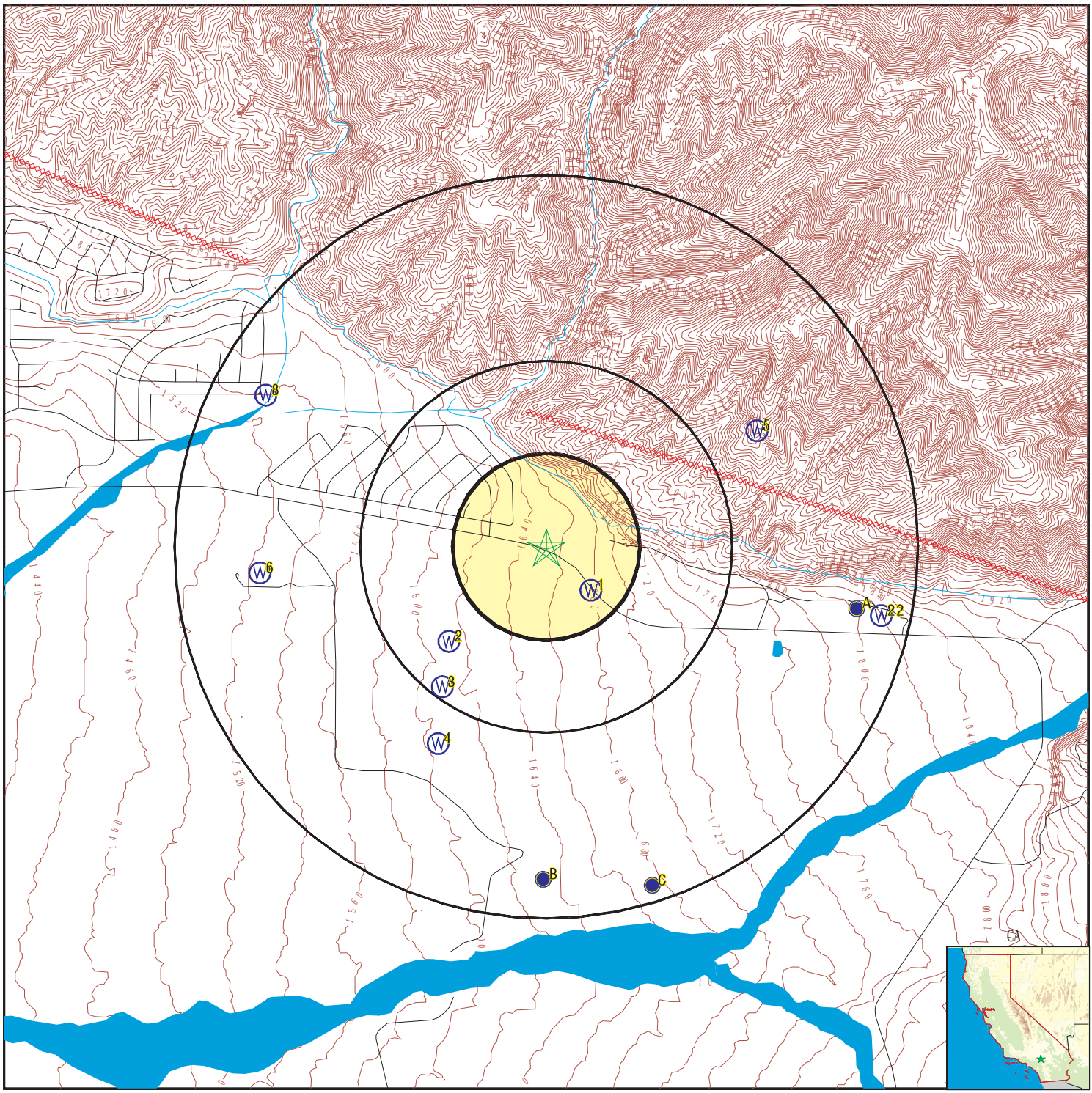
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADW50000004385	1/8 - 1/4 Mile SE
2	CADW50000004376	1/4 - 1/2 Mile SW
3	764	1/4 - 1/2 Mile SW
4	241	1/2 - 1 Mile SSW
A9	CADW50000004383	1/2 - 1 Mile ESE
B16	CADW50000004326	1/2 - 1 Mile South
B17	CADW50000004322	1/2 - 1 Mile South
B18	CADW50000004321	1/2 - 1 Mile South
B19	CADW50000004323	1/2 - 1 Mile South
B20	CADW50000004325	1/2 - 1 Mile South
B21	CADW50000004324	1/2 - 1 Mile South
C23	CADW50000004320	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 3705562.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location
HD Closest Hydrogeological Data
Oil, gas or related wells

N

SITE NAME: Calvary Chapel Property	CLIENT: LOR Geotechnical Group, Inc.
ADDRESS: 30976 Greenspot Road Highland CA 92346	CONTACT: Kevin Osmun INQUIRY #: 3705562.2s
LAT/LONG: 34.1077 / 117.1291	DATE: August 23, 2013 2:21 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **SE** **1/8 - 1/4 Mile** **Higher**	**CA WELLS**	**CADW50000004385**

Latitude :	34.106		
Longitude :	117.127		
Site code:	341060N1171270W001	Casgem sta:	01S02W07B001S
Local well:	SBVWCD#1	Casgem s 1:	Observation
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004385

2 **SW** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**CADW50000004376**

Latitude :	34.104		
Longitude :	117.133667		
Site code:	341040N1171337W001	Casgem sta:	01S03W07C001S
Local well:	SAR1	Casgem s 1:	Observation
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004376

3 **SW** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**764**

Water System Information:

Prime Station Code:	01S/02W-07F01 S	User ID:	TAN
FRDS Number:	3610064015	County:	San Beernardino
District Number:	13	Station Type:	WELL/AMBNT
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	340608.0 1170759.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	PLANT 125		
System Number:	3610064		
System Name:	EAST VALLEY WD		
Organization That Operates System:			
	PO BOX 3427		
	SAN BERNARDINO, CA 92413		
Pop Served:	55000	Connections:	18303
Area Served:	SAN BERNARDINO VIC		
Sample Collected:	03/29/2011	Findings:	7.6 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	03/29/2011	Findings:	1.3 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		

Sample Collected:	03/29/2011	Findings:	7.7 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	03/29/2011	Findings:	1.1 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	03/29/2011	Findings:	0.59 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	03/29/2011	Findings:	0.87 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	06/21/2011	Findings:	6.1 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	06/21/2011	Findings:	1.2 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06/21/2011	Findings:	6.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	06/21/2011	Findings:	1.1 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	06/21/2011	Findings:	0.69 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	06/21/2011	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	07/19/2011	Findings:	84. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	07/19/2011	Findings:	21. MG/L
Chemical:	SODIUM		
Sample Collected:	07/19/2011	Findings:	8.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	07/19/2011	Findings:	170. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	07/19/2011	Findings:	2.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09/20/2011	Findings:	7.7 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	09/20/2011	Findings:	1.4 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	09/20/2011	Findings:	10. PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	09/20/2011	Findings:	1.4 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	09/20/2011	Findings:	0.73 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	09/20/2011	Findings:	0.88 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	12/20/2011	Findings:	10. PCI/L
Chemical:	GROSS ALPHA		

Sample Collected:	12/20/2011	Findings:	1.6 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12/20/2011	Findings:	8.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	12/20/2011	Findings:	1.2 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	12/20/2011	Findings:	0.6 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12/20/2011	Findings:	0.87 PCI/L
Chemical:	URANIUM MDA95		
Sample Collected:	06/19/2012	Findings:	95. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	06/19/2012	Findings:	29. MG/L
Chemical:	CALCIUM		
Sample Collected:	06/19/2012	Findings:	5.8 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	06/19/2012	Findings:	23. MG/L
Chemical:	SODIUM		
Sample Collected:	06/19/2012	Findings:	7.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	06/19/2012	Findings:	170. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	06/19/2012	Findings:	2.3 MG/L
Chemical:	NITRATE (AS NO3)		

4
SSW **CA WELLS** **241**
1/2 - 1 Mile
Lower

Water System Information:

Prime Station Code:	01N/06E-29J03 S	User ID:	TAN
FRDS Number:	3610073007	County:	San Beernardino
District Number:	13	Station Type:	WELL/AMBNT
Water Type:	Well/Groundwater	Well Status:	Destroyed
Source Lat/Long:	340600.0 1170800.0	Precision:	100 Feet (one Second)
Source Name:	WELL 11E - DESTROYED		
System Number:	3610073		
System Name:	HI DESERT WD		
Organization That Operates System:			
	P O BOX 1210		
	YUCCA VALLEY, CA 92286-1210		
Pop Served:	28000	Connections:	8141
Area Served:	EAST YUCCA VALLEY		

5
ENE **FED USGS** **USGS40000141311**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340644117070601		
Monloc name:	001S002W06M001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1122337
Longitude:	-117.119203	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1585.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19310101	Welldepth:	415
Welldepth units:	ft	Wellholedepth:	415
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

6
West
1/2 - 1 Mile
Lower

FED USGS **USGS40000141158**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340624117083001		
Monloc name:	001S003W01R001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1066783
Longitude:	-117.1425372	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID Direction Distance Elevation	Database	EDR ID Number
A7 **East** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000141128**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340620117065001		
Monloc name:	001S002W08C002S		
Monloc type:	Well		
Monloc desc:	DEPTH MEASURED IN 1988 AS 176.1 BELOW LSD.		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1055672
Longitude:	-117.1147583	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1806.7
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	176.1
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 311

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-10-22	68.30		2004-04-21	67.63	
2003-10-23	74.92		2003-04-21	49.36	
2002-10-28	62.82		2002-04-09	70.69	
2001-10-22	73.22		2001-04-17	69.43	
2000-10-24	76.60		2000-04-13	64.87	
1999-10-18	74.98		1999-04-14	70.57	
1998-10-22	66.68		1998-04-14	60.26	
1997-10-30	74.74		1997-04-16	67.15	
1996-10-07	69.05		1996-04-25	61.50	
1995-10-26	67.00		1995-04-20	47.03	
1994-10-26	70.92		1994-04-19	41.57	
1993-10-18	56.86		1993-04-12	31.57	
1992-10-30	76.73		1992-06-12	59.29	
1991-11-26	75.39		1991-06-25	69.83	
1990-11-28	80.50		1990-06-25	76.85	
1989-11-27	81.15		1989-09-18	80.17	
1988-09-21	80.25		1988-06-29	72.87	
1987-12-09	68.28		1987-04-16	75.48	
1986-11-17	77.20		1986-06-18	67.34	
1985-09-24	79.45		1983-12-08	50.9	
1983-09-01	32.9		1983-06-02	38.0	
1983-02-23	47.8		1982-11-23	51.9	
1982-09-22	62.9		1982-06-30	46.7	
1982-05-27	36.0		1982-04-25	31.2	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1982-04-09	33.0	
1981-06-04	60.8	
1981-01-20	76.8	
1980-09-17	38.6	
1980-07-15	60.8	
1980-04-24	41.8	
1979-12-05	85.8	
1979-07-06	42.3	
1979-05-01	46.4	
1979-03-08	44.4	
1978-12-13	46.1	
1978-07-27	36.0	
1978-06-28	33.0	
1978-05-25	31.8	
1978-04-25	33.0	
1978-03-29	20.3	
1978-02-15	27.3	
1978-01-10	66.4	
1977-12-15	81.4	
Note: The site had been pumped recently.		
1977-11-30	79.8	
1977-10-11	80.0	
1977-09-09	79.1	
1977-07-18	66.3	
1977-06-20	58.3	
1977-05-13	56.4	
1977-04-29	72.1	
1977-04-06	66.8	
1977-03-09	58.6	
1977-02-09	46.8	
1977-01-13	69.8	
1976-12-16	74.3	
1976-11-18	68.0	
1976-10-28	65.2	
1976-09-23	69.7	
1976-08-26	73.9	
1976-07-29	72.4	
1976-06-11	64.4	
1976-05-12	60.3	
1976-04-16	59.2	
1976-03-23	76.4	
1976-02-26	80.4	
1976-01-16	75.4	
1975-12-11	78.4	
1975-10-16	81.9	
1975-09-26	81.4	
1975-09-04	80.5	
1975-08-14	81.2	
1975-07-24	84.4	
1975-06-26	81.4	
1975-05-29	66.4	
1975-05-02	78.2	
1975-03-12	70.5	
1975-02-12	71.9	
1975-01-10	73.1	

Date	Feet below Surface	Feet to Sealevel
1982-02-09	37.3	
1981-03-11	48.4	
1980-12-05	74.7	
1980-09-04	71.0	
1980-06-03	40.4	
1980-02-20	38.6	
1979-09-07	54.3	
1979-06-07	45.7	
1979-04-03	46.9	
1979-02-13	43.8	
1978-08-09	40.0	
1978-07-11	35.6	
1978-06-14	32.3	
1978-05-10	32.1	
1978-04-11	34.0	
1978-03-15	19.7	
1978-01-27	35.9	
1977-12-29	80.6	
1977-11-15	80.2	
1977-09-21	79.6	
1977-08-25	72.2	
1977-07-07	68.6	
1977-06-08	54.4	
1977-05-11	73.2	
1977-04-15	68.6	
1977-03-18	61.2	
1977-02-25	56.5	
1977-01-25	55.2	
1976-12-28	74.4	
1976-11-30	69.9	
1976-11-10	66.0	
1976-10-13	65.4	
1976-09-10	79.6	
1976-08-13	70.2	
1976-07-14	77.7	
1976-05-28	63.2	
1976-04-29	58.0	
1976-04-09	77.1	
1976-03-12	77.5	
1976-02-11	78.7	
1976-01-08	75.2	
1975-11-06	81.2	
1975-10-09	82.3	
1975-09-11	81.0	
1975-08-21	78	
1975-08-06	79.3	
1975-07-10	82.2	
1975-06-11	72.6	
1975-05-15	76.1	
1975-04-18	61.6	
1975-02-28	71.1	
1975-01-30	72.2	
1975-01-03	72.7	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1974-12-19	71.1		1974-12-03	69.6	
1974-11-21	75.5		1974-11-07	75.1	
1974-10-24	83.9		1974-10-10	82.3	
1974-09-19	80.7		1974-09-05	78.9	
1974-08-22	78.5		1974-08-08	77.8	
1974-07-19	75.7		1974-06-13	71.1	
1974-05-16	68.3		1974-05-02	56.0	
1974-04-01	43.6		1974-03-21	43.8	
1974-03-11	55.1		1974-03-06	98.1	
1974-02-20	60.3		1974-01-22	74.9	
1974-01-08	72.0		1973-12-26	70.3	
1973-12-12	73.3		1973-11-28	78.6	
1973-10-24	75.6		1973-10-11	74.4	
1973-04-01	22.6		1973-02-01	52.7	
1972-11-20	80.8		1972-01-04	75.4	
1971-03-23	57.5		1971-01-23	53.1	
1970-12-29	51.6		1970-11-28	105.2	
1970-07-30	120.8				
Note: The site was being pumped.					
1970-05-23	67.1		1970-04-14	55.8	
1970-03-24	45.3		1970-02-14	34.7	
1969-08-13	45.0		1969-06-16	36.0	
1969-04-26	33.4		1969-04-01	34.1	
1968-08-21	121.9				
Note: The site was being pumped.					
1968-06-19	116.4				
Note: The site was being pumped.					
1968-05-18	70.1		1968-04-10	59.9	
1968-02-06	56.0		1968-01-04	52.5	
1967-11-29	54.8		1967-11-11	73.0	
1967-10-28	72.6		1967-07-27	51.8	
1967-06-02	38.8		1967-05-01	51.2	
1967-01-09	30.4		1966-12-08	89.4	
1965-06-01	104.0				
Note: The site was being pumped.					
1965-05-02	97.3		1965-03-22	97.8	
1965-02-24	116.7				
Note: The site was being pumped.					
1965-01-27	88.4		1964-12-29	120.4	
1964-11-20	138.3				
1964-08-24	134.0				
Note: The site was being pumped.					
1964-06-27	124.3				
Note: The site was being pumped.					
1964-04-06	53.7		1964-03-27	85.1	
1963-12-27	85.8		1963-11-24	94.6	
1963-09-25	98.3		1963-08-26	136.0	
1963-07-30	133.2				
Note: The site was being pumped.					
1963-06-26	127.3				
Note: The site was being pumped.					
1963-05-28	139.4				
Note: The site was being pumped.					
1963-04-25	68.8				
1963-03-19	84.2				
Note: Other conditions existed that would affect the measured water level.					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1962-11-22	140.2				
Note: The site was being pumped.					
1962-10-29	135.7				
Note: The site was being pumped.					
1962-09-14	133.0				
Note: The site was being pumped.					
1962-07-24	100.3				
Note: The site was being pumped.					
1962-06-20	51.9				
Note: Other conditions existed that would affect the measured water level.					
1962-05-23	52.9		1962-04-12	51.4	
1962-03-22	54.8				
1962-01-17	158.9				
Note: The site was being pumped.					
1961-12-19	68.6				
Note: The site was being pumped.					
1961-11-28	110.8				
1961-09-28	147.4				
Note: The site was being pumped.					
1961-08-08	146.7				
Note: The site was being pumped.					
1961-07-12	148.0				
Note: The site was being pumped.					
1961-06-16	145.7				
Note: The site was being pumped.					
1961-05-23	143.7				
Note: The site was being pumped.					
1961-04-12	141.7				
Note: The site was being pumped.					
1961-03-09	136.4				
Note: The site was being pumped.					
1961-02-16	134.2				
Note: The site was being pumped.					
1961-01-28	112.6				
1960-12-28	137.1				
Note: The site was being pumped.					
1960-08-02	121.3				
Note: The site was being pumped.					
1960-06-01	116.2				
Note: The site was being pumped.					
1960-03-23	56.5		1960-03-02	63.9	
1960-01-15	70.9		1959-12-04	149.2	
1959-11-04	110.8				
1959-09-16	147.0				
Note: The site was being pumped.					
1959-08-06	137.0				
Note: The site was being pumped.					
1959-06-09	135.1				
Note: The site was being pumped.					
1959-05-13	132.7				
Note: The site was being pumped.					
1959-04-16	115.0		1959-03-13	48.8	
1959-01-30	115.7		1958-11-17	96.5	
1958-10-08	129.6				
Note: The site was being pumped.					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1958-09-09	118.7				
Note: The site was being pumped.					
1958-08-08	68.7		1958-07-12	62.5	
1958-06-12	52.1		1958-05-07	46.5	
1958-04-09	42.1		1958-03-07	41.9	
1958-02-07	54.7		1958-01-09	75.0	
1957-12-04	103.0		1957-11-05	93.0	
1957-09-27	145.2				
Note: The site was being pumped.					
1957-07-23	135.1				
Note: The site was being pumped.					
1957-03-18	55.0		1957-02-16	59.9	
1957-01-15	106.5				
1956-12-27	155.7				
Note: The site was being pumped.					
1956-12-06	138.8				
1956-10-30	155.0				
Note: The site was being pumped.					
1956-09-27	143.8				
Note: The site was being pumped.					
1956-08-27	144.8				
Note: The site was being pumped.					
1956-07-17	136.8				
Note: The site was being pumped.					
1956-06-01	124.8				
Note: The site was being pumped.					
1956-04-30	111.6				
Note: The site was being pumped.					
1956-02-03	71.9		1955-12-02	127.4	
1955-09-06	133.2				
Note: The site was being pumped.					
1955-08-02	133.2				
Note: The site was being pumped.					
1955-07-05	129.9				
Note: The site was being pumped.					
1955-06-30	108.3				
1955-06-13	106.4				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-11-15	100.1				
1954-10-21	114.3				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-08-16	108.9				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-06-21	86.5				
Note: A nearby site that taps the same aquifer was being pumped.					
1951-10-26	108.4		1950-11-10	113.9	
1940-10-03	76.7		1928-04-02	59.0	
1928-03-01	39.3		1928-02-02	55.1	
1927-12-18	59.5				

8
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000141329**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340649117082901		
Monloc name:	001S003W01H001S		
Monloc type:	Well		
Monloc desc:	WELL DEEPENED 5/20/52		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1136225
Longitude:	-117.1422596	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1541.3
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19291101	Welldepth:	414
Welldepth units:	ft	Wellholedepth:	465
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 36

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-10-25	298.83				
2004-10-22					
Note: The site was being pumped.					
2004-04-22	280.68				
Note: The site had been pumped recently.					
2003-10-23	265.18				
Note: The site had been pumped recently.					
2003-04-24	251.70				
Note: The site had been pumped recently.					
2003-04-21					
Note: The site was being pumped.					
2002-10-29	287.83				
2002-04-09					
Note: The site was being pumped.					
2001-10-22	266.81		2001-04-17	254.74	
2000-10-24	240.94		2000-04-12	224.40	
1999-10-18	202.88		1999-04-14	168.00	
1998-10-19	127.66		1998-04-14	179.29	
1997-10-30	207.19		1997-04-16	165.38	
1996-10-07	175.61		1996-04-25	137.73	
1995-10-26	143.61		1995-04-20	128.32	
1994-10-26	173.35		1994-04-19	153.60	
1993-10-19	138.68		1993-04-12	230.07	
1992-10-29	288.15		1992-08-12	289.15	
1989-09-21	283.09		1988-11-29	271.95	
1988-06-30	262.77		1987-12-09	254.59	
1986-11-10	228.70		1986-06-19	218.77	
1970-03-24	135.2		1965-08-19	417.6	

Map ID Direction Distance Elevation		Database	EDR ID Number
A9 **ESE** **1/2 - 1 Mile** **Higher**		**CA WELLS**	**CADW50000004383**

Latitude :	34.105		
Longitude :	117.1143		
Site code:	341050N1171143W001	Casgem sta:	01S02W08C001S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004383

B10 **South** **1/2 - 1 Mile** **Lower**		**FED USGS**	**USGS40000140949**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074406		
Monloc name:	001S002W07Q006S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947306
Longitude:	-117.1287472	Sourcemap scale:	24000
Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1639.04
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	199709	Welldepth:	75
Welldepth units:	ft	Wellholedepth:	167
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 81

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22					
Note: The site was dry (no water level recorded).					
2004-11-24					
Note: The site was dry (no water level recorded).					
2004-10-26					
Note: The site was dry (no water level recorded).					
2004-09-22					
Note: The site was dry (no water level recorded).					
2004-08-24					
Note: The site was dry (no water level recorded).					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
2004-07-21		
Note: The site was dry (no water level recorded).		
2004-06-23		
Note: The site was dry (no water level recorded).		
2004-06-03		
Note: The site was dry (no water level recorded).		
2004-05-19		
Note: The site was dry (no water level recorded).		
2004-04-21		
Note: The site was dry (no water level recorded).		
2004-03-24		
Note: The site was dry (no water level recorded).		
2004-02-18		
Note: The site was dry (no water level recorded).		
2004-01-22		
Note: The site was dry (no water level recorded).		
2003-12-16		
Note: The site was dry (no water level recorded).		
2003-11-18		
Note: The site was dry (no water level recorded).		
2003-10-22		
Note: The site was dry (no water level recorded).		
2003-09-18		
Note: The site was dry (no water level recorded).		
2003-08-21		
Note: The site was dry (no water level recorded).		
2003-07-23		
Note: The site was dry (no water level recorded).		
2003-06-24		
Note: The site was dry (no water level recorded).		
2003-05-20		
Note: The site was dry (no water level recorded).		
2003-04-17		
Note: The site was dry (no water level recorded).		
2003-03-19		
Note: The site was dry (no water level recorded).		
2003-02-21		
Note: The site was dry (no water level recorded).		
2003-01-21		
Note: The site was dry (no water level recorded).		
2002-12-19		
Note: The site was dry (no water level recorded).		
2002-11-20		
Note: The site was dry (no water level recorded).		
2002-10-09		
Note: The site was dry (no water level recorded).		
2002-09-18		
Note: The site was dry (no water level recorded).		
2002-08-16		
Note: The site was dry (no water level recorded).		
2002-07-17		
Note: The site was dry (no water level recorded).		
2002-06-19		
Note: The site was dry (no water level recorded).		
2002-05-21		
Note: The site was dry (no water level recorded).		

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
2002-04-18		
Note: The site was dry (no water level recorded).		
2002-03-20		
Note: The site was dry (no water level recorded).		
2002-02-20		
Note: The site was dry (no water level recorded).		
2002-01-17		
Note: The site was dry (no water level recorded).		
2001-12-20		
Note: The site was dry (no water level recorded).		
2001-12-05		
Note: The site was dry (no water level recorded).		
2001-10-15		
Note: The site was dry (no water level recorded).		
2001-09-18		
Note: The site was dry (no water level recorded).		
2001-08-22		
Note: The site was dry (no water level recorded).		
2001-07-10		
Note: The site was dry (no water level recorded).		
2001-06-12		
Note: The site was dry (no water level recorded).		
2001-05-25		
Note: The site was dry (no water level recorded).		
2001-04-11		
Note: The site was dry (no water level recorded).		
2001-03-15		
Note: The site was dry (no water level recorded).		
2001-02-22		
Note: The site was dry (no water level recorded).		
2001-01-24		
Note: The site was dry (no water level recorded).		
2000-12-19		
Note: The site was dry (no water level recorded).		
2000-11-28		
Note: The site was dry (no water level recorded).		
2000-10-05		
Note: The site was dry (no water level recorded).		
2000-09-14		
Note: The site was dry (no water level recorded).		
2000-08-14		
Note: The site was dry (no water level recorded).		
2000-07-07		
Note: The site was dry (no water level recorded).		
2000-06-13		
Note: The site was dry (no water level recorded).		
2000-05-18		
Note: The site was dry (no water level recorded).		
2000-04-20		
Note: The site was dry (no water level recorded).		
2000-03-14		
Note: The site was dry (no water level recorded).		
2000-02-16		
Note: The site was dry (no water level recorded).		
2000-01-18		
Note: The site was dry (no water level recorded).		

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1999-12-16					
Note: The site was dry (no water level recorded).					
1999-11-05					
Note: The site was dry (no water level recorded).					
1999-10-04					
Note: The site was dry (no water level recorded).					
1999-09-14					
Note: The site was dry (no water level recorded).					
1999-08-23					
Note: The site was dry (no water level recorded).					
1999-08-19					
Note: The site was dry (no water level recorded).					
1999-07-21					
Note: The site was dry (no water level recorded).					
1999-06-25					
Note: The site was dry (no water level recorded).					
1999-06-21					
Note: The site was dry (no water level recorded).					
1999-05-25					
Note: The site was dry (no water level recorded).					
1999-04-20					
Note: The site was dry (no water level recorded).					
1999-03-05					
Note: The site was dry (no water level recorded).					
1999-02-16					
Note: The site was dry (no water level recorded).					
1999-01-11					
Note: The site was dry (no water level recorded).					
1998-12-14					
Note: The site was dry (no water level recorded).					
1998-11-05					
Note: The site was dry (no water level recorded).					
1998-10-06					
Note: The site was dry (no water level recorded).					
1998-09-15					
Note: The site was dry (no water level recorded).					
1998-08-14	65.57		1998-07-30	53.04	

B11
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000140947**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074404		
Monloc name:	001S002W07Q004S		
Monloc type:	Well		
Monloc desc:	CONE CAMP2 1 AT 124-144		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947306
Longitude:	-117.1287472	Sourcemap scale:	24000

Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1639.04
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	199709	Welldepth:	144
Welldepth units:	ft	Wellholedepth:	167
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 81

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22					
Note: The site was dry (no water level recorded).					
2004-11-24					
Note: The site was dry (no water level recorded).					
2004-10-26					
Note: The site was dry (no water level recorded).					
2004-09-22					
Note: The site was dry (no water level recorded).					
2004-08-24					
Note: The site was dry (no water level recorded).					
2004-07-21					
Note: The site was dry (no water level recorded).					
2004-06-23					
Note: The site was dry (no water level recorded).					
2004-06-03					
Note: The site was dry (no water level recorded).					
2004-05-19					
Note: The site was dry (no water level recorded).					
2004-04-21					
Note: The site was dry (no water level recorded).					
2004-03-24					
Note: The site was dry (no water level recorded).					
2004-02-18					
Note: The site was dry (no water level recorded).					
2004-01-22					
Note: The site was dry (no water level recorded).					
2003-12-16					
Note: The site was dry (no water level recorded).					
2003-11-18					
Note: The site was dry (no water level recorded).					
2003-10-22					
Note: The site was dry (no water level recorded).					
2003-09-18					
Note: The site was dry (no water level recorded).					
2003-08-21					
Note: The site was dry (no water level recorded).					
2003-07-23					
Note: The site was dry (no water level recorded).					
2003-06-24					
Note: The site was dry (no water level recorded).					
2003-05-20	138.60				
2003-04-17					
Note: The site was dry (no water level recorded).					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2003-03-19					
Note: The site was dry (no water level recorded).					
2003-02-21					
Note: The site was dry (no water level recorded).					
2003-01-21					
Note: The site was dry (no water level recorded).					
2002-12-19	139.40		2002-11-20	108.40	
2002-10-09	119.76				
2002-09-18					
Note: The site was dry (no water level recorded).					
2002-08-16					
Note: The site was dry (no water level recorded).					
2002-07-17					
Note: The site was dry (no water level recorded).					
2002-06-19					
Note: The site was dry (no water level recorded).					
2002-05-21					
Note: The site was dry (no water level recorded).					
2002-04-18					
Note: The site was dry (no water level recorded).					
2002-03-20					
Note: The site was dry (no water level recorded).					
2002-02-20					
Note: The site was dry (no water level recorded).					
2002-01-17	135.60		2001-12-20	119.85	
2001-12-05					
Note: The site was dry (no water level recorded).					
2001-10-15					
Note: The site was dry (no water level recorded).					
2001-09-18					
Note: The site was dry (no water level recorded).					
2001-08-22					
Note: The site was dry (no water level recorded).					
2001-07-10					
Note: The site was dry (no water level recorded).					
2001-06-12					
Note: The site was dry (no water level recorded).					
2001-05-25					
Note: The site was dry (no water level recorded).					
2001-04-11					
Note: The site was dry (no water level recorded).					
2001-03-15					
Note: The site was dry (no water level recorded).					
2001-02-22					
Note: The site was dry (no water level recorded).					
2001-01-24					
Note: The site was dry (no water level recorded).					
2000-12-19					
Note: The site was dry (no water level recorded).					
2000-11-28					
Note: The site was dry (no water level recorded).					
2000-10-05					
Note: The site was dry (no water level recorded).					
2000-09-14					
Note: The site was dry (no water level recorded).					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2000-08-14					
Note: The site was dry (no water level recorded).					
2000-07-07					
Note: The site was dry (no water level recorded).					
2000-06-13					
Note: The site was dry (no water level recorded).					
2000-05-18					
Note: The site was dry (no water level recorded).					
2000-04-20					
Note: The site was dry (no water level recorded).					
2000-03-14					
Note: The site was dry (no water level recorded).					
2000-02-16					
Note: The site was dry (no water level recorded).					
2000-01-18					
Note: The site was dry (no water level recorded).					
1999-12-16					
Note: The site was dry (no water level recorded).					
1999-11-05					
Note: The site was dry (no water level recorded).					
1999-10-04					
Note: The site was dry (no water level recorded).					
1999-09-14					
Note: The site was dry (no water level recorded).					
1999-08-23					
Note: The site was dry (no water level recorded).					
1999-08-19					
Note: The site was dry (no water level recorded).					
1999-07-21					
Note: The site was dry (no water level recorded).					
1999-06-25					
Note: The site was dry (no water level recorded).					
1999-06-21					
Note: The site was dry (no water level recorded).					
1999-05-25					
Note: The site was dry (no water level recorded).					
1999-04-20					
Note: The site was dry (no water level recorded).					
1999-03-05	131.00		1999-02-16	121.71	
1999-01-11	119.32		1998-12-14	111.31	
1998-11-05	111.82		1998-10-06	101.67	
1998-09-15	91.11		1998-08-14	68.23	
1998-07-30	55.05				

B12
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000140948**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074405		
Monloc name:	001S002W07Q005S		
Monloc type:	Well		
Monloc desc:	CONE CAMP2 2 AT 91-101;orig.depth 101 ft;		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947306
Longitude:	-117.1287472	Sourcemap scale:	24000

Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1639.04
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	199709	Welldepth:	102
Welldepth units:	ft	Wellholedepth:	167
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 81

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22					
Note: The site was dry (no water level recorded).					
2004-11-24					
Note: The site was dry (no water level recorded).					
2004-10-26					
Note: The site was dry (no water level recorded).					
2004-09-22					
Note: The site was dry (no water level recorded).					
2004-08-24					
Note: The site was dry (no water level recorded).					
2004-07-21					
Note: The site was dry (no water level recorded).					
2004-06-23					
Note: The site was dry (no water level recorded).					
2004-06-03					
Note: The site was dry (no water level recorded).					
2004-05-19					
Note: The site was dry (no water level recorded).					
2004-04-21					
Note: The site was dry (no water level recorded).					
2004-03-24					
Note: The site was dry (no water level recorded).					
2004-02-18					
Note: The site was dry (no water level recorded).					
2004-01-22					
Note: The site was dry (no water level recorded).					
2003-12-16					
Note: The site was dry (no water level recorded).					
2003-11-18					
Note: The site was dry (no water level recorded).					
2003-10-22					
Note: The site was dry (no water level recorded).					
2003-09-18					
Note: The site was dry (no water level recorded).					
2003-08-21					
Note: The site was dry (no water level recorded).					
2003-07-23					
Note: The site was dry (no water level recorded).					
2003-06-24					
Note: The site was dry (no water level recorded).					
2003-05-20					
Note: The site was dry (no water level recorded).					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
2003-04-17		
Note: The site was dry (no water level recorded).		
2003-03-19		
Note: The site was dry (no water level recorded).		
2003-02-21		
Note: The site was dry (no water level recorded).		
2003-01-21		
Note: The site was dry (no water level recorded).		
2002-12-19		
Note: The site was dry (no water level recorded).		
2002-11-20		
Note: The site was dry (no water level recorded).		
2002-10-09		
Note: The site was dry (no water level recorded).		
2002-09-18		
Note: The site was dry (no water level recorded).		
2002-08-16		
Note: The site was dry (no water level recorded).		
2002-07-17		
Note: The site was dry (no water level recorded).		
2002-06-19		
Note: The site was dry (no water level recorded).		
2002-05-21		
Note: The site was dry (no water level recorded).		
2002-04-18		
Note: The site was dry (no water level recorded).		
2002-03-20		
Note: The site was dry (no water level recorded).		
2002-02-20		
Note: The site was dry (no water level recorded).		
2002-01-17		
Note: The site was dry (no water level recorded).		
2001-12-20		
Note: The site was dry (no water level recorded).		
2001-12-05		
Note: The site was dry (no water level recorded).		
2001-10-15		
Note: The site was dry (no water level recorded).		
2001-09-18		
Note: The site was dry (no water level recorded).		
2001-08-22		
Note: The site was dry (no water level recorded).		
2001-07-10		
Note: The site was dry (no water level recorded).		
2001-06-12		
Note: The site was dry (no water level recorded).		
2001-05-25		
Note: The site was dry (no water level recorded).		
2001-04-11		
Note: The site was dry (no water level recorded).		
2001-03-15		
Note: The site was dry (no water level recorded).		
2001-02-22		
Note: The site was dry (no water level recorded).		
2001-01-24		
Note: The site was dry (no water level recorded).		

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
2000-12-19		
Note: The site was dry (no water level recorded).		
2000-11-28		
Note: The site was dry (no water level recorded).		
2000-10-05		
Note: The site was dry (no water level recorded).		
2000-09-14		
Note: The site was dry (no water level recorded).		
2000-08-14		
Note: The site was dry (no water level recorded).		
2000-07-07		
Note: The site was dry (no water level recorded).		
2000-06-13		
Note: The site was dry (no water level recorded).		
2000-05-18		
Note: The site was dry (no water level recorded).		
2000-04-20		
Note: The site was dry (no water level recorded).		
2000-03-14		
Note: The site was dry (no water level recorded).		
2000-02-16		
Note: The site was dry (no water level recorded).		
2000-01-18		
Note: The site was dry (no water level recorded).		
1999-12-16		
Note: The site was dry (no water level recorded).		
1999-11-05		
Note: The site was dry (no water level recorded).		
1999-10-04		
Note: The site was dry (no water level recorded).		
1999-09-14		
Note: The site was dry (no water level recorded).		
1999-08-23		
Note: The site was dry (no water level recorded).		
1999-08-19		
Note: The site was dry (no water level recorded).		
1999-07-21		
Note: The site was dry (no water level recorded).		
1999-06-25		
Note: The site was dry (no water level recorded).		
1999-06-21		
Note: The site was dry (no water level recorded).		
1999-05-25		
Note: The site was dry (no water level recorded).		
1999-04-20		
Note: The site was dry (no water level recorded).		
1999-03-05		
Note: The site was dry (no water level recorded).		
1999-02-16		
Note: The site was dry (no water level recorded).		
1999-01-11		
Note: The site was dry (no water level recorded).		
1998-12-14		
Note: The site was dry (no water level recorded).		
1998-11-05		
Note: The site was dry (no water level recorded).		

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1998-10-06					
Note: The site was dry (no water level recorded).					
1998-09-15	90.56		1998-08-14	67.66	
1998-07-30	54.44				

B13
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000140944**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074401		
Monloc name:	001S002W07Q001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947222
Longitude:	-117.1288222	Sourcemap scale:	24000
Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1638.90
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19970820	Welldepth:	790
Welldepth units:	ft	Wellholedepth:	797
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 89

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22	321.48		2004-11-24	325.68	
2004-10-26	323.35		2004-09-22	318.85	
2004-09-09	325.67		2004-08-25	315.26	
2004-08-24	315.24		2004-07-21	309.92	
2004-06-23	306.00		2004-05-19	302.93	
2004-04-21	300.00		2004-03-24	297.98	
2004-02-18	293.22		2004-01-22	292.02	
2003-12-16	296.30		2003-11-18	292.25	
2003-10-22	287.09		2003-09-18	279.16	
2003-08-21	271.86		2003-07-23	263.55	
2003-06-24	255.61		2003-05-20	251.30	
2003-04-17	254.22		2003-03-19	260.56	
2003-02-21	267.10		2003-01-21	266.10	
2002-12-19	269.91		2002-11-20	279.74	
2002-10-09	313.96		2002-09-18	316.68	
2002-08-16	310.81		2002-07-17	304.55	
2002-06-19	298.57		2002-05-21	293.10	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2002-04-18	285.98		2002-03-20	281.44	
2002-02-20	279.18		2002-01-17	285.30	
2001-12-20	310.12		2001-12-05	314.76	
2001-10-15	311.32		2001-09-18	308.73	
2001-08-22	304.87		2001-07-10	298.33	
2001-06-12	294.11		2001-05-25	291.96	
2001-04-11	294.31		2001-03-15	298.92	
2001-02-22	298.33		2001-01-24	295.63	
2000-12-19	291.67		2000-11-28	289.28	
2000-10-05	280.15		2000-09-14	277.70	
2000-08-14	273.95		2000-07-07	264.58	
2000-06-13	258.72		2000-05-18	254.30	
2000-04-20	250.28		2000-03-14	263.03	
2000-02-16	263.05		2000-01-18	258.51	
1999-12-16	252.88		1999-11-05	245.08	
1999-10-04	239.52		1999-09-14	234.65	
1999-08-23	228.03		1999-08-19	227.38	
1999-07-21	221.95		1999-06-25	213.87	
1999-06-21	212.90		1999-05-25	206.03	
1999-04-20	198.79		1999-03-05	189.42	
1999-02-16	186.39		1999-01-11	181.29	
1998-12-14	175.05		1998-11-05	167.52	
1998-10-06	158.92		1998-09-15	150.53	
1998-08-14	134.68		1998-07-30	130.01	
1998-07-22	130.19		1998-06-26	133.79	
1998-06-19	137.67		1998-03-18	217.28	
1998-03-17	217.48		1998-01-14	260.37	
1997-10-09	247.22				

B14
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000140945**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074402		
Monloc name:	001S002W07Q002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947222
Longitude:	-117.1288194	Sourcemap scale:	24000
Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1638.90
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19970820	Welldepth:	520
Welldepth units:	ft	Wellholedepth:	797
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 87

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22	316.41		2004-11-24	321.07	
2004-09-22	314.22		2004-09-09	320.95	
2004-08-25	310.54		2004-08-24	310.45	
2004-07-21	305.08		2004-06-23	301.20	
2004-05-19	298.02		2004-04-21	295.11	
2004-03-24	293.10		2004-02-18	288.29	
2004-01-22	287.15		2003-12-16	291.75	
2003-11-18	287.77		2003-10-22	282.46	
2003-09-18	274.44		2003-08-21	267.00	
2003-07-23	258.60		2003-06-24	250.55	
2003-05-20	245.86		2003-04-17	248.91	
2003-03-19	255.20		2003-02-21	261.97	
2003-01-21	260.65		2002-12-19	264.60	
2002-11-20	274.75		2002-10-09	310.23	
2002-09-18	313.11		2002-08-16	307.24	
2002-06-19	294.80		2002-05-21	289.08	
2002-04-18	281.96		2002-03-20	277.26	
2002-02-20	274.92		2002-01-17	281.38	
2001-12-20	307.09		2001-12-05	311.80	
2001-10-15	308.20		2001-09-18	305.50	
2001-08-22	301.61		2001-07-10	294.97	
2001-06-12	290.75		2001-05-25	288.80	
2001-04-11	291.45		2001-03-15	296.25	
2001-02-22	295.61		2001-01-24	292.85	
2000-12-19	288.83		2000-11-28	286.37	
2000-10-05	277.24		2000-09-14	274.69	
2000-08-14	270.80		2000-07-07	261.49	
2000-06-13	255.47		2000-05-18	250.91	
2000-04-20	246.87		2000-03-14	260.02	
2000-02-16	260.23		2000-01-18	255.66	
1999-12-16	249.96		1999-11-05	242.12	
1999-10-04	236.44		1999-09-14	231.42	
1999-08-23	224.47		1999-08-19	223.81	
1999-07-21	218.40		1999-06-25	209.60	
1999-06-21	208.61		1999-05-25	201.72	
1999-04-20	194.36		1999-03-05	184.82	
1999-02-16	181.69		1999-01-11	176.48	
1998-12-14	170.16		1998-11-05	162.82	
1998-10-06	154.10		1998-09-15	145.52	
1998-08-14	129.56		1998-07-30	124.69	
1998-07-22	124.82		1998-06-26	128.40	
1998-06-19	132.41		1998-03-18	176.51	
1998-03-17	176.57		1998-01-14	236.08	
1997-10-09	235.50				

B15
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000140946**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340541117074403		
Monloc name:	001S002W07Q003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0947222
Longitude:	-117.1288194	Sourcemap scale:	24000
Horiz Acc measure:	.01	Horiz Acc measure units:	seconds
Horiz Collection method:	Differentially corrected Global Positioning System (DGPS)		
Horiz coord refsys:	NAD83	Vert measure val:	1638.90
Vert measure units:	feet	Vertacc measure val:	.5
Vert accmeasure units:	feet		
Vertcollection method:	Differential Global Positioning System (GPS)r		
Vert coord refsys:	NAVD88	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19970820	Welldepth:	300
Welldepth units:	ft	Wellholedepth:	797
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 90

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-12-22	267.80		2004-11-24	281.30	
2004-10-26	283.15		2004-09-22	276.64	
2004-09-09	292.24		2004-08-25	270.31	
2004-08-24	270.12		2004-07-21	262.96	
2004-06-23	258.28		2004-06-03	255.76	
2004-05-19	253.63		2004-04-21	250.22	
2004-03-24	248.41		2004-02-18	240.60	
2004-01-22	238.77		2003-12-16	252.58	
2003-11-18	250.41		2003-10-22	243.59	
2003-09-18	234.24		2003-08-21	225.34	
2003-07-23	214.41		2003-06-24	202.80	
2003-05-20	191.08		2003-04-17	193.20	
2003-03-19	198.30		2003-02-21	210.14	
2003-01-21	201.08		2002-12-19	203.51	
2002-11-20	209.24		2002-10-09	272.10	
2002-09-18	281.77		2002-08-16	273.96	
2002-07-17	265.85		2002-06-19	257.64	
2002-05-21	250.40		2002-04-18	241.76	
2002-03-20	233.34		2002-02-20	227.04	
2002-01-17	230.58		2001-12-20	277.12	
2001-12-05	286.02		2001-10-15	279.94	
2001-09-18	275.50		2001-08-22	270.10	
2001-07-10	259.83		2001-06-12	254.64	
2001-05-25	252.69				

2001-04-11
Note: The site was dry (no water level recorded).
2001-03-15
Note: The site was dry (no water level recorded).
2001-02-22
Note: The site was dry (no water level recorded).
2001-01-24
Note: The site was dry (no water level recorded).

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2000-12-19					
Note: The site was dry (no water level recorded).					
2000-11-28					
Note: The site was dry (no water level recorded).					
2000-10-05	249.70		2000-09-14	246.27	
2000-08-14	240.18		2000-07-07	228.64	
2000-06-13	220.35		2000-05-18	212.29	
2000-04-20	205.56		2000-03-14	228.33	
2000-02-16	234.55		2000-01-18	228.89	
1999-12-16	222.99		1999-11-05	214.39	
1999-10-04	208.27		1999-09-14	203.10	
1999-08-23	196.30		1999-08-19	195.46	
1999-07-21	189.56		1999-06-25	182.41	
1999-06-21	181.34		1999-05-25	174.30	
1999-04-20	165.50		1999-03-05	154.75	
1999-02-16	149.97		1999-01-11	144.73	
1998-12-14	137.75		1998-11-05	133.04	
1998-10-06	123.36		1998-09-15	113.51	
1998-08-14	93.69		1998-07-30	85.47	
1998-07-22	84.26		1998-06-26	84.71	
1998-06-19	88.29		1998-03-18	154.25	
1998-03-17	154.20		1998-01-14	225.79	
1997-10-09	215.70				

B16
South
1/2 - 1 Mile
Lower

CA WELLS **CADW50000004326**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W004	Casgem sta:	01S02W07Q004S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004326

B17
South
1/2 - 1 Mile
Lower

CA WELLS **CADW50000004322**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W003	Casgem sta:	01S02W07Q003S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004322

Map ID Direction Distance Elevation	Database	EDR ID Number
B18 **South** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000004321**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W001	Casgem sta:	01S02W07Q001S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004321

B19 **South** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000004323**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W005	Casgem sta:	01S02W07Q005S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004323

B20 **South** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000004325**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W002	Casgem sta:	01S02W07Q002S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004325

B21 **South** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000004324**

Latitude :	34.0947		
Longitude :	117.1297		
Site code:	340947N1171297W006	Casgem sta:	01S02W07Q006S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004324

Map ID Direction Distance Elevation	Database	EDR ID Number
22 **ESE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000141115**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340618117064501		
Monloc name:	001S002W08C001S		
Monloc type:	Well		
Monloc desc:	DEPTH MEASURED ON 6/29/88 AS 84.2 FT BELOW LSD		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1050117
Longitude:	-117.1133694	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1810.
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	1928	Welldepth:	84.2
Welldepth units:	ft	Wellholedepth:	267
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 11

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1988-06-29	71.15		1987-12-09	66.50	
1987-06-16	74.26		1986-11-17	77.66	
1986-06-18	65.22		1985-09-24	82.74	
1978-03-15	18.9		1978-03-01	18.9	
1974-04-16	71.90		1973-11-13	74.82	
1959-11-04	133.7				

C23 **SSE** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**CADW50000004320**	

Latitude :	34.0945		
Longitude :	117.1246		
Site code:	340945N1171246W001	Casgem sta:	01S02W07R001S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	36		
Basin cd:	8-2.06	Basin desc:	Bunker Hill
Org unit n:	Southern Region Office	Site id:	CADW50000004320

Map ID Direction Distance Elevation	Database	EDR ID Number
C24 **SSE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40000140940**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340540117072201		
Monloc name:	001S002W07R001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.0944565
Longitude:	-117.1236473	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1680
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19970110	Welldepth:	600
Welldepth units:	ft	Wellholedepth:	605
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 16

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-10-25	318.70		2004-04-21	292.44	
2003-10-23	278.16		2003-04-21	239.06	
2002-10-28	304.02		2002-04-09	282.78	
2001-10-22	315.92		2001-04-17	303.35	
2000-10-24	289.10		2000-04-13	253.83	
1999-10-18	243.50		1999-04-14	196.39	
1998-10-22	155.64		1998-04-14	181.21	
1997-10-30	251.16		1997-05-07	199.07	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92346	17	0

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92346

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.900 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D

Sample Location Map, A&R Laboratory Reports and Chain of Custody

SOIL SAMPLE LOCATION MAP

PROJECT:	30976 GREENSPOT ROAD, HGHLAND, CA	PROJECT NO.:	33007.2
CLIENT:	SUNLAND COMMUNITIES	ENCLOSURE:	D-1
LOR Geotechnical Group, Inc.		DATE:	OCTOBER, 2013
		SCALE:	Not to Scale

A & R Laboratories

Formerly Microbac Southern California

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951-779-0310 FAX 951-779-0344
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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 09/16/2013 12:17:06
Laboratory Job No. (Certificate of Analysis No.)	1308-00105
Project Name / No.	CALVARY-EAST HIGHLAND 33007.2
Dates Sampled (from/to)	08/23/13 To 08/23/13
Dates Received (from/to)	08/23/13 To 08/23/13
Dates Reported (from/to)	09/16/13 To 9/16/2013
Chains of Custody Received	Yes

Comments:

This report is a re-issue. The data herein is a revised reporting of the results for these analyses and supersedes any other version issued previously.

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Other Analyses

2 PLM sample(s) reported by technician LAT were contracted to L.A. TESTING

All results for sub-contracted analyses may be sent separately

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
S-1-P	4,4'-DDD	0.026		mg/Kg	0.0020	S-1-P	4,4'-DDE	0.114		mg/Kg	0.0020
S-2-P	4,4'-DDE	0.011		mg/Kg	0.0020	S-3-P	4,4'-DDD	0.062		mg/Kg	0.0020
S-3-P	4,4'-DDE	0.171		mg/Kg	0.0020	S-4-P	4,4'-DDE	0.004		mg/Kg	0.0020
S-5-P	4,4'-DDE	0.006		mg/Kg	0.0020						

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USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research

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	2790
	2122

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 S-1-P					Date & Time Sampled:		08/23/13 @ 11:05	
Sample Matrix: Soil								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1		08/30/13	KZ
Aldrin	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Chlordane	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
4,4'-DDD	0.026		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDE	0.114		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1	0.100	08/30/13	KZ
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
Toxaphene	<0.020		mg/Kg	EPA 8081A	1	0.020	08/30/13	KZ
[Surrogates]								
Tetrachloro-m-xylene	63		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
Decachlorobiphenyl	73		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1	1.00	08/27/13	TLB
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	7.60		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
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Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 S-2-P					Date & Time Sampled:		08/23/13 @ 12:12	
Sample Matrix: Soil								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1		08/30/13	KZ
Aldrin	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Chlordane	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDE	0.011		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1	0.100	08/30/13	KZ
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
Toxaphene	<0.020		mg/Kg	EPA 8081A	1	0.020	08/30/13	KZ
[Surrogates]								
Tetrachloro-m-xylene	72		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
Decachlorobiphenyl	64		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Arsenic	2.05		mg/Kg	EPA 6010B	1	1.00	08/27/13	TLB
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	95.0		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 S-3-P					Date & Time Sampled:		08/23/13 @ 12:20	
Sample Matrix: Soil								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1		08/30/13	KZ
Aldrin	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Chlordane	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
4,4'-DDD	0.062		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDE	0.171		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1	0.100	08/30/13	KZ
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
Toxaphene	<0.020		mg/Kg	EPA 8081A	1	0.020	08/30/13	KZ
[Surrogates]								
Tetrachloro-m-xylene	71		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
Decachlorobiphenyl	65		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1	1.00	08/27/13	TLB
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	3.38		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 S-4-P					Date & Time Sampled:		08/23/13 @ 12:24	
Sample Matrix: Soil								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1		08/30/13	KZ
Aldrin	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Chlordane	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDE	0.004		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1	0.100	08/30/13	KZ
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
Toxaphene	<0.020		mg/Kg	EPA 8081A	1	0.020	08/30/13	KZ
[Surrogates]								
Tetrachloro-m-xylene	58		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
Decachlorobiphenyl	94		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1	1.00	08/27/13	TLB
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	3.10		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 S-5-P					Date & Time Sampled:		08/23/13 @ 12:03	
Sample Matrix: Soil								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1		08/30/13	KZ
Aldrin	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Chlordane	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDE	0.006		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1	0.0020	08/30/13	KZ
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1	0.100	08/30/13	KZ
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1	0.0010	08/30/13	KZ
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1	0.010	08/30/13	KZ
Toxaphene	<0.020		mg/Kg	EPA 8081A	1	0.020	08/30/13	KZ
[Surrogates]								
Tetrachloro-m-xylene	70		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
Decachlorobiphenyl	76		%REC	EPA 8081A/8082		50-150	08/30/13	KZ
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1	1.00	08/27/13	TLB
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	5.72		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

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CERTIFICATE OF ANALYSIS

1308-00105

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/16/13
Date Received	08/23/13
Invoice No.	70681
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 S-1-A/Pb					Date & Time Sampled:		08/23/13 @ 11:44	
Sample Matrix: Soil								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	14.8		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB
Sample: 007 S-2-A/Pb					Date & Time Sampled:		08/23/13 @ 11:50	
Sample Matrix: Soil								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1		08/27/13	TLB
Lead	212		mg/Kg	EPA 6010B	1	0.500	08/27/13	TLB

Respectfully Submitted:

Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Marilu Escher, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at arlab@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1308-00105

LOR GEOTECHNICAL GROUP, INC.
RIVERSIDE, CA 92507

Date Reported	**09/16/2013**
Date Received	**08/23/2013**
Date Sampled	**08/23/2013**
Invoice No.	**70681**
Customer #	**1422**
Customer P.O.	**33007.2**

Project: CALVARY-EAST HIGHLAND

Method # EPA 6010B

QC Reference # 40409 Date Analyzed: 8/27/2013 Technician: TLB

Samples 001 002 003 004 005 006 007

Results	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD	Control Ranges LCS %REC	LCS %RPD	SPIKE %RPD
Arsenic	98	99	0.5	81	81	0.4	75 - 125	0 - 20	0 - 20
Lead	98	98	0.5	88	88	0.3	75 - 125	0 - 20	0 - 20

QC Reference # 40614 Date Analyzed: 8/27/2013 Technician: TLB

Samples 001 002 003 004 005

Results	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD	Control Ranges LCS %REC	LCS %RPD	SPIKE %RPD
Lead	98	98	0.5	88	88	0.3	75 - 125	0 - 20	0 - 20

Method # EPA 8081A

QC Reference # 40470 Date Analyzed: 8/30/2013 Technician: KZ

Samples 001 002 003 004 005

Results	LCS %REC	LCS %DUP	LCS %RPD	Control Ranges LCS %REC	LCS %RPD
4,4'-DDT	92	82	11	70 - 130	0 - 25
Aldrin	88	86	3	70 - 130	0 - 25
Dieldrin	87	89	3	70 - 130	0 - 25
Endrin	93	84	10	70 - 130	0 - 25
gamma-BHC	91	80	12	70 - 130	0 - 25
Heptachlor	89	83	7	70 - 130	0 - 25

Method # EPA 8081A/8082

QC Reference # 40470 Date Analyzed: 8/30/2013 Technician: KZ

Samples 001 002 003 004 005

Results	BLKSRR %REC	Control Ranges BLKSRR %REC
Decachlorobiphenyl	69	50 - 150
Tetrachloro-m-xylene	76	50 - 150

No method blank results were above reporting limit

Respectfully Submitted:

Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Marilu Escher, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at arlab@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1308-00105

LOR GEOTECHNICAL GROUP, INC.

Date Reported	**09/16/2013**
Date Received	**08/23/2013**
Date Sampled	**08/23/2013**

Project: CALVARY-EAST HIGHLAND

LA Testing
11652 Knott Street Unit F5, Garden Grove, CA 92841
Phone/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com gardengrovelab@latesting.com

LA Testing Order:	331312654
CustomerID:	32CENT50
CustomerPO:	1308-00105
ProjectID:	

Attn: **Jennifer Iniguez**
A & R Laboratories
1650-C South Grove Avenue
Ontario, CA 91761

Phone:	(800) 798-9336
Fax:	(951) 779-0344
Received:	08/27/13 11:35 AM
Analysis Date:	9/3/2013
Collected:	8/23/2013

Project: **Calvary-East Highland / 1308-00105**

Test Report: Asbestos Analysis via Polarized Light Microscopy, Qualitative

Sample	Description	Appearance	Result	Notes
S-1-A/Pb *331312654-0001*			**None Detected**	
S-2-A/Pb *331312654-0002*			**None Detected**	

Analyst(s)
Jeffrey Deboo (2)

Michael DeCavallas, Laboratory Manager
or other approved signatory

LA Testing recommends that soil samples reported as "ND" be tested by the EPA Screening Method/Qualitative. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by LA Testing, Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government.Samples received in good condition unless otherwise noted.
Samples analyzed by LA Testing Garden Grove, CA

Initial report from 09/03/2013 10:44:29

THIS IS THE LAST PAGE OF THE REPORT.

331312654

Asbestos Chain of Custody

LA Testing Order Number (*Lab Use Only*): #331312654

LA TESTING
11652 KNOTT ST #F5
GARDEN GROVE, CA 92841
PHONE: (714) 828-4999
FAX: (714) 828-4944

Company: A+R LABORATORIES
Street: 1650-C S. GROVE AVE.
City: ONTARIO **State/Province:** CA
Report To (Name): JENNIFER IÑIGUEZ
Telephone #: 951.779.0310
Project Name/Number: CALVARY-EAST HIGHLAND / 1308-00105
Please Provide Results: ☐ Fax ☒ Email **Purchase Order:** 1308-00105

LA Testing-Bill to: ☒ Same ☐ Different
If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party
Zip/Postal Code: 91761 **Country:** USA
Fax #: —
Email Address: jennifer.iniguez@arlaboratories.com
U.S. State Samples Taken:

Turnaround Time (TAT) Options* – Please Check
☐ 3 Hours ☐ 6 Hours ☐ 24 Hrs ☐ 48 Hrs ☐ 3 Days ☒ 4 Days ☐ 5 Days ☐ 10 Days

**For TEM Air 3 hours/6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with LA Testing's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
☐ NIOSH 7400
☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
☐ PLM EPA 600/R-93/116 (<1%)
☐ PLM EPA NOB (<1%)
Point Count
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
Point Count w/Gravimetric
☐ 400 (<0.25%) ☐ 1000 (<0.1%)
☐ NYS 198.1 (friable in NY)
☐ NYS 198.6 NOB (non-friable-NY)
☐ NIOSH 9002 (<1%)

TEM - Air
☐ AHERA 40 CFR, Part 763
☐ NIOSH 7402
☐ EPA Level II
☐ ISO 10312

TEM - Bulk
☐ TEM EPA NOB
☐ NYS NOB 198.4 (non-friable-NY)
☐ Chatfield SOP
☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
Fibers >10µm ☐ Waste ☐ Drinking
All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
☐ Microvac - ASTM D 5755
☐ Wipe - ASTM D6480
☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
☐ PLM CARB 435 - A (0.25% sensitivity)
☐ PLM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - B (0.1% sensitivity)
☐ TEM CARB 435 - C (0.01% sensitivity)
☐ EPA Protocol (Semi-Quantitative)
☐ EPA Protocol (Quantitative)

Other:
☒ PLM QUALITATIVE

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name:
Samplers Signature:

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	S-1-A/Pb	1 OZ JAR	8/23/13 @ 11:44 am
	S-2-A/Pb	1 OZ JAR	8/23/13 @ 11:50 am

Client Sample # (s): 1308-00105-6 + 1308-00105-7 **Total # of Samples:** 2
Relinquished (Client): [signature] **Date:** 8.26.13 **Time:** 1600
Received (Lab): AC (UPS) **Date:** 8.27.13 **Time:** 11:35
Comments/Special Instructions:

* Shipped via UPS

Controlled Document – Asbestos COC – R1 – 3/18/2009

ARL

A & R Laboratories
1401 Research Park Drive, Suite 100
Riverside, CA 92507
T: 951.779.0310 • 800.798.9336 F: 951.779.0344
office@arlaboratories.com

Chain of Custody Rec

1308 - 105

Project No/Name: 33007.2
Project Site: CALVARY - EAST Highland
Project Manager: Kevin Osmun
Phone: 653-1760
Fax:
Customer Name: (Report and Billing) LOR Geotechnical
Street Address: (Report and Billing)
Email: KOSMUN@LORgeo.com
City, State Zip: Riverside

Analyses Requested (circle appropriate)

Lab # (Lab use only)	Sample ID (As it should appear on report)	Grab/ Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, VSS, TDS, pH, EC	Chem: Cyanide, Ammonia, TKN, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22(CAM) or RCRA	LUFT Gas or 8015 GRO (C4-C12)	LUFT Diesel or 8015 DRO &/or Oil	VOCs by GCMS: 8260B or 624	BTEX, OXYs by GCMS: 8260B or 624	SVOCs: 8270C or 625	Pest. &/or PCBs: 608 or 8081/8082	STLC Pb ⊗ADDED 9.5.13	Asbestos	Pb ⊗ADDED 9.16.13	ARSENIC	Special Instructions
1	S-1-P	G	8/23/13	1105	Soil	1-Glass												X			⊗	X	
2	S-2-P			1212														X			⊗	X	
3	S-3-P			1220														X			⊗	X	
4	S-4-P			1224														X			⊗	X	
5	S-5-P			1203														X			⊗	X	
6	S-1-A/Pb			1144																X	X		
7	S-2-A/Pb			1130															⊗	X	X		

1) Relinquished by: (Sampler's Signature) — Date: 8/23/ Time: 1:20
3) Relinquished by: — Date: Time:
5) Relinquished by: — Date: Time:
2) Received by: — Date: Time:
4) Received by: — Date: Time:
6) Received for Laboratory by: — Date: 8/23/13 Time: 1325

Turn Around
- ○ 24hr RUSH*
- ○ 48hr RUSH*
- ● Normal
- ○ Other

*PRIOR approval, additional fee, work received after 4 pm will be processed next work day.

Disposal
- ○ Return
- ● Lab Disposal

Unless other arrangements are made samples will be disposed of 60 days after reciept.

This section is to be completed by laboratory personnel:

Samples Chilled: ● Yes ○ No ● From Field
Custody Seals: ○ Yes ● No
Samples Intact: ● Yes ○ No
Temp C: 10.A
Delivery: ○ Courier ● Walk In ○ UPS/Fed Ex

Report Delivery Formats: ☐ Paper ☒ EMAIL ☐ XLS ☐ EDD, Type ☐ EDF, EPA Site ID

Laboratory Notes: REC'D ON ICE ⊗ADDED - SEE WO# 1309-23 9.5.13 ⊗TOTAL Pb ADDED ~~SEE WO# 1309-70~~ 9.16.13

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

White Copy - Original (Accompanies Samples) Yellow Copy - A & R Files Pink Copy - Client Copy

A & R Laboratories

Formerly Microbac Southern California

1650 S. GROVE AVE., SUITE C
ONTARIO, CA 91761
951-779-0310 FAX 951-779-0344
www.arlaboratories.com office@arlaboratories.com

FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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FOOD · COSMETICS · WATER · SOIL · SOIL VAPOR · WASTES

CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 09/11/2013 13:34:06
Laboratory Job No. (Certificate of Analysis No.)	1309-00023
Project Name / No.	Addt'l - CALVARY-EAST HIGHLAND 33007.2
Dates Sampled (from/to)	08/23/13 To 08/23/13
Dates Received (from/to)	09/05/13 To 09/05/13
Dates Reported (from/to)	09/11/13 To 9/11/2013
Chains of Custody Received	Yes

Comments:

Subcontracting

Inorganic Analyses

No analyses sub-contracted

Other Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

None

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

USDA-EPA-NIOSH Testing Food Sanitation Consulting Chemical and Microbiological Analyses and Research

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FDA#	2030513
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	2790
	2122

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CERTIFICATE OF ANALYSIS

1309-00023

LOR GEOTECHNICAL GROUP, INC.
KEVIN OSMUN
6121 QUAIL VALLEY COURT
RIVERSIDE, CA 92507

Date Reported	09/11/13
Date Received	09/05/13
Invoice No.	70662
Cust #	1422
Permit Number	
Customer P.O.	33007.2

Project: Addt'l - CALVARY-EAST HIGHLAND

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 S-2-A/Pb					Date & Time Sampled:		08/23/13 @ 11:50	
Sample Matrix: Soil								
[Metals]								
STLC	Complete			Title 22	50		09/06/13	TLB
Lead	13.1		mg/L	EPA 6010B	50	1.00	09/06/13	TLB

Respectfully Submitted:

Ken Zheng

Ken Zheng - Lab Director

QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Marilu Escher, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at arlab@arlaboratories.com.

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

A & R Laboratories

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QUALITY CONTROL DATA REPORT

1309-00023

LOR GEOTECHNICAL GROUP, INC.
RIVERSIDE, CA 92507

Date Reported	**09/11/2013**
Date Received	**09/05/2013**
Date Sampled	**08/23/2013**
Invoice No.	**70662**
Customer #	**1422**
Customer P.O.	**33007.2**

Project: Addt'l - CALVARY-EAST HIGHLAND

Method # EPA 6010B

QC Reference # 40554 Date Analyzed: 9/6/2013 Technician: TLB

Samples 001

Results	LCS %REC	LCS %DUP	LCS %RPD	Control Ranges LCS %REC	Control Ranges LCS %RPD
Lead	98	93	5.1	75 - 125	0 - 20

No method blank results were above reporting limit

Respectfully Submitted:

Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Marilu Escher, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at arlab@arlaboratories.com.

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Riverside, CA 92507
T: 951.779.0310 • 800.798.9336 F: 951.779.0344
office@arlaboratories.com

Chain of Custody Rec 1309 - 23

Project No/Name: 33007.2
Project Site: CALVARY - EAST Highland
Project Manager: Kevin Osmun
Phone: 653-1760
Fax:
Customer Name: (Report and Billing) HOR Geotechnical
Street Address: (Report and Billing)
Email: KOSMUN@HORgeo.com
City, State Zip: Riverside

Analyses Requested (circle appropriate)

Lab # (Lab use only)	Sample ID (As it should appear on report)	Grab/ Comp	Date sampled	Time sampled	Sample matrix	Container # & Type	Preserved	Micro: Plate Cnt., Coliform, E-Coli	Chem: BOD, TSS, VSS, TDS, pH, EC	Chem: Cyanide, Ammonia, TKN, Oil & Grease	IC: Br, SO4, PO4, NO3, NO2, Cl	Metals: Title 22(CAM) or RCRA	LUFT Gas or 8015 GRO (C4-C12)	LUFT Diesel or 8015 DRO &/or Oil	VOCs by GCMS: 8260B or 624	BTEX, OXYs by GCMS: 8260B or 624	SVOCs: 8270C or 625	Pest &/or PCBs: 608 or 608/8082	STLC Pb	Asbestos	Pb	Arsenic	Special Instructions
1	S-1-P	G	8/23/13	1105	Soil	1-Glass												X				X	
2	S-2-P			1212														X				X	
3	S-3-P			1220														X				X	
4	S-4-P			1224														X				X	
5	S-5-P			1203														X				X	[redacted]
6	S-1-A/Pb			1144																X	X		
7	S-2-A/Pb			1150															X	X	X		

1) Relinquished by: (Sampler's Signature) — Date: 8/23/ — Time: 1120
2) Received by: — Date: — Time:
3) Relinquished by: — Date: — Time:
4) Received by: — Date: — Time:
5) Relinquished by: — Date: — Time:
6) Received for Laboratory by: — Date: 8/23/13 — Time: 1320

Turn Around: ○ 24hr RUSH* ○ 48hr RUSH* ● Normal ○ Other ____
*PRIOR approval, additional fee. work received after 4 pm will be processed next work day.

Disposal: ○ Return ● Lab Disposal
Unless other arrangements are made samples will be disposed of 60 days after reciept.

This section is to be completed by laboratory personnel:
Samples Chilled: ● Yes ○ No ● From Field
Custody Seals: ○ Yes ● No
Samples Intact: ● Yes ○ No
Temp C: 10.4
Delivery: ○ Courier ● Walk In ○ UPS/Fed Ex

Report Delivery Formats: ☐ Paper ☒ EMAIL ☐ XLS ☐ EDD, Type ____ ☐ EDF, EPA Site ID ____

Laboratory Notes: RECD ON ICE (X) ADDED STLC Pb ON 9/5/13 - PREVIOUS WO# 1308-00105 QW

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The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

White Copy - Original (Accompanies Samples) Yellow Copy - A & R Files Pink Copy - Client Copy

APPENDIX 7a

Conceptual

Water Quality Management Plan

For:

119-536

TRACT 18893

THE COUNTY OF SAN BERNARDINO AREAWIDE STORMWATER PROGRAM

NPDES NO. CAS618036, ORDER NO. R8-2010-0036

Prepared for:

SUNLAND COMMUNITITES, LLC

10575 OAKDALE DRIVE

RANCHO CUCAMONGA, CA

PH: (909) 484-2829

CONTACT: CAMILLE BAHRI

Prepared by:

SITETECH INC.

38248 POTATO CANYON ROAD

OAK GLEN, CA 92399

PH: (909) 846-3180

CONTACT: BERNIE MAYER

JUNE 20, 2014

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for SUNLAND COMMUNITIES LLC by SITETECH INC.. The WQMP is intended to comply with the requirements of the CITY OF HIGHLAND and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):	TRACT 18893	Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			A.P.N. 0297-021-18,26 & 26 & 0297-061-04,05,06,07,09,13,20,21,25,26, 29 & 0297-201-05 & 0297-101-22

Owner's Signature		
Owner Name: CAMILLE G. BAHRI		
Title	PRESIDENT	
Company	SUNLAND COMMUNITIES, LLC	
Address	10575 OAKDALE DRIVE, RANCHO CUCAMONGA, CA	
Email	cbahri@charter.net	
Telephone #	(909) 484-2829	
Signature	Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):	TRACT 18893	Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			A.P.N. 0297-021-18,26 & 26 & 0297-061-04,05,06,07,09, 13,20,21,25, 26,29 & 0297-201-05 & 0297-101-22

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: BERNIE MAYER		PE Stamp Below
Title	PRESIDENT	
Company	SITETECH, INC.	
Address	38248 POTATO CONYON ROAD, OAK GLEN, CA 92399	
Email	bmayer@sitetechinc.com	
Telephone #	(909) 864-3180	
Signature		
Date		

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Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	TRACT 18893				
Project Owner Contact Name:	CAMILLE BAHRI				
Mailing Address:	10575 OAKDALE DRIVE, RANCHO CUCAMONGA, CA 91730	E-mail Address:	cbahri@charter.net	Telephone:	(909) 484-2829
Permit/Application Number(s):			Tract/Parcel Map Number(s):	Tract 18893	
Additional Information/ Comments:	NONE				
Description of Project:	The project is a new development of an existing 176 acre property into 277 residential lots The project will include the construction of new streets along with sewer, water and drainage facilities. Approximately 74 acres of the site will be developed.				
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	WQMP is Conceptual, no conditions have been provided.				

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

1 Development Category (Select all that apply):

☐ Significant re-development involving the addition or replacement of 5,000 ft^2 or more of impervious surface on an already developed site	☒ New development involving the creation of 10,000 ft^2 or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft^2 or more
☐ Hillside developments of 5,000 ft^2 or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft^2 of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☐ Parking lots of 5,000 ft^2 or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft^2 or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

2 Project Area (ft2):	3,658,374	**3** Number of Dwelling Units:	237	**4** SIC Code:	1521

5 Is Project going to be phased? Yes ☒ No ☐ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.* ***PROJECT IS PHASE BUT THE WQMP IS NOT – THE INFILTRATION BASIN IS SIZED TO TREAT THE ENTIRE PROJECT AND WILL BE CONSTRUCTED AS A PART OF PHASE I.***

6 Does Project include roads? Yes ☒ No ☐ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management
Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:
Streets, storm drain facilities (catch basins, storm drain lines, etc.) and the WQMP infilitration basin will be maintained by The City of Highland. WQMP basins in Tract 18893 will be conveyed to The City of Highland and maintained by drainage assesment district.

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	Santa Ana River Reach 3 and 4 imparied due to pathogens
Nutrients - Phosphorous	E ☒	N ☐	
Nutrients - Nitrogen	E ☒	N ☐	
Noxious Aquatic Plants	E ☒	N ☐	
Sediment	E ☒	N ☐	
Metals	E ☐	N ☒	
Oil and Grease	E ☒	N ☐	
Trash/Debris	E ☒	N ☐	
Pesticides / Herbicides	E ☒	N ☐	
Organic Compounds	E ☒	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits			
[1] Project Types that Qualify for Water Quality Credits: *Select all that apply*			
☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
[2] Total Credit % 0 *(Total all credit percentages up to a maximum allowable credit of 50 percent)*			
Description of Water Quality Credit Eligibility (if applicable)	NONE		

Section 3 Site and Watershed Description

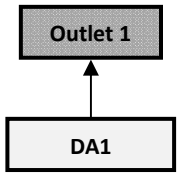
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34° 06'21.73"N	Longitude 117° 7'24.72"W	Thomas Bros Map page PAGE 578, SECTION J7

1 San Bernardino County climatic region: ☒ Valley ☐ Mountain

2 Does the site have more than one drainage area (DA): Yes☐ No☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Conveyance	All onsite runoff will be conveyed to 1 infiltration basin via the proposed streets or storm drain
DA1 flows to Basin 1	Runoff from DA1 is conveyed via street and stromdrain to WQMP Infiltration Basin 1 – Basin 1 is sized to treat the entire project and will be constructed as a part of Phase I

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A	DMA B	DMA C	DMA D
1 DMA drainage area (ft^2)	3,658,374			
2 Existing site impervious area (ft^2)	22,315 S.F.			
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	AMC II			
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://sbcounty.permitrack.com/WAP*	B			
5 Longest flowpath length (ft)	3,058			
6 Longest flowpath slope (ft/ft)	0.056			
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	CITRUS ORCHARDS/ VACANT			
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	75%			

Form 3-3 Watershed Description for Drainage Area

Receiving waters *Refer to Watershed Mapping Tool -* *http://sbcounty.permitrack.com/WAP* *See 'Drainage Facilities" link at this website*	Storm water runoff from the site will be conveyed to the proposed vegetated swales (pre-treatment) which run along the perimeter of each lot. The vegetated swales will convey the flows to the proposed streets which will convey the flows to a WQMP Infiltration Basin. (see site plan for basin location). Overflow from the basin will be conveyed into a propsed storm drain will that will convey the runoff to the City of Highland's maintained storm drain system. The storm drain system will convey the runoff to Plunge Creek; Plunge Creek the Santa Ana River (Reach 5, 801.52). Santa Ana River (Reach 5, 801.52) will convey flows to Santa Ana River (Reach 4, 801.27). Santa Ana River (Reach 4, 801.27) will convey flows into Santa Ana River (Reach 3, 801.21) and into the Prado Basin. Santa Ana River (Reach 3, 801.21) will convey flows to the Santa Ana River (Reach 2, 801.11). Santa Ana River (Reach 2, 801.11) will convey flows to Santa Ana River (Reach 1, 801.11). Santa Ana River (Reach 1, 801.11) will convey flows to the Pacific Ocean.
Applicable TMDLs *Refer to Local Implementation Plan*	Pardo Area Streams Pathogen TMLD
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool –* *http://sbcounty.permitrack.com/WAP and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	The proximate receiving water for the Project is Santa Ana River (Reach 5) which has no pre-existing water quality problems. All other receiving waters are considered downstream of Santa Ana River (Reach 5). No pre-existing water quality problems attributable to the existing site have been identified; however, pre-existing impairments in the downstream receiving waters have been identified. Reach 3 is impaired due to pathogens (Prado Area Streams Pathogen TMDL), copper and lead. Reach 4 is impaired due to pathogens.
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool –* *http://sbcounty.permitrack.com/WAP*	Per Watershed Maping Tool, the project does fall within a potentially sensitive area. The map indicates an overlay of Riversidean Alluvial Fan Sage Shrub. (note: 90% of the site is covered with citrus groves or is barren land)
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool –* *http://sbcounty.permitrack.com/WAP*	Yes, Plunge Creek and Santa Ana River are unlined
Hydrologic Conditions of Concern	☒ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☐ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion*

	• *Long-Term Maintenance Plan* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	This Plan will be made available to the Property Owners. Property owners will familiarize themselves with the reference material at the end of this document.
N2	Activity Restrictions	☒	☐	Pesticides must be performed by an applicator certified by the California Department of Pesticide Regulation.
N3	Landscape Management BMPs	☐	☐	Property Owners to maintain landacaping on their lot. If any landscape lots, or parks are required as a party of this project they will be maintained by the City of Highland.
N4	BMP Maintenance	☒	☐	Property owners to maintain their lot including the vegetated swales. The City of Highland will maintain streets, storm drain facilities and WQMP basin.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	
N6	Local Water Quality Ordinances	☐	☒	No Local Ordinance
N7	Spill Contingency Plan	☐	☒	No a commercial site.
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks on project.
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous materials exist or will be stored on site.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☒	☐	Implemented by contractor.
N11	Litter/Debris Control Program	☒	☐	Trash will be picked up weekly via Curb Side pick-up in waste company provided containers will be put into affect at time of occupancy.
N12	Employee Training	☐	☒	Residential project
N13	Housekeeping of Loading Docks	☐	☒	No loading docks prposed
N14	Catch Basin Inspection Program	☒	☐	City of Highland maintained.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	City of Highland maintained
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	
N17	Comply with all other applicable NPDES permits	☒	☐	

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	Stenciling to be applied and maintained by the City of Highland
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	No outdoor material storage areas proposed
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	Trash will be picked up weekly via Curb Side pick-up in waste company provided containers
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	Irrigation systems will be designed to supply just the right amount of water for the landscape to flourish and not overwater. Timed irrigation systems will be used. Rain sensors for automatic shut off of sprinklers when it is raining will be used.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	Implemented by contractor.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☒	☐	All slopes to be landscaped to prevent erosion, no channels proposed
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	No dock areas proposed
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	No maintenance bays proposed
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No vehicle wash areas proposed
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	No processing areas proposed

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No equipment wash areas proposed
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling areas proposed
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	Ni significant hillsides
S14	Wash water control for food preparation areas	☐	☒	No food preparation areas proposed
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	No community car wash racks proposed

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist
Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: Two Story Homes are proposed to increase building density and street and sidewalk widths are both the minimums necessary in order to provide for public and pedestrian safety.
Maximize natural infiltration capacity: Yes ☐ No ☒ Explanation: Entire developed site will drain to an infiltration basin.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation: Drainage Patterns and time of concentration will be preserved for a 2-yr 24-hr. event. Runoff from the developed portions of the site will be conveyed to an infiltration basin. Runoff from undeveloped areas of the site will perserve existing drainage patterns.
Disconnect impervious areas: Yes ☒ No ☐ Explanation: Roof drains to drain directly to vegetated swales
Protect existing vegetation and sensitive areas: Yes ☒ No ☒ Explanation: Steep potions of the site will not be develped and will be left in there natural state.
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation: Yards and openspace areas to be landscaped
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Infilitration basin to be constructed to allow storm water to infiltrate and be treated.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☒ No ☐ Explanation: Individual lot drainage will be achieved using vegetated swales
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: Contractor to stake off proposed infiltration basin.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)		
1 Project area DA 1 (ft^2): _3,658,374_	**2** Imperviousness after applying preventative site design practices (Imp%): __44.8%___	**3** Runoff Coefficient (Rc): ___0.33___ *$R_c = 0.858(Imp\%)^{\wedge 3}-0.78(Imp\%)^{\wedge 2}+0.774(Imp\%)+0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.532 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): __0.7877_____ *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 155,561 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☒ No ☐

Go to: http://sbcounty.permitrack.com/WAP

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below

(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	**1** *Form 4.2-3 Item 12*	**2** *Form 4.2-4 Item 13*	**3** *Form 4.2-5 Item 10*
Post-developed	**4** *Form 4.2-3 Item 13*	**5** *Form 4.2-4 Item 14*	**6** *Form 4.2-5 Item 14*
Difference	**7** *Item 4 – Item 1*	**8** *Item 2 – Item 5*	**9** *Item 6 – Item 3*
Difference (as % of pre-developed)	**10** % *Item 7 / Item 1*	**11** % *Item 8 / Item 2*	**12** % *Item 9 / Item 3*

*TO BE COMPLETED IN FINAL WQMP

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type								
2a Hydrologic Soil Group (HSG)								
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type								
2b Hydrologic Soil Group (HSG)								
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								

5 Pre-Developed area-weighted CN:	**7** Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*	**9** Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	**8** Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*	**10** Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

***TO BE COMPLETED IN FINAL WQMP**

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), S_o *= Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) V_{fps} *= (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) T_t *= Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) T_c *= Item 5 + Item 11*								
13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*								
14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*								
15 Additional time of concentration needed to meet HCOC requirement (min): $T_{C\text{-}HCOC}$ *= (Item 13 * 0.95) – Item 14*								

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*			*n/a*		
	DMA B		*n/a*			*n/a*	
	DMA C			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*

10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*

11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*

14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*

15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment**.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

1 Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒

Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

2 Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒

(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

3 Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

4 Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

5 Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

6 Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒

See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

7 Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒

If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

8 Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒

If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP.
If no, then proceed to Item 9, below.

9 All answers to Item 1 through Item 6 are "No":

Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)			
1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):	$V_{retention}$ *=Sum of Item 4 for all BMPs*		
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):	$V_{retention}$ *=Sum of Item 12 for all BMPs*		

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) *$V_{retention}$ = Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3): *$V_{retention}$ =Sum of Item 19 for all BMPs*			
21 Implementation of Street Trees: Yes ☒ No ☐ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA 1 DMA BMP Type	DA 2 DMA BMP Type	DA 3 DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees	TO BE DETERMINED IN FINAL WQMP	TO BE DETERMINED IN FINAL WQMP	TO BE DETERMINED IN FINAL WQMP
23 Average canopy cover over impervious area (ft^2)	0		
24 Runoff volume retention from street trees (ft^3) *$V_{retention}$ = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*	0		
25 Runoff volume retention from street tree BMPs (ft^3): *$V_{retention}$ = Sum of Item 24 for all BMPs*			
26 Implementation of residential rain barrels/cisterns: Yes☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) *$V_{retention}$ = Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): *$V_{retention}$ =Sum of Item 28 for all BMPs*			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 155,561 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA 1 DMA BMP Type Infiltration Basin	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	3.9		
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	2.25		
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	1.73		
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48		
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	5		
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	3.6		
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	38,582		
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	N/A		
10 Amended soil porosity	N/A		
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	N/A		
12 Gravel porosity	N/A		
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3		
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	155,561		
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	0	0	0
16 Total Retention Volume from LID Infiltration BMPs: 155,561 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*			
17 Fraction of DCV achieved with infiltration BMP: 100% *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained on-site with combination of hydrologic source control and LID retention and infiltration BMPs? Yes ☒ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	.25
		Predominant soil texture	0.25	1	.25
		Site soil variability	0.25	1	.25
		Depth to groundwater / impervious layer	0.25	1	.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1
B	Design	Tributary area size	0.25	3	.75
		Level of pretreatment/ expected sediment loads	0.25	2	.50
		Redundancy	0.25	3	.75
		Compaction during construction	0.25	1	.25
		Design Safety Factor, $S_B = \Sigma p$			2.25
Combined Safety Factor, $S_{TOT} = S_A \times S_B$					2.25
Measured Infiltration Rate, inch/hr, K_M (corrected for test-specific bias)					3.9
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_M \div S_{TOT}$					1.733

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Double Ring Infiltrometer test was done in the approximate location of Infiltration basin. (See soils report for more information)

Refer to Appendix D – Infiltration rate evaluation protocol and factor of safety recommendations, Orange County TGD Appendices, May 19, 2011) – page VII-7 – requirements for minimum soils testing

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)			
1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16*			
BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			

9 Total Retention Volume (ft^3) from Harvest and Use BMP	*Sum of Item 8 for all harvest and use BMP included in plan*
10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest and use BMPs? Yes ☐ No ☐	
If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.	

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft^3): *Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9*	List pollutants of concern *Copy from Form 2.3-1.*	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-6 and 4.3-7 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-8 to compute treated volume*
	☐ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): *Form 4.3-6 Item 15 + Form 4.3-7 Item 13*	**4** Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): *Item 1 – Item 3*	**5** Remaining fraction of LID DCV for sizing flow based biotreatment BMP: % *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*			
2 Amended soil infiltration rate *Typical ~ 5.0*			
3 Amended soil infiltration safety factor *Typical ~ 2.0*			
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*			
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*			
8 Amended soil surface area (ft^2)			
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity, *n*			
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
12 Gravel porosity, *n*			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} = *Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ =*(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V =*Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1)

Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*			
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w *= (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} *= (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

4.3.5 Conformance Summary (TO BE COMPLETED IN FINAL WQMP)

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☐ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☐
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☐
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP (*TO BE COMPLETED IN FINAL WQMP)

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)	
1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*
5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*	
6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐ *If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:* • Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐ *BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)* • Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐ • Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐	
7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐ *If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:* • Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐ *BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)* • Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐	

*TO BE COMPLETED IN FINAL WQMP

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
infiltratio n basin	CITY OF HIGHLAND	Inspect, remove trash and debris and if 48 hour drawdown is not achieved, city will remove silt and rescarify.	inspect basin quarterly, remove trash and rescarify as necessary
vegetated swale	property owner	Mow, weed, trim, and remove accumulation of trash and debris during landscape maintenance. All vegetated swales must remain per WQMP.	weekly or as needed

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

6.1. Site Plan and Drainage Plan

6.3 Post Construction

6.4 EDUCATION MATERIALS

APPENDIX 7b

EAST VALLEY WATER DISTRICT

LEADERSHIP • PARTNERSHIP • STEWARDSHIP

BOARD OF DIRECTORS

James Morales, Jr. President | Ronald L. Coats Vice President | Ben Coleman Director | Chris Carrillo Director | Nanette Shelton Director

John Mura, General Manager/CEO

April 1, 2015

Mr. Camille Bahri
Sunland Communities, LLC
10575 Oakdale Drive
Rancho Cucamonga, CA 91730

Subject: Will Serve Letter for Tentative Tract Map No. 18893

Dear Mr. Bahri,

Pursuant to your recent request, this letter confirms that the East Valley Water District will provide water and sewer collections services to Phases I and II of Tentative Tract Map No. 18893, for domestic, fire protection, and sanitary sewer purposes.

In order for the District to provide water and sewage collection services to Phases III and IV, of Tentative Tract Map No. 18893, additional water and sewer infrastructure must be installed to allow East Valley Water District can serve these phases with water and sewer services.

Please note that all improvements necessary for water and sewer service to all of the phases of Tentative Tract Map No. 18893 are subject to approval by the District and must meet all District standards. You will be required to comply with all District rules, regulations, policies and procedures, including payment for all capital improvements, main lines, extensions, sewer capacity or other commitment or commitments of the District's resources. The District will operate and maintain all water and sewer improvements upon their dedication to the East Valley Water District.

The commitment to provide water and sewer service outlined in this letter will expire two (2) years from the date of this letter. If you have any questions please contact Mr. Justin Parker, or myself at (909) 888-8986.

East Valley Water District

Thomas R. Holliman, P.E.
Engineering and Operations Manager

CC: Justin Parker, EVWD
N:\Administration\Will Serve Letters

APPENDIX 8

NOISE IMPACT ANALYSIS

MEDITERRA AT EAST HIGHLANDS

CITY OF HIGHLAND, CALIFORNIA

Prepared by:

Giroux & Associates
1800 E. Garry Avenue #205
Santa Ana, Calif. 92705

Prepared for:

Tom Dodson & Associates
Attn: Tom Dodson
2150 N. Arrowhead Avenue
San Bernardino, California 92405

Date:

February 12, 2015

Project No.: P14-048 N

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

Loud or soft, noisy or quiet, high-and-low pitch are all qualitative terms used to describe sound. These terms are relative descriptions. The science of acoustics attempts to quantify the human perception of sound into a quantitative and measurable basis. Amplitude is the measure of the pressure exerted by sound waves. Amplitude may be so small as to be inaudible by humans, or so great as to be painful. Frequency refers to pitch or tone. The unit of measure is in cycles per second called “hertz”. Very low frequency bass tones and ultra-high frequency treble are difficult for humans to detect. Many noise generators in the ambient world are multi-spectral.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNEL’s are a weighted average of hourly Leq’s.

For “stationary” noise sources operating on private property, the City does have legal authority to establish noise performance standards designed to not adversely impact adjoining uses. These standards are typically articulated in the City Code.

PLANNING STANDARDS

The State of California has established guidelines for acceptable community noise levels that are based upon the CNEL rating scale to insure that noise exposure is considered in any

development. CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, airplanes, etc.) and are used to make land use decisions as to the suitability of a given site for its intended use. These CNEL-based standards are typically articulated in the Noise Element of the General Plan.

The City of Highland Noise Element (General Plan adopted in 2006) specifies CNEL-based standards for various land uses. The recommended guidelines for noise and land use compatibility are illustrated in Figure 1, Land Use Compatibility Guidelines for Noise. For residential use the guidelines indicate an exterior noise level of less than 60 dB CNEL to be "normally acceptable" without any special noise insulation requirements. Exterior noise levels up to 70 dB CNEL are considered "conditionally acceptable", such that construction should only occur after a detailed analysis of the noise reduction requirements is made and needed noise attenuation features are included in the project design.

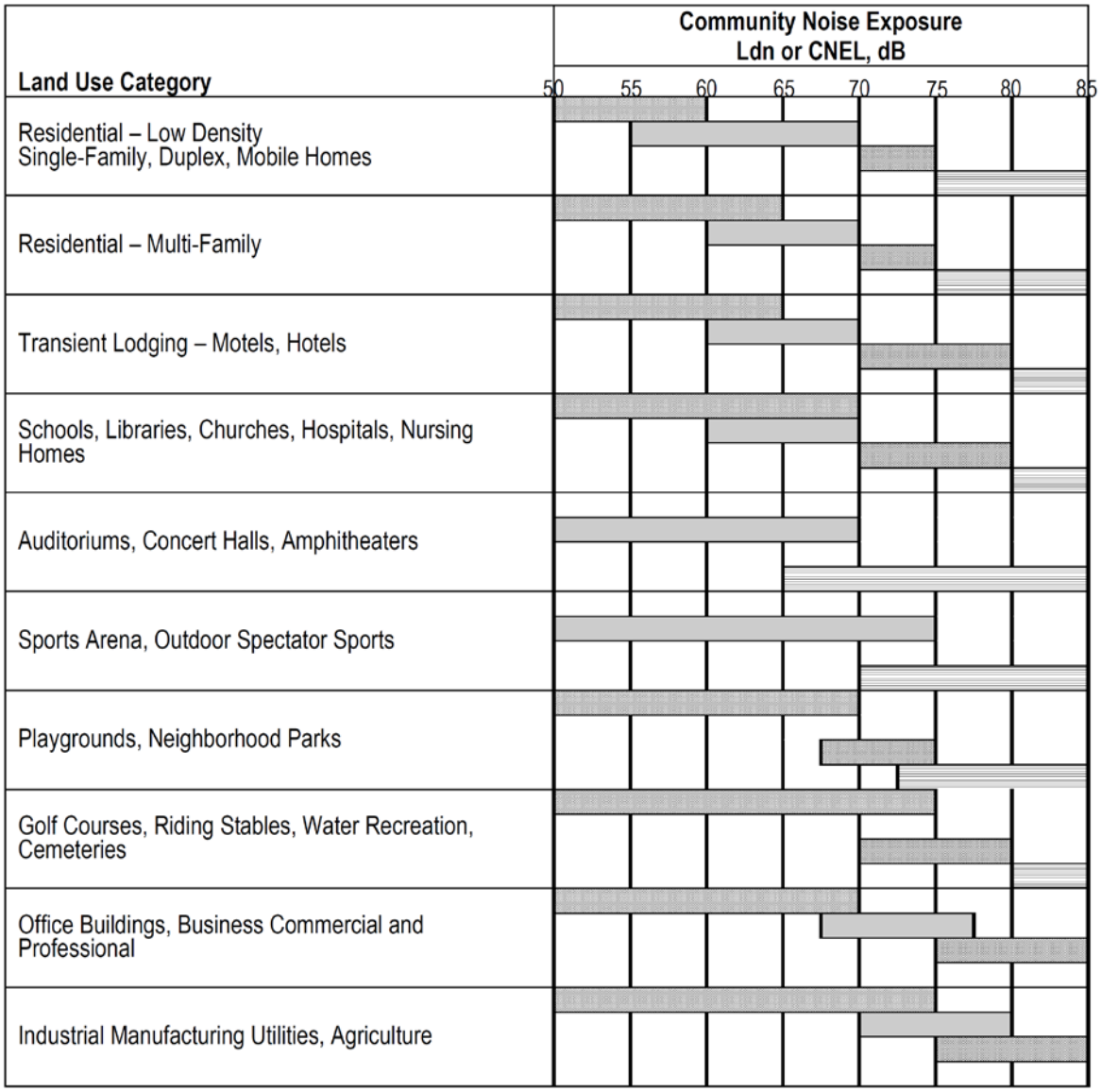
Although the City of Highland guidelines allow residential exterior noise levels of up to 70 dB CNEL, a noise level of 65 dB is the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice. The City of Highland General Plan Goal 7.1 recommends an exterior threshold of 65 dBA CNEL as the compatibility guideline for new residential dwellings in Highland and is used as the guideline for this analysis. However, exterior noise attenuation features could include, but are not limited to, setbacks to place structures outside the 65 dB CNEL noise contour, orienting structures so no windows open to the noise source, and /or installing noise barriers such as berms or solid walls.

Exterior standards apply to normally used recreational exterior space (patio, porch, pool/spa, etc.). They are also a guide to likely interior noise exposure based on the structural attenuation normally achievable with various types of construction.

The City of Highland interior noise standard uses a weighted noise exposure of 45 dBA CNEL as the guideline level for single and multi-family dwelling units. Conventional construction with closed windows and a fresh air supply will normally suffice. Normal noise attenuation within residential structures with closed windows is about 25-30 dB. Therefore, an exterior noise level of up to 70-75 dB CNEL could allow for the interior threshold to be met with no special noise attenuation features.

The City of Highland is pre-empted from regulating on-road traffic noise. However, when traffic noise exceeds the planning standard for an affected land use, CNEL-based standards are the accepted significance threshold for any CEQA environmental analysis.

Figure 1
City of Highland Noise Element
Noise Land Use Comparability Criteria



INTERPRETATION

Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development should generally not be undertaken.

NOISE ORDINANCE STANDARDS

Section 15.48.030 of the Highland Municipal prohibits construction activities to commence any earlier than one-half hour before sunrise or to terminate no later than one-half hour after sunset Monday through Sunday.

Goal 7.3 of the Highland General Plan Noise Element protects residences from the effects of "spill over" of nuisance noise with the following noise mitigation measures:

- Require that construction activities employ feasible and practical techniques to minimize noise impacts on adjacent uses. Particular emphasis shall be placed on the restriction of hours in which work other than emergency work may occur.

- As a condition of approval, non-emergency construction activities adjacent to existing noise-sensitive uses should be limited to daylight hours between 7:00 a.m. and 6:00 p.m. Construction on weekends or holidays are to be discouraged except in the case of construction proximate to schools where these operations could disturb the classroom environment.

- The use of portable noise barriers for heavy equipment operations performed within 100 feet of existing residences, are to be encouraged, or the applicant shall provide evidence as to why the use of such barriers is infeasible

Although exempt from numerical noise standards, The Noise Element provides the following exterior noise standards for the indicated land uses. Although the metric indicated for exterior noise standards is a CNEL, because by definition CNELs are a 24 hour average and the land use table assigns varying CNEL thresholds based on time of day it is likely that an hourly Leq might be more appropriate. Nevertheless these standards are presented below with the caveat that construction activities are exempt.

City of Highland Exterior Noise Standards

Type of Land Use	Time Interval	dB Leq
Residential	10 p.m. – 7 a.m.	55
	7 a.m. – 10 p.m.	60
Agricultural/Equestrian	10 p.m. – 7 a.m.	60
	7 a.m. – 10 p.m.	65
Commercial	10 p.m. – 7 a.m.	65
	7 a.m. – 10 p.m.	70
Manufacturing or Industrial	Anytime	75
Open Space	Anytime	75

City of Highland Interior Noise Standards

Type of Land Use	CNEL (dB)
Residential	45
Educational/churches	45
General office	50
Retail, restaurant	65
Agricultural	55
Sand and gravel operations	75

BASELINE NOISE LEVELS

Noise measurements were made in order to document existing baseline levels in the area. These help to serve as a basis to determine noise exposure from ambient noise activities upon the proposed project. An on-site short term noise measurement was conducted on Tuesday, November 25, 2014 from 1:30 p.m. to 1:45 p.m. The measurement location is shown in Figure 2 and the monitoring results are summarized below.

Measured Noise Levels (dBA)

Leq	Lmax	Lmin	L10	L33	L50	L90
56	62	34	60	51	46	38

Monitoring experience shows that 24-hour weighted CNEL's are approximately equal to mid-afternoon Leq plus 2-3 dB (Caltrans Technical Noise Supplement, 2009). This would equate to an existing CNEL of 58-60 dB along Greenspot Road at 50 feet from centerline. Although traffic noise levels are currently well within recommended compatibility guidelines, with area growth traffic noise from Greenspot Road could increase substantially.

Therefore, this report provides an evaluation of existing and future noise levels and examines possible noise reduction measures to ensure the proposed project residential noise exposure is within recommended compatibility guidelines.

Figure 2

Noise Monitor Location

Meter Location: About 50 feet from Greenspot Road

NOISE IMPACTS

NOISE SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they result in:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

STANDARDS OF SIGNIFICANCE

Noise impacts are considered significant if they expose persons to levels in excess of standards established in local general plans or noise ordinances. The exterior noise standard used in this analysis is 65 dBA CNEL in usable outdoor space with evaluation of noise mitigation. If required, attenuation through setback or project perimeter barriers is anticipated to achieve this goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

Impacts may also be significant if they create either a substantial permanent or temporary increase. The term "substantial" is not quantified in CEQA guidelines. In most environmental analyses, "substantial" is taken to mean a level that is clearly perceptible to humans. In practice, this is at least a +3 dB increase. Some agencies, such as Caltrans, require substantial increases to be +10 dB or more if noise standards are not exceeded by the increase. For purposes of this analysis, a +3 dB increase is considered a substantial increase. The following noise impacts due to project-related traffic would be considered significant:

1. If construction activities were to audibly intrude into adjacent sensitive uses.

2. If project traffic noise were to cause an increase by a perceptible amount (+3 dB CNEL) or expose receivers to levels exceeding city compatibility noise standards.

3. If future build-out noise levels were to expose City of Highland sensitive receivers to levels exceeding compatibility standards of 65 dB CNEL exterior at any outdoor uses or 45 dB CNEL interior noise levels in any habitable space.

CONSTRUCTION NOISE IMPACTS

Construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. Figure 3 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential "noise envelope" around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

Construction noise exposure can be further worsened when several pieces of equipment operate in close proximity. Because of the logarithmic nature of decibel addition, two equally loud pieces of equipment will be +3 dB louder than either one individually. Three simultaneous sources are +5 dB louder than any single source. Thus, while average operational equipment noise levels are perhaps 5 dB less than at peak power, simultaneous equipment operation can still yield an apparent noise strength equal to any individual source at peak noise output. Whereas the average heavy equipment reference noise level is 85 dB(A), short-term levels from either peak power or from several pieces operating in close proximity can be as high as 90 dB(A). During most intensive heavy equipment operations, the peak hourly average noise level from several pieces of equipment in simultaneous hourly operation is 85 dB Leq at 50 feet from the activity. Even with closed windows at an adjacent residence, such levels could interfere with quiet interior residential activity. However, construction noise is confined to the hour of lesser sensitivity and occurs when many residents would be out of home. Construction activity noise is exempt from noise standards as long as it occurs during permitted hours.

The Highland General Plan Noise Element protects residences from the effects of "spill over" of nuisance construction noise with the following noise mitigation measures:

- Require that construction activities employ feasible and practical techniques to minimize noise impacts on adjacent uses. Particular emphasis shall be placed on the restriction of hours in which work other than emergency work may occur.

- As a condition of approval, non-emergency construction activities adjacent to existing noise-sensitive uses should be limited to daylight hours between 7:00 a.m. and 6:00 p.m. Construction on weekends or holidays are to be discouraged except in the case of construction proximate to schools where these operations could disturb the classroom environment.

- The use of portable noise barriers for heavy equipment operations performed within 100 feet of existing residences, are to be encouraged, or the applicant shall provide evidence as to why the use of such barriers is infeasible.

The nearest residential uses west of the site, along La Cresta Street, are closer than 100 feet to the closest project site perimeter. Therefore, in addition to conforming to the recommended hours of construction, erection of a solid subdivision perimeter wall separating the existing and proposed Mediterra homes should be performed as one of the earliest construction tasks. A wall height of 8-feet is recommended for construction noise protection and future resident privacy.

CONSTRUCTION ACTIVITY VIBRATION

Typical background vibration levels in residential areas are usually 50 VdB or lower, and are below the threshold of human perception. Perceptible vibration levels inside residences are typically attributed to the operation of heating and air conditioning systems, door slams or street traffic. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences.

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernable movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the “soft” sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

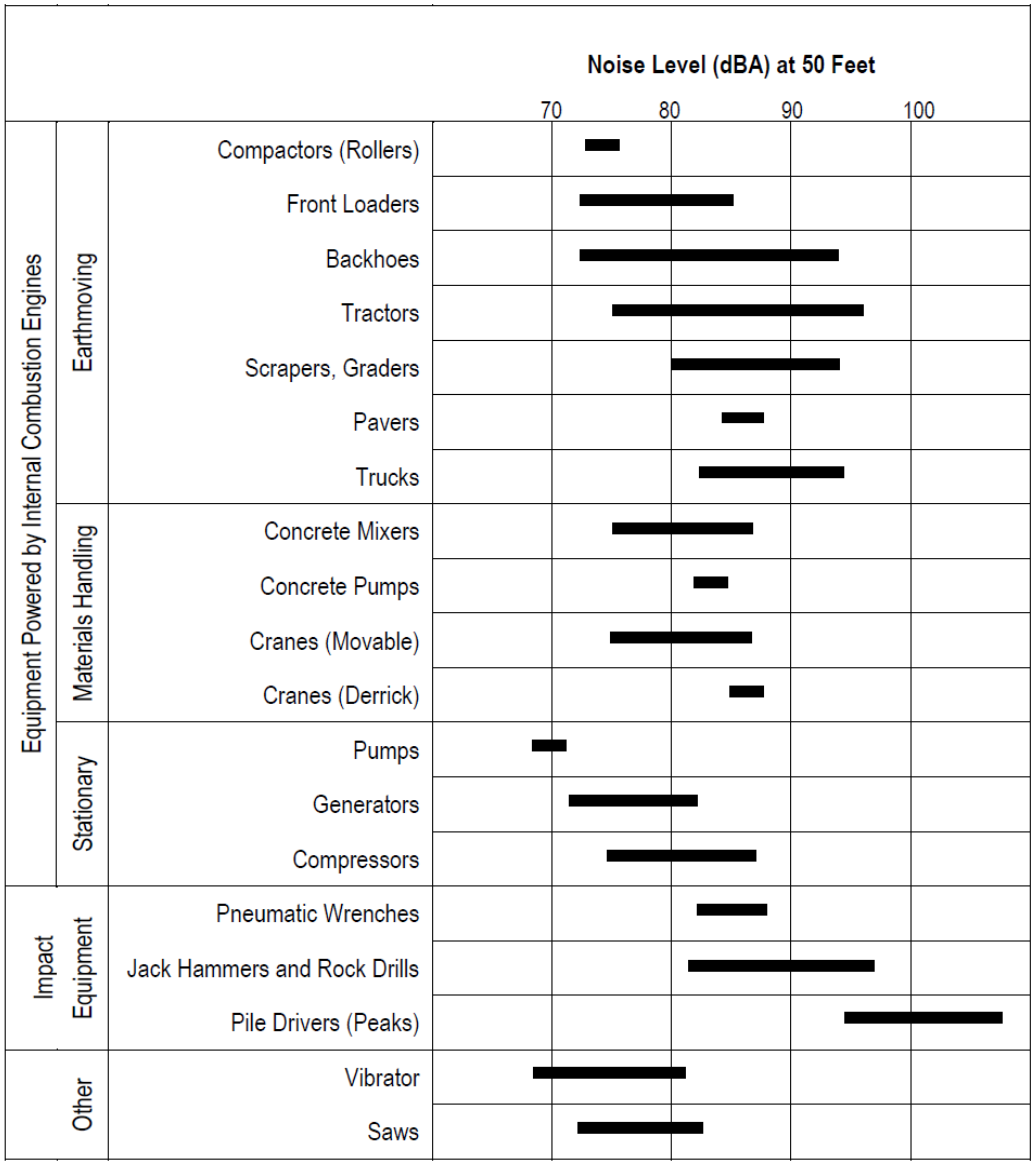
Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

65 VdB	-	threshold of human perception
72 VdB	-	annoyance due to frequent events
80 VdB	-	annoyance due to infrequent events
94-98 VdB	-	minor cosmetic damage

Figure 3

Typical Construction Equipment Noise Generation Levels



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

To determine potential impacts of the project's construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented in Table 1.

Table 1
Approximate Vibration Levels Induced by Construction Equipment

Equipment	25 feet	50 feet	75 feet	100 feet
Large Bulldozer	87	81	78	75
Loaded Truck	86	80	77	74
Jackhammer	79	73	70	67
Small Bulldozer	58	52	49	46

* (FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006)

The on-site construction equipment that will create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdBA at 50 feet from the source. With typical vibrational energy spreading loss, the vibration annoyance standard is met at 56 feet. Effects of vibration perception such as rattling windows could only occur at the nearest residential structures, though vibration resulting from project construction would not exceed cosmetic damage thresholds.

Regardless, large bulldozers will not likely operate directly at the shared property line with the perimeter homes. Any fine grading at the property line should be performed with small bulldozers which are seen above to have 30 VdB less vibration potential. Therefore, to ensure adequate vibration annoyance protection the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 56 feet of the nearest off-site residential structures.

Construction activity vibration impacts are judged as less-than-significant.

PROJECT-RELATED VEHICULAR NOISE IMPACTS

Long-term noise concerns from the development of residential and school uses at the project site center primarily on mobile source emissions on project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, roadway speeds, or noise barriers.

Table 2 summarizes the calculated 24-hour CNEL level at 50 feet from the roadway centerline along project area roadway segments for an assumed 45 mph travel speed. Existing conditions, with and without project, were evaluated as well as opening year and build out conditions with and without project. The noise analysis utilized traffic data obtained from the traffic analysis, prepared in August 2014, by Urban Crossroads for this project.

Table 3 presents the calculated project contribution to traffic noise for the indicated time frames. A comparison of the "with project" and "no project" conditions demonstrates a maximum traffic noise increase of +1.2 dB CNEL at 50 feet from roadway centerline on Greenspot Road east of Weaver, closest to the project site. Because all project related traffic noise impacts are much less than the 3.0 dB CNEL significance threshold, traffic noise attributed to the project is considered to be individually less-than-significant.

The cumulative analysis compares "future with project" to "existing" conditions. As seen in Table 3, the largest cumulative impact is +7.5 dB CNEL at 50 feet from roadway centerline again along Greenspot Road east of Weaver. Although this impact exceeds the +3 dB significance threshold the project only contributes +0.3 dB CNEL in 2035 and the impact would occur even without project development. Although several roadway segments along Greenspot Road are predicted to incur traffic noise impacts greater than +3 dB CNEL, the maximum project impact along any of these segments is +0.3 dB CNEL (in 2035) and therefore the project only and cumulative traffic noise impacts are considered to be less-than-significant.

Table 2
Near Term Traffic Noise Impact Analysis
(CNEL in dB at 50 feet from Centerline)

Road Segment		***Existing No Project***	***Existing W Project***	***2018 No Project***	***2018 W Project***	***2035 No Project***	***2035 W Project***
Greenspot Rd/	E of Weaver	67.1	68.3	72.4	72.8	74.3	74.6
	W of Weaver	68.6	69.4	72.9	73.2	74.5	74.7
	E of Chuch	69.9	70.5	73.5	73.8	75.0	75.2
	W of Church	70.8	71.3	74.0	74.2	75.5	75.6
	E of Boulder	71.5	71.9	74.5	74.7	75.7	75.9
	W of Boulder	70.5	70.9	74.1	74.2	74.8	74.9
	E of 210	71.7	71.9	76.0	76.1	76.3	76.4
	W of 210	70.9	71.0	73.4	73.5	73.8	73.8
Weaver/	N of Greenspot	64.0	64.1	65.8	65.9	66.8	66.8
Church/	S of Greenspot	56.3	56.3	57.4	57.4	59.6	59.6
	N of Greenspot	66.4	66.5	67.8	67.9	68.8	68.9
Boulder/	S of Greenspot	71.0	71.1	72.5	72.6	72.4	72.4
	N of Greenspot	67.4	67.6	70.6	70.7	71.0	71.1
Pioneer/	E of Orange	65.8	65.8	66.5	66.5	68.2	68.2
	W of Orange	65.8	65.8	66.4	66.4	68.3	68.3
Orange/	S of Pioneer	68.7	68.9	69.9	70.0	71.2	71.2
	N of Pioneer	70.2	70.3	71.2	71.3	72.6	72.6

Table 3
Project Only and Cumulative Impacts
(CNEL in dB at 50 feet from Centerline)

Road Segment		***Project Only vs Existing***	***Project Only vs 2018***	***Project Only vs 2035***	***Cumulative***
Greenspot Rd/	E of Weaver	1.2	0.4	0.3	7.5
	W of Weaver	0.8	0.3	0.2	6.1
	E of Chuch	0.6	0.3	0.2	5.3
	W of Church	0.5	0.2	0.1	4.8
	E of Boulder	0.4	0.2	0.2	4.4
	W of Boulder	0.4	0.1	0.1	4.4
	E of 210	0.2	0.1	0.1	4.7
	W of 210	0.1	0.1	0.0	2.9
Weaver/	N of Greenspot	0.1	0.1	0.0	2.8
Church/	S of Greenspot	0.0	0.0	0.0	3.3
	N of Greenspot	0.1	0.1	0.1	2.5
Boulder/	S of Greenspot	0.1	0.1	0.0	1.4
	N of Greenspot	0.2	0.1	0.1	3.7
Pioneer/	E of Orange	0.0	0.0	0.0	2.4
	W of Orange	0.0	0.0	0.0	2.5
Orange/	S of Pioneer	0.2	0.1	0.0	2.5
	N of Pioneer	0.1	0.1	0.0	2.4

ON-SITE NOISE EXPOSURE

As discussed, a 65 dB CNEL exterior noise threshold is used as the compatibility guideline for this analysis. Several project residences would have rear yards backing up to Greenspot Road. Future noise levels at these lots were analyzed to determine possible mitigation to ensure recreational uses are not exposed to a noise level greater than the 65 dB CNEL guideline.

At area build-out, traffic noise levels along Greenspot Road adjacent to the project site are predicted to reach almost 75 dB CNEL at 50 feet from roadway centerline. The project traffic report predicts the following traffic volumes from which the associated noise levels are derived.

Roadway Segment		Project 2035 Traffic Volume (ADT)	2035 W Project Noise Level (dB at 50 feet from centerline)
Greenspot Road/	Wwest of Drive1	47,100	74.6
Greenspot Road/	Drive 1 to 2	45,900	74.5
Greenspot Road/	East of Drive 2	44,700	74.3

Exterior noise levels in rear yards at homes abutting Greenspot Road could exceed the residential use noise standard of 65 dB CNEL by 8-9 dB in the absence of any mitigation.

An acceptable outdoor noise exposure is typically achieved by an adequate set-back or by inclusion of physical noise shielding (or some combination thereof). Setback distance necessary to achieve the recommended 65 dB CNEL without the need for noise walls was calculated and the indicated contours are as follows for area-wide build-out at intensities indicated in the project traffic report (assuming acoustically "soft" surfaces):

Noise Contours within the Project Site

Roadway	**Centerline to 65 dB (feet)**	**Centerline to 70 dB (feet)**
Greenspot Road	220	100

If the indicated setbacks as measured from roadway centerline were met, no additional mitigation would be necessary to achieve the exterior threshold. However, if residential units were to be sited closer to Greenspot Road than these distances, barriers (noise wall or a berm/wall combination) may be needed. Generally speaking, a 6-foot high wall would provide for 6 dB of noise reduction and an 8-foot wall would provide 8 dB of attenuation.

For this project, there are many lots along the Greenspot Road perimeter that are close to 50 feet from roadway centerline. Therefore, in the absence of sufficient attenuation setbacks, it is recommended that all units immediately adjacent to Greenspot Road be equipped with an 8-foot noise/privacy wall. Such an enclosure would provide at least -8 dB of noise attenuation and reduce exterior recreational noise exposure in yards along the Grenspot Road frontage to 65 dB CNEL. The location of these proposed walls is shown in Figure 4.

Several lots (129, 134 and 135) have a direct line of sight to Greenspot Road but have a minimal 200 foot separation distance. As shown in Figure 4, for these lots a 6-foot noise/privacy wall is recommended.

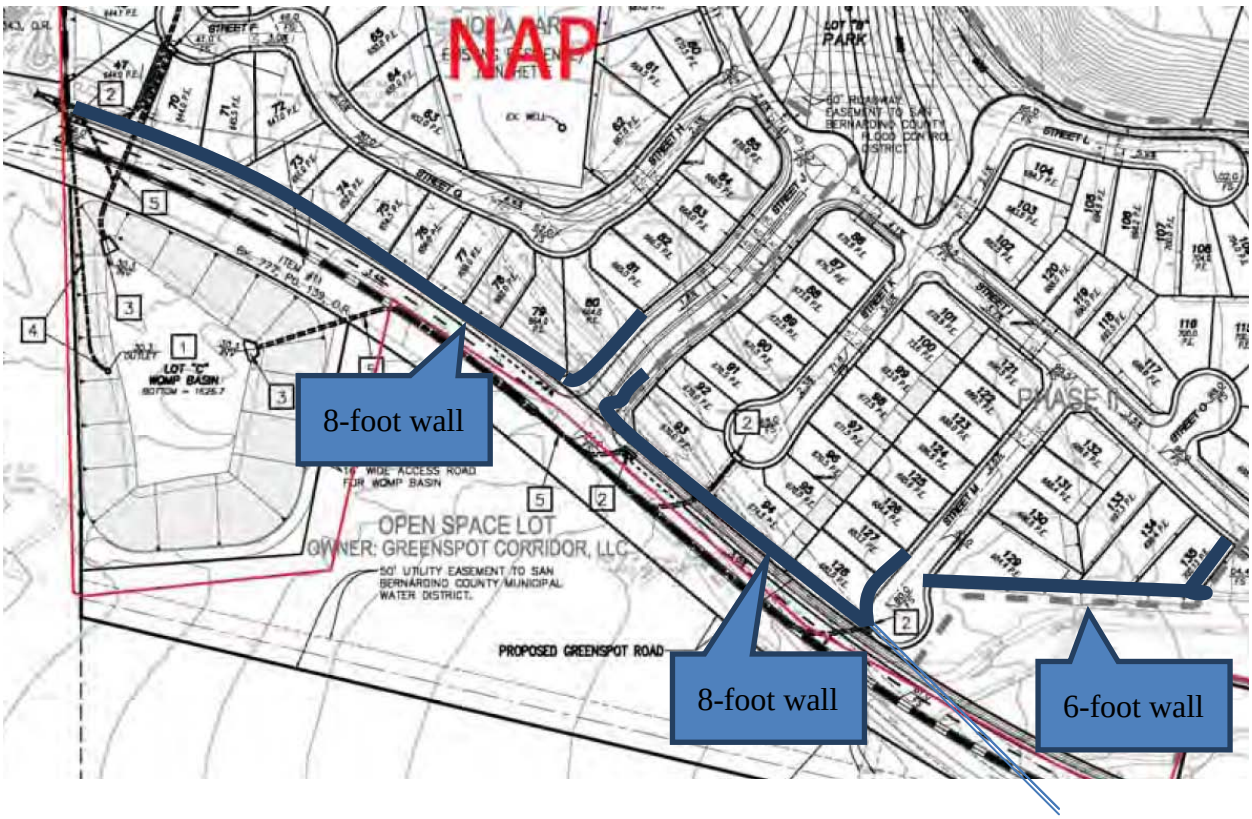
Therefore, future noise levels could be attenuated to significance thresholds with one of the following mitigation measures:

- Construct 6-8 foot high perimeter walls or berm at homes backing up to or abutting Greenspot Road, or

- Homes adjacent to Greenspot Road may achieve the 65 dB CNEL noise contour by setting homes further than the setback distances indicated above.

An acoustical report is typically required for any noise sensitive development in an area of potentially excessive noise to document that adequate mitigation is included in project design. With the recommended perimeter walls or setback, the recreational threshold of 65 dB CNEL will be met at all project lots exposed to General Plan build-out traffic noise levels for the Greenspot Road adjacent residences in the Mediterra development.

Figure 4
Noise Wall Placement and Height

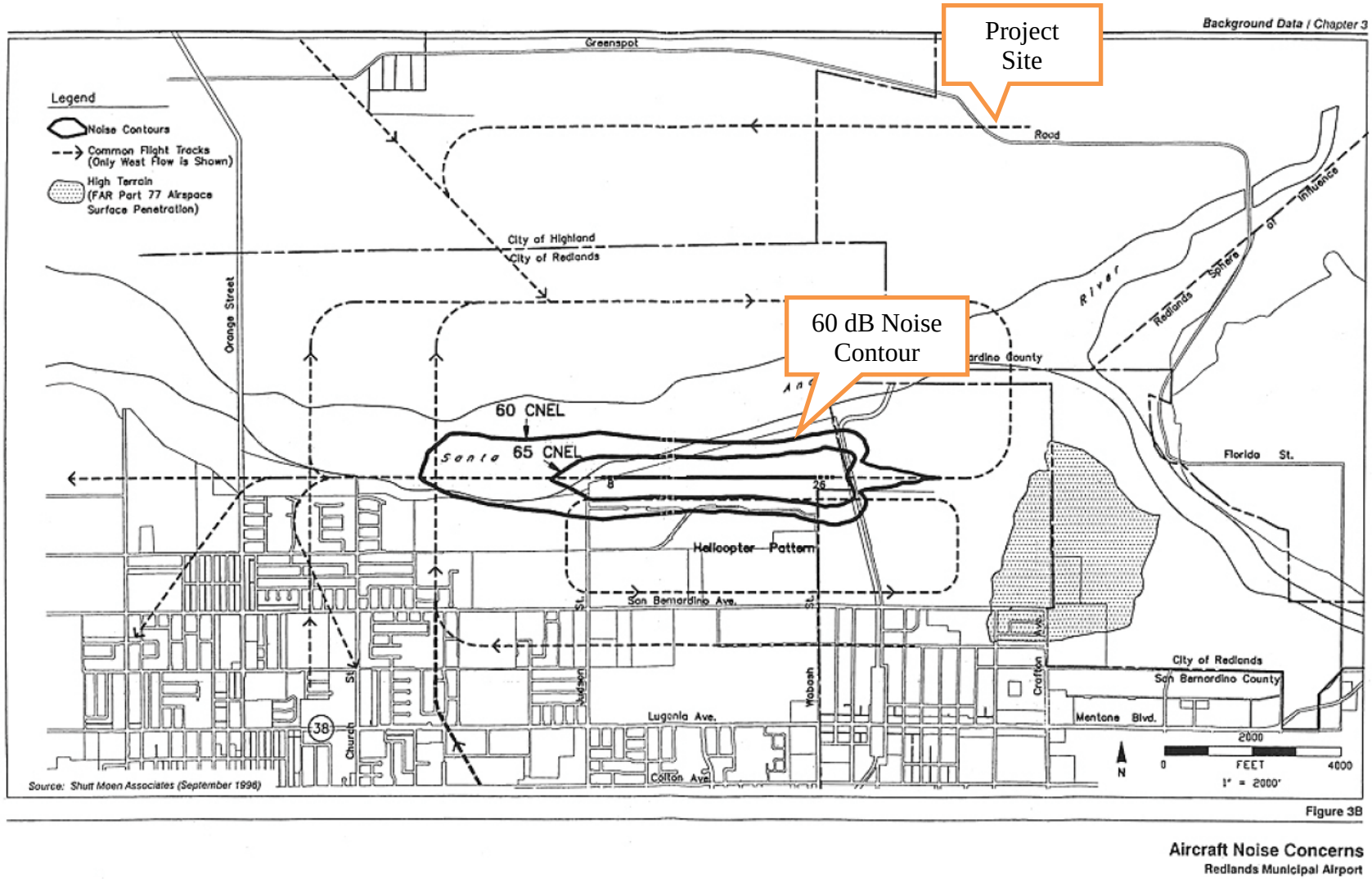


AIRPORT ACTIVITY NOISE

For development planning near airports, state law requires that the airport and its associated impacts be considered in all land use decisions. Noise is one planning consideration. Airports are generally considered to have an "airport influence area boundary", or AIAB. This boundary extends for two miles on each side of the airport runway unless the influence area can be larger.

The project site is approximately 1.6 miles from the end of the nearest Redlands Municipal Airport runway. Noise contours for the Redlands Airport were adopted in May of 2003 and are shown in Figure 5. The project site is well past even the 60 dB CNEL noise contour and will not be within the airport influence.

Figure 5
Redlands Airport Noise Contour



SUMMARY AND MITIGATION

Construction activities from project development may impact existing surrounding residential uses and may at times likely be clearly audible at adjacent residences. Such impacts are somewhat mitigated by required compliance with grading/construction permits. These considerations include:

- Require that construction activities employ feasible and practical techniques to minimize noise impacts on adjacent uses. Particular emphasis shall be placed on the restriction of hours in which work other than emergency work may occur.

- As a condition of approval, non-emergency construction activities adjacent to existing noise-sensitive uses should be limited to daylight hours between 7:00 a.m. and 6:00 p.m. Construction on weekends or holidays are to be discouraged except in the case of construction proximate to schools where these operations could disturb the classroom environment.

- Subdivision/privacy walls will likely be planned to separate new project homes from existing homes to the west. As a construction noise mitigation measure, erection of an 8-foot solid barrier is recommended as soon as practical before orchard logging or site grading occurs.

Vibration levels from heavy equipment may be noticeable at times at the nearest sensitive use to the west of the project site, but will not cause any structural damage or exceed the vibration damage threshold. Nevertheless, to ensure adequate vibration protection the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 56 feet of the nearest residences.

The project noise impact study indicates a less-than-significant noise impact from project-related traffic on project vicinity receptors. Project-related traffic will not cause noise standards to be exceeded, nor make substantially worse any existing violations.

For all perimeter units along the Greenspot Road frontage, traffic noise may exceed recommended exterior compatibility standards for outdoor recreational space. In order to create outdoor space that achieves 65 dB CNEL at these units, a 8-foot solid noise wall, constructed along the Greenspot Road frontage, will provide 8 dB of noise protection. A 15-foot long return will be required along the side yards of lots at the site entrance to prevent noise leakage. This will ensure that recreational users in the rear yards of units backing up to Greenspot Road will achieve 65 dB CNEL even at build-out.

Residential habitable rooms facing Greenspot Road will meet the 45 dB CNEL interior noise standard with no acoustical mitigation except the option to close windows. Window closure requires that supplemental ventilation be provided.

All Greenspot Road perimeter homes shall have central air conditioning as a standard feature to allow for window closure during warmer weather while maintaining interior comfort. Supplemental ventilation is required for any habitable rooms facing Greenspot Road. Assuming a 5-person household, 75 cfm (5x15 cfm/person) of fresh make-up should be supplied to such rooms. The make-up air intake should be on the side of the house away from the adjacent arterial roadway.

This project is outside even the 60 dB CNEL noise contour for the Redlands Airport and proximity will not cause a noise constraint for this project.

APPENDIX 9a

Mediterra at East Highlands

TRAFFIC IMPACT ANALYSIS

CITY OF HIGHLAND

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
FHWA	Federal Highway Administration
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
MUTCD	Manual on Uniform Traffic Control Devices
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	Mediterra at East Highlands
SANBAG	San Bernardino Associated Governments
SCAG	Southern California Association of Governments
sf	Square Feet
TIA	Traffic Impact Analysis
tsf	Thousand Square Feet

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) prepared for the proposed Mediterra at East Highlands development (referred to as "Project"), which is located north of Greenspot Road in the City of Highland.

The purpose of this traffic impact analysis is to evaluate the potential impacts to traffic and circulation associated with the development of the proposed Project, and recommend improvements to mitigate impacts considered significant in comparison to established regulatory thresholds. This traffic study has been prepared in accordance with the San Bernardino County Congestion Management Program (CMP) guidelines (1), and consultation with City staff and consultants, and Caltrans during the scoping process. The approved Project Traffic Study Scoping agreement is provided in Appendix "1.1" of this TIA.

1.1 PROJECT OVERVIEW

Exhibit 1-1 illustrates the conceptual site plan. The Project is proposed to consist of 277 single family detached residential dwelling units, and is located north of Greenspot Road. For the purposes of this analysis, the Project opening year (i.e., the year when the Project is expected to be built and occupied) is assumed to be 2018.

Vehicular access to and from the Project site will be provided via Driveway 1 and Driveway 2 on Greenspot Road. Both Driveways 1 and 2 are proposed to allow for full access.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) as presented in their most current edition of *Trip Generation* (9th Edition, 2012). The Project is anticipated to generate 2,637 trip-ends per day, with 208 vehicles per hour (VPH) during the AM peak hour and 277 VPH in the PM peak hour. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in detail in Section 4.1 *Project Trip Generation* of this report.

1.2 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2014) Conditions (1 scenario)
- Existing plus Project Conditions (1 scenario)
- Opening Year Cumulative (2018), Without and With Project (2 scenarios)
- Horizon Year (2035), Without and With Project (2 scenarios)

EXHIBIT 1-1: CONCEPTUAL SITE PLAN

1.2.1 EXISTING (2014) CONDITIONS

Information for Existing (2014) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis indicates traffic impacts that would occur on the existing roadway system with the addition of Project traffic. The E+P analysis is intended to identify the Project-specific impacts associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2014) conditions.

1.2.3 OPENING YEAR CUMULATIVE (2018) CONDITIONS

The Opening Year Cumulative conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City of Highland Development Impact Fee (DIF) program, or other approved funding mechanism can accommodate the near-term cumulative traffic at the target LOS as identified by the City of Highland (lead agency). It should be noted that the City of Highland has updated their DIF program to also include appropriate contributions towards regionally significant improvements that have been identified via the San Bernardino County CMP regional fee program study. If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative mitigation.

1.2.4 HORIZON YEAR (2035) CONDITIONS

The Horizon Year (2035) conditions analysis will be utilized to determine if improvements funded through local and regional transportation mitigation fee programs, such as the City of Redlands Development Impact Fee (DIF) program, or other approved funding mechanism can accommodate the cumulative traffic at the target LOS identified by the City of Highland. If the planned and funded improvements can provide the necessary improvements in delay, then the Project's payment into these established fee programs will be considered as long-range cumulative mitigation. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-funded facilities) are identified as such.

1.3 STUDY AREA

To ensure that this report satisfies the City of Highland's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The Agreement approved by the City and Caltrans is included in Appendix "1.1". Exhibit 1-2 shows the location of the proposed Project in relation to the existing network.

1.3.1 INTERSECTIONS

The following eight study area intersection locations shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on discussions with City of Highland staff during the scoping

EXHIBIT 1-2: LOCATION MAP

LEGEND:

- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
- 0 = FUTURE INTERSECTION ANALYSIS LOCATION

N

process. The study area includes intersection locations in which a proposed Project is anticipated to contribute 50 or more peak-hour trips and additional intersections requested to be analyzed by the City of Highland. In addition, one intersection in the City of Redlands has been included in the study area. It should be noted that the Project is anticipated to contribute fewer than 50 peak hour trips to this intersection.

TABLE 1-1 INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	SR-210 EB Ramps / 5th Street	Caltrans
2	SR-210 WB Ramps / Greenspot Road	Caltrans
3	Boulder Avenue / Greenspot Road	Highland
4	Orange Street / Pioneer Avenue	Redlands
5	Church Street / Greenspot Road	Highland
6	Weaver Street / Greenspot Road	Highland
7	Driveway 1 / Greenspot Road – Future Intersection	Highland
8	Driveway 2 / Greenspot Road – Future Intersection	Highland

1.4 CIRCULATION SYSTEM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

1.4.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

A summary of intersection level of service (LOS) by scenario is provided in Table 1-2. Operationally deficient study area intersections and recommended improvements required to achieve acceptable circulation system operational conditions are described in detail within Section 5.0 *Existing Plus Project Traffic Analysis*, Section 6.0 *Opening Year Cumulative (2018) Traffic Analysis,* and Section 7.0 *Horizon Year (2035) Traffic Analysis* of this report.

A summary of off-site improvements needed to address intersection operational deficiencies for each analysis scenario is included in Table 1-3. Improvements found to be included in City of Highland (lead agency) Development Impact Fee (DIF) program and/or Master Plan have been identified as such. For improvements that do not appear to be in the City's DIF program and/or Master Plan, a fair share financial contribution based on the Project's fair share impact may be imposed in order to mitigate the Project's share of impacts in lieu of construction. These fees (to the City of Highland, and as determined, as fair-share contributions) are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. A rough order of magnitude cost has been prepared to determine the appropriate contribution value based upon the Project's fair share of traffic as part of the project approval process. The applicable cost associated with each of the recommended improvements shown on Table 1-4 are based on the preliminary construction cost estimates found in Appendix 'G' of the San Bernardino County CMP with an escalation factor of 1.484 to reflect current costs.

Table 1-2

Summary of Intersection Level of Service

#	Intersection	Existing LOS		E+P LOS		OYC (2018) NP LOS		OYC (2018) WP LOS		HY (2035) NP LOS		HY (2035) WP LOS		Acceptable LOS
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-210 EB Ramps / 5th St.	B	B	B	B	**F**[1]	**F**	**F**[1]	**F**	C	D	C	D	D
2	SR-210 WB Ramps / Greenspot Rd.	C	B	C	B	**F**[1]	**F**	**F**	**F**	C	C	C	C	D
3	Boulder Av. / Greenspot Rd.	C	D	C	D	**E**	**F**	**E**	**F**	D	**F**	**E**	**F**	D
4	Orange St. / Pioneer Av.	B	B	B	B	C	C	C	C	C	**F**[1]	C	**F**[1,2]	C
5	Church St. / Greenspot Rd.	B	B	B	B	C	C	D	D	**F**	**F**[1]	**F**	**F**	D
6	Weaver St. / Greenspot Rd.	C	D	C	B	C	B	C	B	C	B	D	B	D
7	Driveway 1 / Greenspot Rd.	--	--	B	A	--	--	C	B	--	--	**D**	C	D
8	Driveway 2 / Greenspot Rd.	--	--	B	A	--	--	C	B	--	--	D	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Volume-to-capacity ratio is greater than 1.00; Intersection unstable; Level of Service "F".

[2] Delay does not meet the applicable jurisdictional standards of a deficiency.

Table 1-3

Summary of Intersection Improvements

#	Intersection Location	Jurisdiction	OY (2018) With Project	HY (2035) With Project	Improvements in City DIF or Master Plan[1]?	Total Cost[2,3,4]	Fair Share %[4]	Fair Share Cost[5]
1	SR-210 EB Ramps / 5th St.	Caltrans	SB left turn lane	Same	Yes	$ 74,200	2.7%	$ 1,970
			2nd and 3rd EB through lane	Same	Yes	$ 534,240		$ 14,187
				4th EB through lane	Yes	$ 267,120		$ 7,094
				2nd EB right turn lane	Yes	$ 74,200		$ 1,970
					Total	**$ 949,760**		**$ 25,222**
2	SR-210 WB Ramps / Greenspot Rd.	Caltrans	NB left turn lane	Same	Yes	$ 74,200	3.6%	$ 2,691
			3rd EB through lane	Same	Yes	$ 267,120		$ 9,689
			4th WB through lane	Same	Yes	$ 267,120		$ 9,689
			WB right turn lane	Same	Yes	$ 74,200		$ 2,691
				2nd NB right turn lane	Yes	$ 74,200		$ 2,691
					Total	**$ 756,840**		**$ 27,453**
3	Boulder Av. / Greenspot Rd.	Highland	Modify the signal to provide overlap phasing for NB right turn lane	Same	No	$ 111,300	5.8%	$ 6,498
			SB right turn lane	Same	Yes	$ 74,200		$ 4,332
			3rd EB through lane	Same	Yes	$ 267,120		$ 15,595
			2nd WB left turn lane	Same	Yes	$ 74,200		$ 4,332
				2nd NB left turn lane	Yes	$ 74,200		$ 4,332
				2nd EB left turn lane	Yes	$ 74,200		$ 4,332
				3rd WB through lane	Yes	$ 267,120		$ 15,595
					Total	**$ 942,340**		**$ 55,017**
5	Church St. / Greenspot Rd.	Highland		2nd SB right turn lane	No	$ 74,200	6.8%	$ 5,064
				Modify the signal to provide overlap phasing for NB right turn lane	No	$ 111,300		$ 7,596
				Modify the signal to provide for up to a 140 second cycle length during the PM peak hour only	No	$ 111,300		$ 7,596
					Total	**$ 296,800**		**$ 20,257**
					Total Cost	**$ 2,945,740**		**$ 127,948**

[1] Improvements are identified as being included in the City of Highlands Transportation Impact Fee Program or Master Plan.

[2] Costs have been estimated using the data provided in Appendix "G" of the CMP (2003) for preliminary construction costs.

[3] Appendix "G" costs escalated by factor of 1.484 except for Traffic Signals in order to account for cost increases since the CMP (2003).

[4] Program improvements constructed by project may be eligible for fee credit, at discretion of City. See Table 9-2 for Fair Share Calculations.

[5] Rough order fo magnitude cost estimate.

The total cost of needed study area intersection improvements is $2,945,740. Based on the Project fair share percentages shown on Table 1-4, the Project's fair share cost is estimated at $127,948. The amount shown on Table 1-4 is being covered through a combination of payment of DIF fees, physical construction of improvements and/or a fair share monetary contribution. These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or mitigation. Additional information related to these various fee programs are contained in Section 9.0 *Local and Regional Funding Mechanisms* of this report.

The Project's estimated fair share cost of $127,948 includes $101,194 which will be covered by payments of DIF fees by the Project at the time of issuance of building permits; the remainder $26,754 are not included in the DIF and could be paid to the City by the Project as a Project-Specific Traffic Mitigation fee of $97 per residential unit ($26,754 divided by 277 units, the total number of units in the Project.

1.6 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Vehicular access to and from the Project site is assumed to be provided via Driveway 1 and Driveway 2 on Greenspot Road. Both Driveways 1 and 2 are proposed to allow for full access. The Project will construct improvements on the site adjacent roadway of Greenspot Road.

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

1.6.1 ON-SITE ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as part of the Project's conditions of approval. Exhibit 1-3 illustrates the site access and site-adjacent roadway improvement recommendations.

Greenspot Road – Greenspot Road is an east-west oriented roadway located along the Project's southern boundary. Construct Greenspot Road from Project's western boundary to 600 feet east of Driveway 2 at its ultimate half-section width as a Major Highway (104-foor right-of-way) in compliance with applicable City of Highland standards. The Project will provide median improvements on the north side of Greenspot Road as required by its final conditions of approval and applicable City of Highland standards.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the recommended roadway classifications and respective cross-sections in the City of Highland General Plan Circulation Element.

EXHIBIT 1-3: SITE ACCESS AND SITE ADJACENT ROADWAY RECOMMENDATIONS

1.6.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-3 illustrates the on-site and site adjacent recommended roadway lane improvements. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Driveway 1 at Greenspot Road (#7) – Install a stop control on southbound approach and construct the intersection with the following geometrics:

Northbound Approach: N/A.
Southbound Approach: One shared left-right turn lane.
Eastbound Approach: One left turn lane with a minimum of 150-feet of storage and one through lane.
Westbound Approach: One through lane and one shared through-right turn lane.

Driveway 2 at Greenspot Road (#8) – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

Northbound Approach: N/A.
Southbound Approach: One shared left-right turn lane.
Eastbound Approach: One left turn lane with a minimum of 150-feet of storage and one through lane.
Westbound Approach: One through lane and one shared through-right turn lane.

The improvements to Greenspot Road along the Project's frontage shall extend at least 600 feet west and east of the Project driveways in order to provide acceptable storage for the westbound shared through-right turn lanes, as noted in the CMP Appendix C (1).

The storage length recommendations for the turning lanes on Greenspot Road at Driveway 1 and Driveway 2 are shown on Exhibit 1-3. The storage length recommendations for turn lanes are based on Opening Year Cumulative With Project Highway Capacity Manual (HCM) 95th percentile queues obtained from the Traffix software package which shows expected average queues of less than 1 passenger vehicle length for the westbound left turns. However a minimum storage length of 150 feet has been recommended to accommodate westbound traffic on Greenspot Road from the East Valley Water District's headquarters. The East Valley Water District's existing driveway is located in between the Project's proposed driveways and would be restricted to right-in-right-out access only. Vehicles heading west on Greenspot Road out of the East Valley Water District headquarters would either make a U-turn at Driveway 2 or make a left into the Project and head out after making a U-turn at the proposed roundabout at the end of Driveway 2 within the Project.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each Project access point should be reviewed with respect to standard Caltrans and City of Highland sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Highland and San Bernardino County Congestion Management Program (CMP) traffic study guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM 2000 methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (2) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Highland requires signalized intersection operations analysis based on the methodology described in Chapter 18 of the HCM. (2) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

Per the Caltrans *Guide for the Preparation of Traffic Impact Studies*, the traffic modeling and signal timing optimization software package Synchro (Version 8 Build 801) has been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. SR-210 Freeway at 5th Street/Greenspot Road). Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the Chapter 18 of the HCM. (2) Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. All other study area intersections have been analyzed using the software package Traffix (Version 8.0 R1, 2008).

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up

Source: HCM 2010, Chapter 18, Exhibit 18-4

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of four seconds per critical phase in accordance with San Bernardino County CMP recommended default values. (1)

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-mintue rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios with the exception of Horizon Year (2035) conditions. The higher of the existing PHF or 0.92 has been utilized for Horizon Year (2035) conditions analysis. Per Chapter 8 of the HCM 2000, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (2)

Saturation flow rates of 1,800 vehicles per hour of green (vphg) for through and right-turn lanes and 1,700 vphg for single left-turn lanes, 1,600 vphg per lane for dual left-turn lanes, and 1,500 vphg per lane for triple left-turn lanes have been assumed for all capacity analysis under Existing, E+P and Opening Year Cumulative conditions. Saturation flow rates of 1,900 vphg for through and right-turn lanes and 1,800 vphg for single left-turn lanes, 1,700 vphg per lane for dual left-turn lanes, and 1, 600 vphg per lane for triple-left turn lanes has been utilized for Horizon Year (2035) conditions analysis. These saturation flow rates are consistent with the recommended values found in the CMP. (1)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Highland requires the operations of unsignalized intersections be evaluated using the methodology described in Chapters 19 and 20 of the HCM. (2) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delays.	0 to 10.00
B	Short traffic delays.	10.01 to 15.00
C	Average traffic delays.	15.01 to 25.00
D	Long traffic delays.	25.01 to 35.00
E	Very long traffic delays.	35.01 to 50.00
F	Extreme traffic delays with intersection capacity exceeded.	> 50.00

Source: HCM 2010, Chapters 19 and 20, Exhibits 19-1 and 20-1

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

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as amended by *the MUTCD 2012 California* Supplement, for all study area intersections. (3)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. Both the FHWA's MUTCD and the MUTCD 2012 California Supplement indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (3)

Future unsignalized intersections have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for the following unsignalized study area intersections:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
4	Orange Street / Pioneer Avenue	Redlands
6	Weaver Street / Greenspot Road	Highland
7	Driveway 1 / Greenspot Road	Highland
8	Driveway 2 / Greenspot Road	Highland

The traffic signal warrant analysis for future conditions is presented in Section 3.0 *Area Conditions*, Section 5.0 *Existing Plus Project Traffic Analysis,* Section 6.0 *Opening Year Cumulative (2018) Traffic Analysis, and* Section 7.0 *Horizon Year (2035) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 LOS CRITERIA

CITY OF HIGHLAND

According to City of Highland General Plan Circulation Element, LOS "D" is the minimum acceptable condition that should be maintained during the peak commute hours. Therefore, any intersection operating at LOS "E" or "F" is considered deficient/unsatisfactory.

The CMP definition of deficiency is based on maintaining a level of service standard of LOS "E" or better, except where an existing LOS "F" condition is identified in the CMP document. Further, per the CMP, an intersection must be designated as operating at LOS "F" when the volume-to-capacity (V/C) ratio of the critical movements is equal to or greater than 1.0. Any V/C ratio of 1.0 or greater is an indication of actual or potential breakdown, thereby requiring improvements in the overall intersection geometrics and signal operations. It should be noted that the most current San Bernardino County CMP states "Only project opening day and future scenarios with project require that traffic operational problems be mitigated to provide LOS "E" or better operation. If the lead agency or an affected adjacent jurisdiction requires mitigation to a higher LOS, this takes precedence over the CMP requirements." Based on this, and noting that the City of Highland minimum Level of Service criteria is more stringent that the CMP Level of Service criteria, all locations meeting the City of Highland minimum Level of Service criteria will automatically meet the CMP Level of Service criteria.

CITY OF REDLANDS

The City of Redlands has established specific performance criteria for intersection operations. These performance criteria include standards related to determining the significance of project impacts on the roadway system. The City of Redlands has established LOS "C" as the minimum level of service for its intersections. Therefore, any intersection operating at LOS "D" or worse will be considered deficient for the purposes of this analysis. Additionally, General Plan Policy 5.20c from the Redlands General Plan states that: Where the current level of service at a location within the City of Redlands is below the Level of Service (LOS) "C" standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing level of service at that location (i.e. intersections in Redlands that are deficient to start out with are acceptable as long as they do not further degrade LOS).

CALTRANS

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

2.5 THRESHOLDS OF SIGNIFICANCE

CITY OF HIGHLAND

For purposes of analyzing California Environmental Quality Act (CEQA) impacts, the City of Highland utilizes the following thresholds of significance. First, when the pre-Project condition is at or above LOS "D" and Project traffic causes deterioration below LOS "D", a significant impact is deemed to occur. However, when the pre-Project condition is already below LOS "D" (i.e., LOS "E" or "F"), the Project will be responsible for fully mitigating its impacts to a level of service equal to or better than it was without the Project. This is a standard protocol in many urban jurisdictions because to require a Project to mitigate to LOS "D" would in effect force the Project to mitigate beyond its Project impacts.

Thus, for intersections currently operating at LOS "E" or "F" during either the AM and/or PM peak hour under existing conditions, improvements have been identified to mitigate the impacts of the Project to an intersection LOS that is equal to or better than pre-Project conditions.

Cumulative traffic impacts are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic impacts requiring additional improvements to maintain acceptable level of service operations with or without the Project. A Project's contribution to a significant cumulative impact can be reduced to less-than-significant and less than cumulatively considerable if the Project is required to implement or fund its fair share of improvements designed to alleviate the potential cumulative impact.

In the event that an intersection is operating at or is forecast to operate at a deficient LOS, the CMP guidelines have defined a series of steps to be completed to determine the Project's contribution to the deficiency of intersections. The steps are as follows:

1. Determine the mitigation measures necessary to achieve an acceptable service level
2. Calculate the Project's share in the future traffic volume projections for the peak hours,
3. Estimate the cost to implement recommended mitigation measures and
4. Calculate the Project's fair-share contribution to mitigate the Project's traffic impacts.

CITY OF REDLANDS

Based on discussions with City of Redlands staff regarding recent nearby traffic studies in the City, the following thresholds of significance will be utilized to determine whether the addition of Project traffic at a study intersection results in a significant impact:

A significant impact occurs at a study intersection if the addition of project-generated trips reduces the peak hour level of service of the study intersection to change from acceptable operation (e.g., LOS "A", "B" or "C") to deficient operation (e.g., LOS "D", "E" or "F") and, if applicable, also causes an unsignalized intersection to satisfy a Caltrans traffic signal warrant; or

A significant impact occurs at a study intersection if the addition of project-generated trips worsens the pre-project level of service grade at a deficiently operating (e.g., LOS "D", "E" or "F") intersection and, if applicable, also causes an unsignalized intersection to satisfy a Caltrans traffic signal warrant; or

A significant impact occurs at a study intersection if the addition of project-generated trips changes the delay by the values shown in Table 2-4 and, if applicable, also causes an unsignalized intersection to satisfy a Caltrans traffic signal warrant.

TABLE 2-4 CITY OF REDLANDS INTERSECTION THRESHOLDS OF SIGNIFICANCE

Pre-Project LOS	Project-Related Delay Increase	Mitigation Measure
C	8 seconds or more	Payment into City Traffic Fee Program
D	5 seconds or more	Achieve Pre-project delay or better
E	4 seconds or more	Achieve Pre-project delay or better
F	3 seconds or more	Achieve Pre-project delay or better

CALTRANS

To determine whether the addition of project traffic to the SHS would result in a deficiency, the following will be utilized:

- The traffic study finds that the LOS of an intersection will degrade from D or better to E or F.
- The traffic study finds that the project will exacerbate an already deficient condition. An intersection that is operating at or near capacity is deemed to be deficient.

2.6 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TIA identifies that the proposed Project would have a significant cumulative impact to a study area intersection, and the recommended mitigation measure is a fair share monetary contribution, the following methodology was applied to determine the fair share contribution. A project's fair share contribution at an off-site study area intersection is determined based on the following equation, which is the ratio of project traffic to new traffic, where new traffic is the total Horizon Year (2035) future traffic: subtracts existing baseline traffic

Project Fair Share % = Project Traffic / (2035 Total Traffic – Existing Traffic)

The Project fair share contribution calculations are presented in Section 9 *Local and Regional Funding Mechanisms* of this TIA.

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Highland General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrants.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the Traffic Study Scoping Agreement (Appendix "1.1") and discussion with City of Highland staff, the study area includes a total of eight existing and future intersections as shown previously on Exhibit 1-1. Of these eight intersections, the existing study area circulation network includes six intersections. The two future intersections in the study area that does not currently exist are the proposed Project driveways.

Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls. In addition, analysis has been provided with the following improvements which are planned or under construction:

- Traffic signal at the intersection of Orange Street / Pioneer Avenue (planned per discussion with City of Redlands staff)
- Traffic signal at the intersection of Weaver Street / Greenspot Road (signal heads were in place during a field visit in July 2014)
- Eastbound right turn lane at the intersection of Boulder Avenue / Greenspot Road (under construction during a field visit in July 2014)

3.2 CITY OF HIGHLAND GENERAL PLAN CIRCULATION ELEMENT

As previously noted, the Project site is located within the City of Highland. Exhibit 3-2 shows the City of Highland General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Highland General Plan roadway cross-sections.

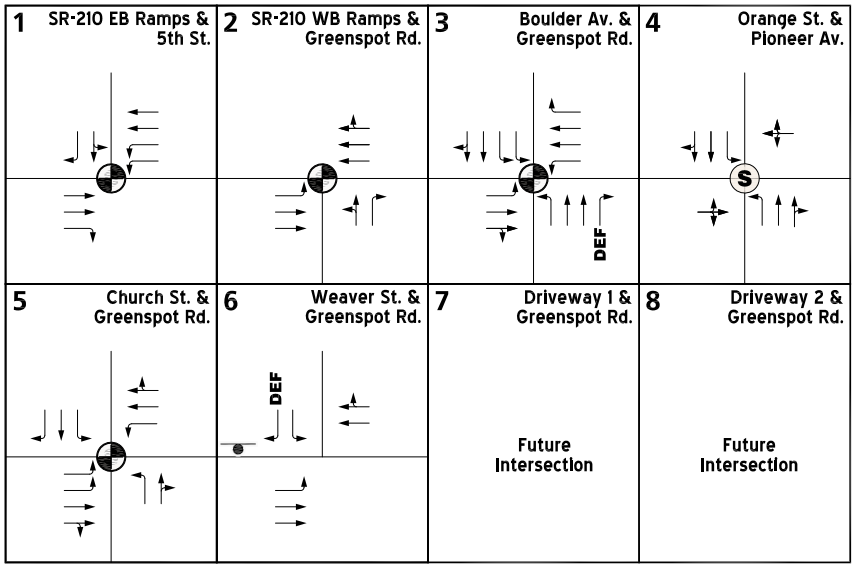
The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Highland General Plan Circulation Element, are described subsequently.

The study area roadways that are classified as Modified Primary Arterials are identified as having a 135-foot right-of-way and 98-foot curb-to-curb measurement. The following study area roadways within the City of Highland are classified as Modified Primary Arterials:

- Boulder Avenue

The study area roadways that are classified as Primary Arterials are identified as having a 112-foot right-of-way and 96-foot curb-to-curb measurement. The following study area roadways within the City of Highland are classified as Primary Arterials:

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- S = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

N

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URBAN CROSSROADS

EXHIBIT 3-2: CITY OF HIGHLAND GENERAL PLAN CIRCULATION ELEMENT

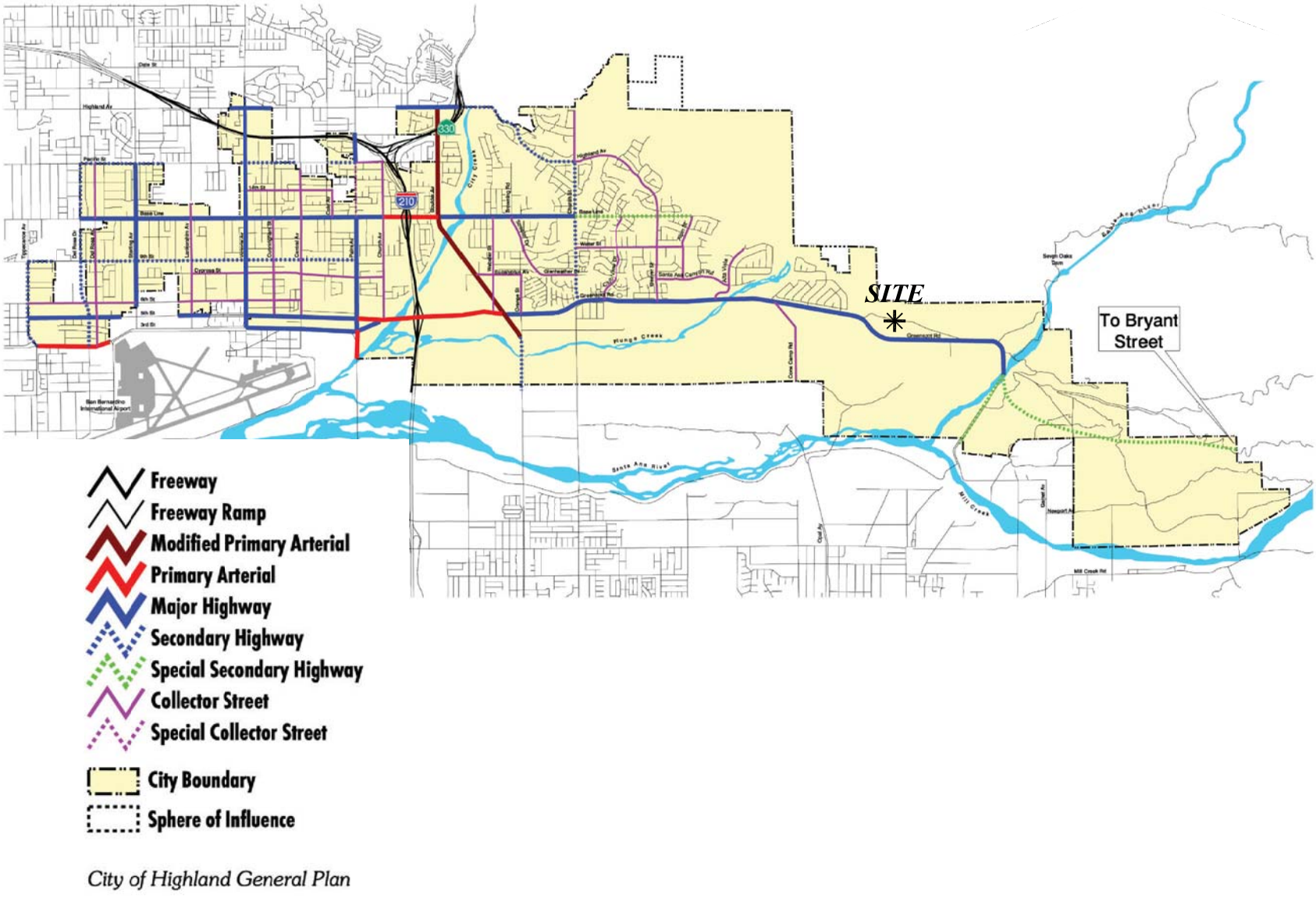
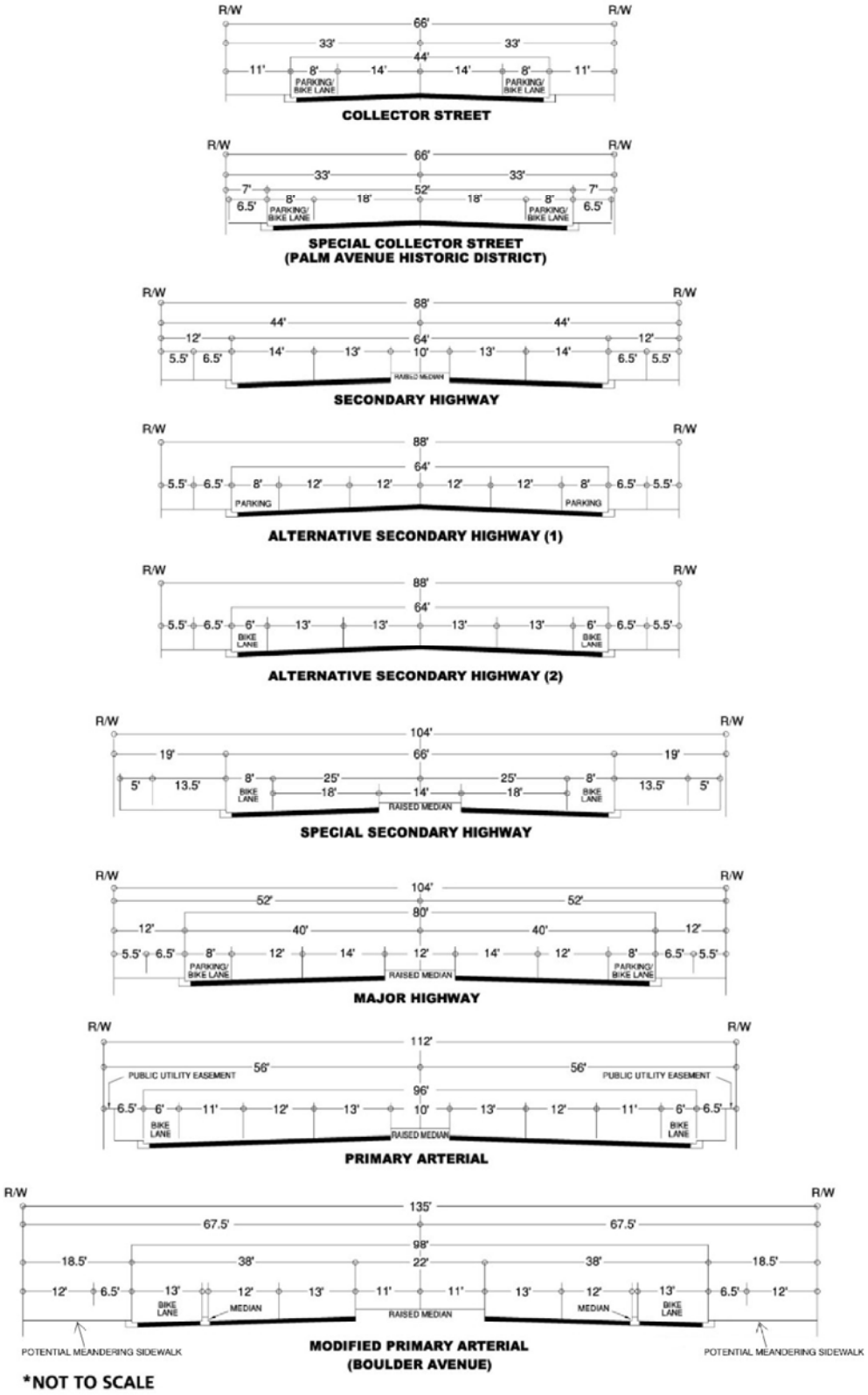


EXHIBIT 3-3: CITY OF HIGHLAND ROADWAY CROSS-SECTIONS



- Greenspot Road west of Boulder Avenue

The study area roadways that are classified as Major Highways are identified as having a 104-foot right-of-way and 80-foot curb-to-curb measurement. The following study area roadways within the City of Highland are classified as Major Highways:

- Greenspot Road east of Boulder Avenue

The study area roadways that are classified as Secondary Highways are identified as having an 88-foot right-of-way and 64-foot curb-to-curb measurement. The following study area roadways within the City of Highland are classified as Secondary Highways:

- Church Street north of Greenspot Road

The study area roadways that are classified as Collector Streets are identified as having a 66-foot right-of-way and 44-foot curb-to-curb measurement. The following study area roadways within the City of Highland are classified as Collector Streets:

- Weaver Street

3.3 TRUCK ROUTES

The City of Highland designated truck route map is shown on Exhibit 3-4. Boulder Avenue and Greenspot Road west of Boulder Avenue within the study area are identified as designated City of Highland truck routes.

3.4 TRANSIT SERVICE

The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County, with bus service along Greenspot Road and Church Street via Route 15. The existing bus route provided within the area by Omnitrans is shown on Exhibit 3-5. Route 15 appears to be the only existing transit line that currently serves the area in the immediate vicinity of the proposed Project. However, transit service is reviewed and updated by Omnitrans periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

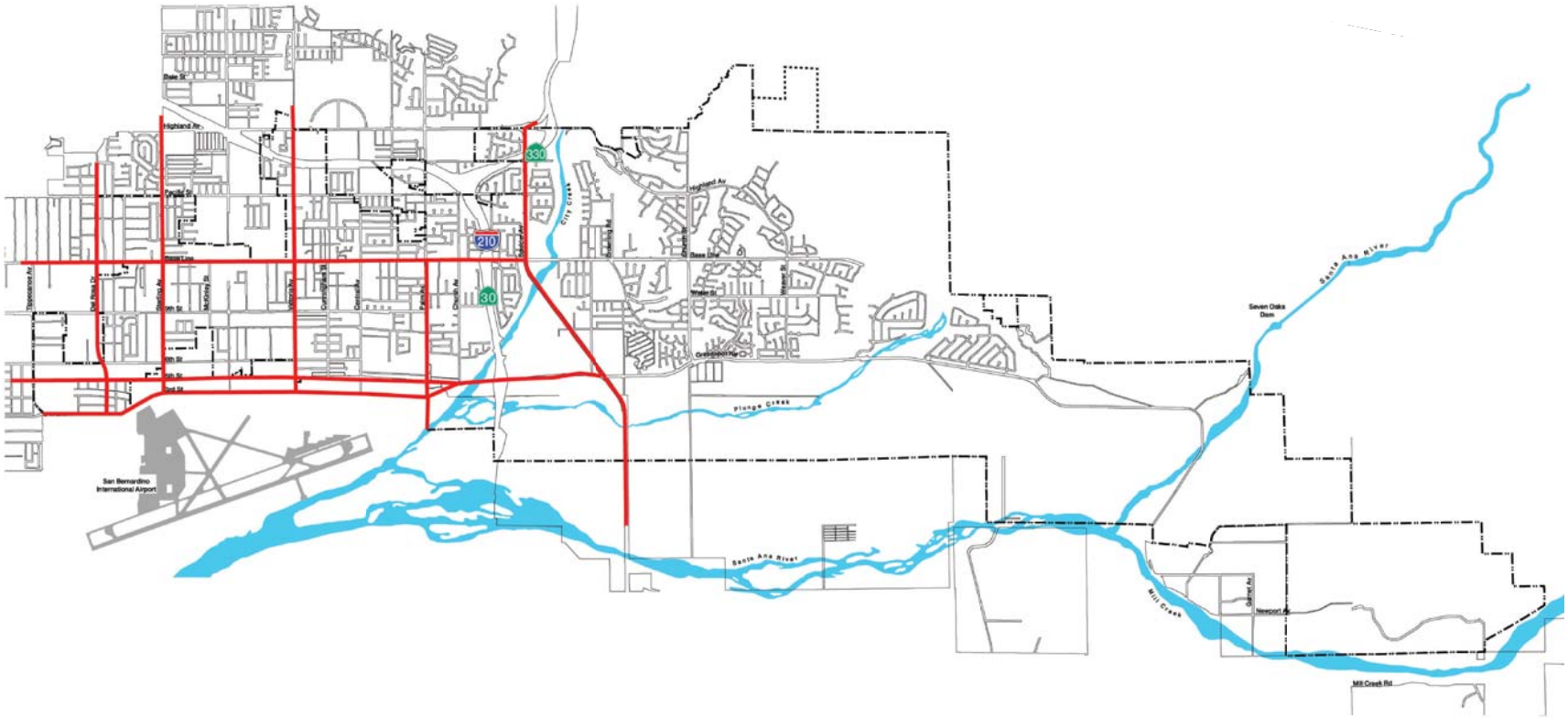
3.5 BICYCLE & PEDESTRIAN FACILITIES

Existing pedestrian facilities within the study area are shown on Exhibit 3-6. Exhibit 3-7 illustrates the City of Highland Bike Paths.

3.6 EXISTING (2014) TRAFFIC COUNTS

Manual AM and PM peak hour turning movement counts were conducted in June 2014, while local schools were in session. The raw manual peak hour turning movement traffic count data sheets are included in Appendix “3.1” of this TIA. The traffic counts collected include the vehicle classifications as shown on page 28:

EXHIBIT 3-4: EXISTING TRUCK ROUTES



Truck Routes
City Boundary
Sphere of Influence

City of Highland General Plan

N

URBAN CROSSROADS

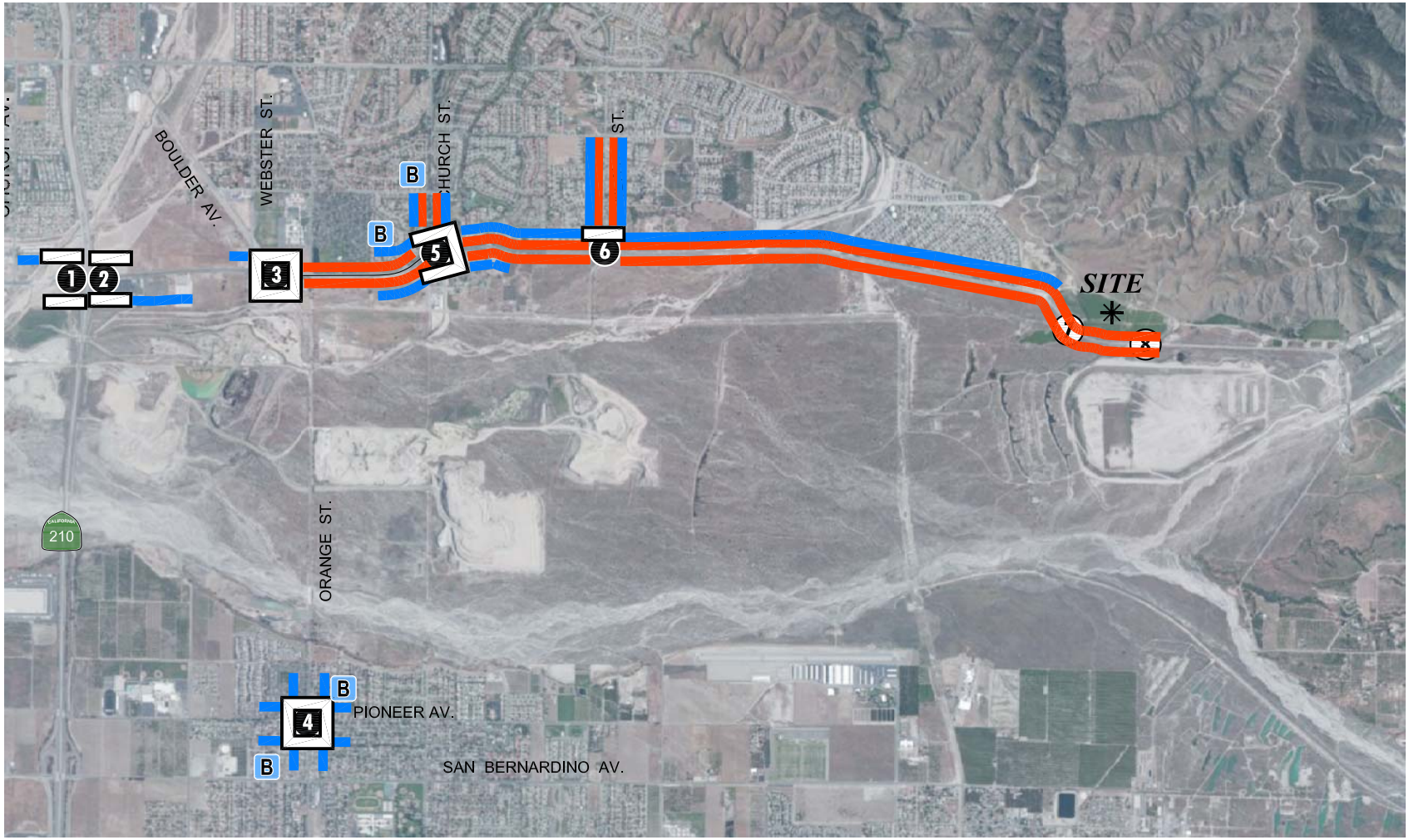
EXHIBIT 3-5: EXISTING TRANSIT ROUTES

LEGEND:

= OMNITRANS ROUTE 15

N

EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES

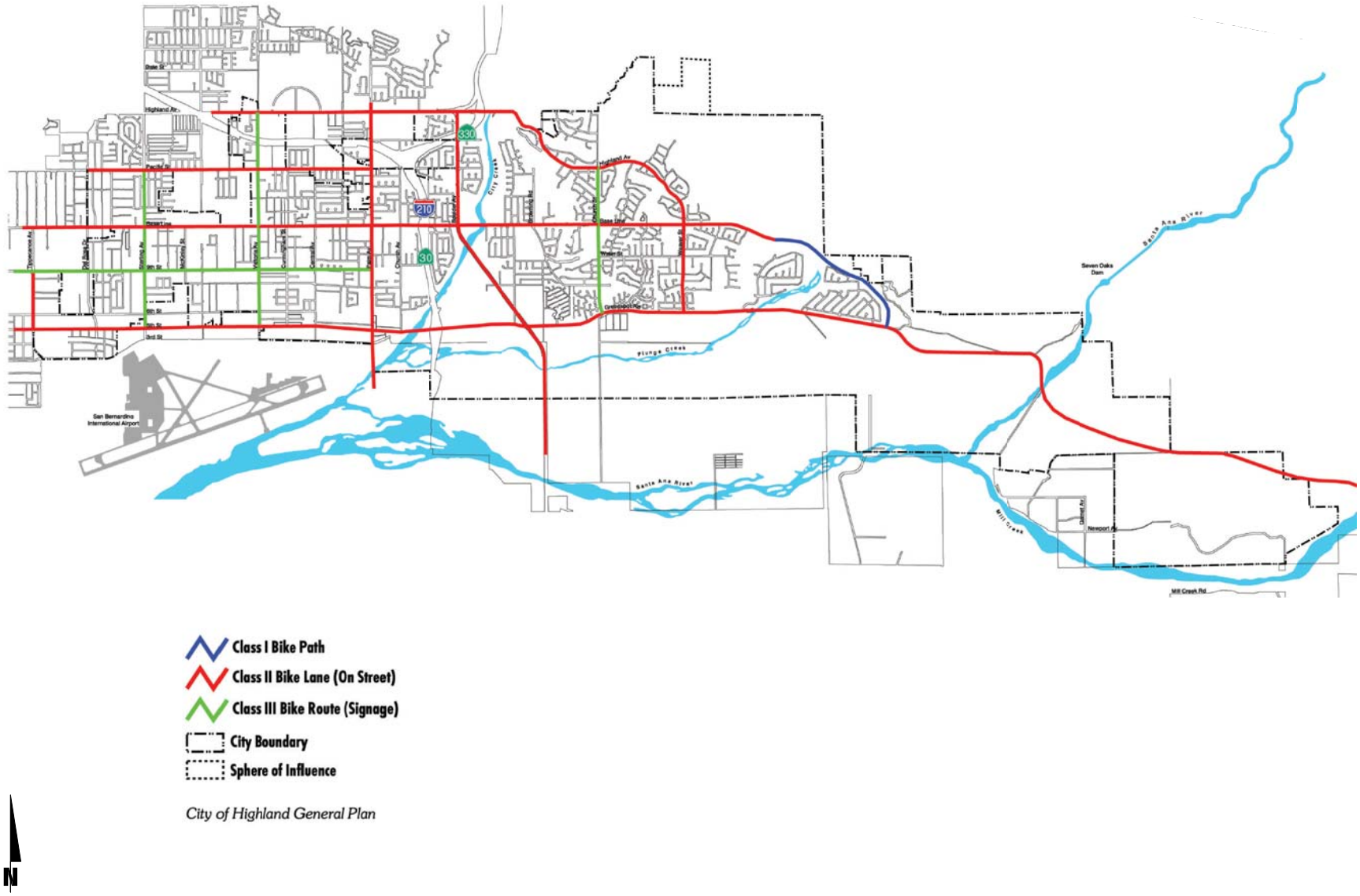


LEGEND:

- B = BUS STOP
- = CROSSWALK
- = SIDEWALK
- = CLASS II BIKE LANE

N

EXHIBIT 3-7: CITY OF HIGHLANDS BIKEWAYS



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- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

To represent the impact large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into passenger car equivalents (PCEs). By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow down is also much longer than for passenger cars, and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the CMP. (1)The classified counts were collected at the SR-210 ramp intersections and the same truck percentage was applied to other study area intersections to calculate the PCE.

Existing average daily traffic (ADT), AM and PM peak hour intersection turning movement volumes throughout the study area are shown on Exhibit 3-8. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.79 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately eight to nine percent. This same relationship (i.e. PM peak hour traffic volumes equate to eight to nine percent of average daily traffic volumes) was applied in estimating average daily roadway segment traffic volumes throughout the study area.

All of the intersection turning movement volumes illustrated on the exhibits and analyzed in this traffic analysis are shown in terms of PCE.

3.7 EXISTING (2014) CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that the existing study area intersections are currently operating at acceptable LOS during the peak hours.

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-9. The intersection operations analysis worksheets are included in Appendix “3.2” of this TIA.

EXHIBIT 3-8: EXISTING (2014) TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
80(69) ↓ 1(8) ↓ 135(302) ← 757(579) ← 673(369)	← 182(231) ← 1012(579)	10(10) ↓ 268(321) ↓ 43(90) ← 32(34) ← 902(466) ← 363(299)	147(79) ↓ 346(324) ↓ 108(149) ← 123(138) ← 52(63) ← 91(47)
175(496) → 513(581) ↓	43(92) → 267(706) → 418(369) ↑ 0(1) ↑ 297(533) ↱	7(11) → 311(659) → 80(297) ↓ 94(128) ↑ 177(305) ↑ 318(420) ↱	152(244) → 60(68) → 53(37) ↓ 24(37) ↑ 184(536) ↑ 16(61) ↱
5 Church St. & Greenspot Rd.	**6 Weaver St. & Greenspot Rd.**	**7 Driveway 1 & Greenspot Rd.**	**8 Driveway 2 & Greenspot Rd.**
328(168) ↓ 5(9) ↓ 41(76) ← 79(69) ← 753(506) ← 0(5)	218(102) ↓ 16(22) ← 16(12) ← 401(313)	Future Intersection	Future Intersection
163(282) → 372(696) → 10(20) ↓ 16(19) ↑ 21(7) ↑ 1(1) ↱	141(212) → 183(375) →		

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

Table 3-1

Existing (2014) Conditions Intersection Analysis

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1] Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM	Acceptable LOS
1	SR-210 EB Ramps / 5th St.	TS	0	0	0	0	1	1	0	2	1	2	2	0	14.8	17.1	B	B	D
2	SR-210 WB Ramps / Greenspot Rd.	TS	0	1	1	0	0	0	1	2	0	0	3	0	21.3	17.9	C	B	D
3	Boulder Av. / Greenspot Rd.	TS	1	2	d	2	2	0	1	2	0	1	2	1	33.2	51.2	C	D	D
	Boulder Av. / Greenspot Rd.[4]	TS	1	2	d	2	2	0	1	2	**1**	1	2	1	32.3	40.8	C	D	D
4	Orange St. / Pioneer Av.	AWS	1	2	0	1	2	0	0	1	0	0	1	0	17.5	23.9	C	C	C
	Orange St. / Pioneer Av.[5]	**TS**	1	2	0	1	2	0	0	1	0	0	1	0	18.2	19.7	B	B	C
5	Church St. / Greenspot Rd.	TS	1	1	0	1	1	1	2	2	0	1	2	0	17.5	16.4	B	B	D
6	Weaver St. / Greenspot Rd.	CSS	0	0	0	1	0	d	1	2	0	0	2	0	19.9	27.3	C	D	D
	Weaver St. / Greenspot Rd.[6]	**TS**	0	0	0	1	0	d	1	2	0	0	2	0	19.3	13.5	B	B	D
7	Driveway 1 / Greenspot Rd.	--	Future Intersection Analysis Location												--	--	--	--	D
8	Driveway 2 / Greenspot Rd.	--	Future Intersection Analysis Location												--	--	--	--	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane; **1** = Improvement

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1) with the exception of the SR-210 Ramps at Greenspot Road, which have been analyzed using Synchro (Version 8).

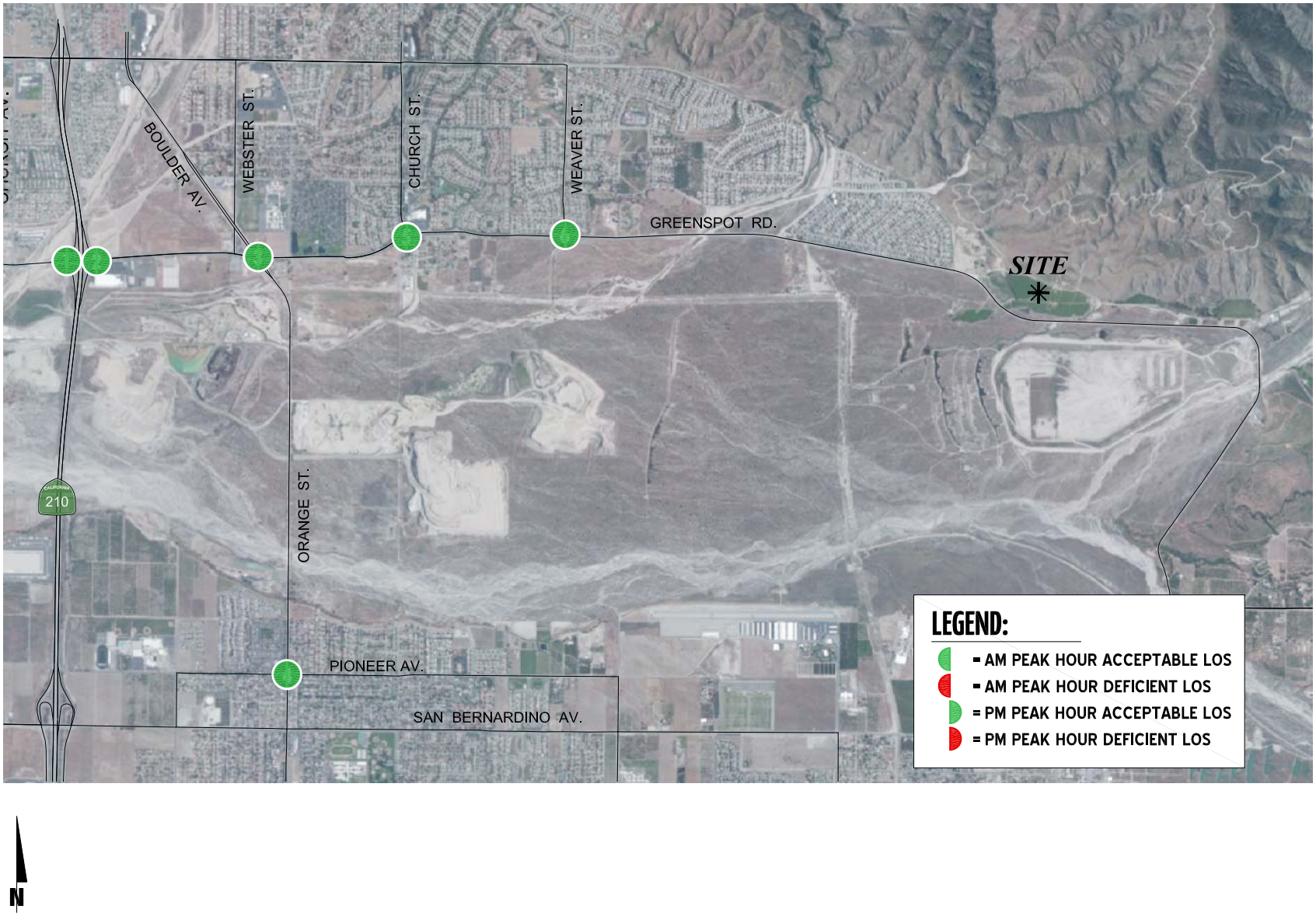
[3] AWS = All-Way Stop; CSS = Cross-street Stop; TS = Traffic Signal

[4] An eastbound right turn lane is currently under construction at the time of data collection for the preparation of this report. This intersection was also evaluated with an eastbound right turn lane.

[5] A traffic signal is planned to be installed at Orange St. / Pioneer Av. Per City of Redlands staff. The intersection was also evaluated with a traffic signal.

[6] The installation of traffic signal control was observed to be under construction at the time of data collection for the preparation of this report. The intersection was also evaluated with a traffic signal.

EXHIBIT 3-9: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR EXISTING (2014) CONDITIONS



3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing traffic conditions, the following study intersections appear to warrant a traffic signal (see Appendix "3.3").

ID	Intersection Location	Jurisdiction
4	Orange Street / Pioneer Avenue	Redlands
6	Weaver Street / Greenspot Road	Highland

3.9 FREEWAY OFF RAMP QUEUING ANALYSIS

A traffic progression analysis has been performed for the off-ramps at the SR-210 Freeway at 5th Street/Greenspot Road interchange to assess peak hour vehicle queues that may potentially impact the freeway mainline if spillback were to occur. A peak hour off-ramp queuing summary for Existing traffic conditions is provided in Table 3-2. As shown on Table 3-2, there are no potential queuing issues anticipated during either the AM and PM peak hour 95th percentile traffic flows for Existing traffic conditions.

Worksheets for the Existing traffic conditions off-ramp queuing analysis are provided in Appendix "3.4" of this TIA.

Table 3-2

Existing (2014) Conditions
Peak Hour Off-Ramp Queuing Analysis

Intersection	Movement	Stacking (Feet)	95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
SR-210 EB Ramps / 5th St.	SBL/R	915	114 [2]	237 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	411 [2]	340 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. .

Exhibit 1-1 illustrates the preliminary site plan. The Project is proposed to consist of 277 single family detached residential dwelling units, and is located north of Greenspot Road. For the purposes of this analysis, the Project opening year (i.e., the year when the Project is expected to be built out and occupied) is assumed to be 2018.

Vehicular access to and from the Project site is assumed to be provided via Driveway 1 and Driveway 2 on Greenspot Road. Both Driveway 1 and Driveway 2 are proposed to allow for full access.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

The ITE Trip Generation manual is a nationally recognized source for estimating site specific trip generation. ITE recently released an updated edition of the Trip Generation manual (9th Edition) in 2012. (4) Trip generation rates used to estimate Project traffic are shown in Table 4-1 and a summary of the Project's trip generation is shown in Table 4-2. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE) for Single-Family Detached Residential (ITE Land Use Code 210). The Project is anticipated to generate 2,637 trip-ends per day, with 208 vehicles per hour (VPH) during the AM peak hour and 277 VPH in the PM peak hour.

TABLE 4-1: PROJECT TRIP GENERATION RATES

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Single Family Detached Res.	DU	210	0.19	0.56	0.75	0.63	0.37	1.00	9.52

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).
[2] DU = Dwelling Units

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Single Family Detached Res.	277	DU	53	155	208	175	102	277	2,637

[1] DU = Dwelling Units

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution and assignment process represents the directional orientation of traffic to and from the Project site. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the routes where Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site.

The trip distribution pattern of passenger cars is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. Surrounding uses considered in developing the Project trip distribution include shopping opportunities, employment opportunities, and the location of local schools.

Exhibit 4-1 illustrates the Project trip distribution for outbound trips during the AM peak hour. Exhibit 4-2 illustrates the Project trip distribution for inbound trips during the AM peak hour and both outbound and inbound trips during the PM peak hour. The trip distribution is primarily based on the existing roadway system. The Project trip distribution patterns are also greatly affected by existing / near-term development patterns in the vicinity of the Project site, and have been reviewed by City staff as part of the scoping process.

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project average daily traffic (ADT), AM and PM peak hour intersection turning movement volumes are shown on Exhibit 4-3.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION (AM PEAK-OUTBOUND)

LEGEND:

10 = PERCENT FROM PROJECT

N

URBAN CROSSROADS

EXHIBIT 4-2: PROJECT TRIP DISTRIBUTION (AM PEAK INBOUND, PM PEAK)

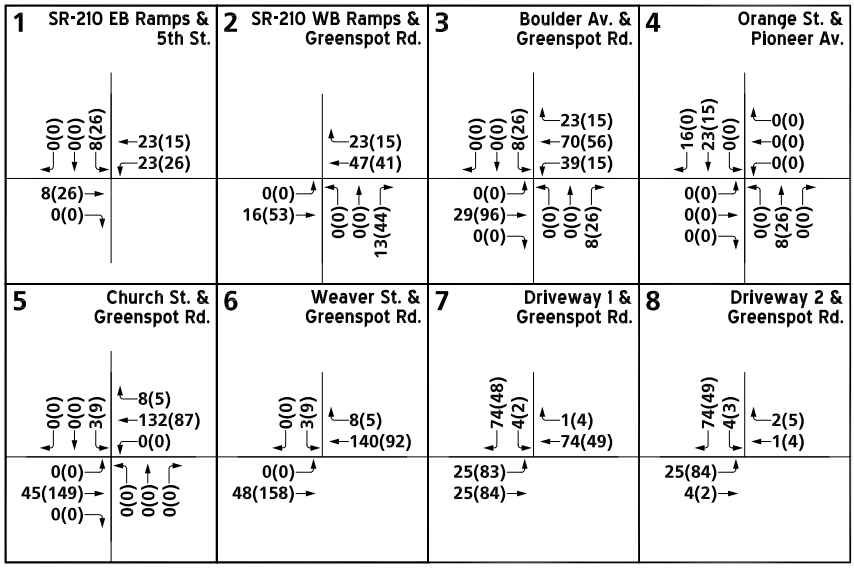
LEGEND:

10 = PERCENT TO/FROM PROJECT

N

URBAN CROSSROADS

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

4.5 BACKGROUND TRAFFIC

The Opening Year Cumulative without traffic volumes have been estimated by manual cumulative build-up approach. Opening Year Cumulative Without Project traffic forecasts have been based upon four years of background (ambient) growth at 2% per year for 2018 traffic conditions. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. Opening Year Cumulative traffic volumes are provided in Section 6.0 *Opening Year Cumulative (2018) Traffic Conditions* of this report. Assumption of this compounded growth rate is extremely conservative, when compared with the regional growth forecasts.

The adopted *Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan (RTP)* (April 2012) (5) growth forecasts for City of Highland identifies projected growth in population of 53,000 in 2008 to 67,300 in 2035, or a 26.98% increase over the 27 year period. The change in population equates to roughly a 0.89 percent growth rate compounded annually. Similarly, growth over the same 27 year period in households is projected to increase by 31.82 percent, or 1.03 percent annual growth rate. Finally, growth in employment over the same 27 year period is projected to increase by 51.67 percent, or a 1.55 percent annual growth rate. As compared to these estimated growth rates, the 2 percent ambient growth rate utilized for the purposes of estimating background growth for the purposes of this analysis would appear to be conservative.

The traffic generated by the proposed Project was then manually added to the base volume to determine Opening Year Cumulative "With Project" forecasts.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

CEQA guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with the City of Highland and City of Redlands. (6) Exhibit 4-4 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-3. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-3 are reflected as part of the background traffic.

Volume development worksheets detailing the addition of cumulative traffic to study area intersections by turning movement and the City of Highland Cumulative Project List and volumes for individual cumulative projects that were added in addition to the ambient growth rate are included in Appendix 4.1 of this TIA.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

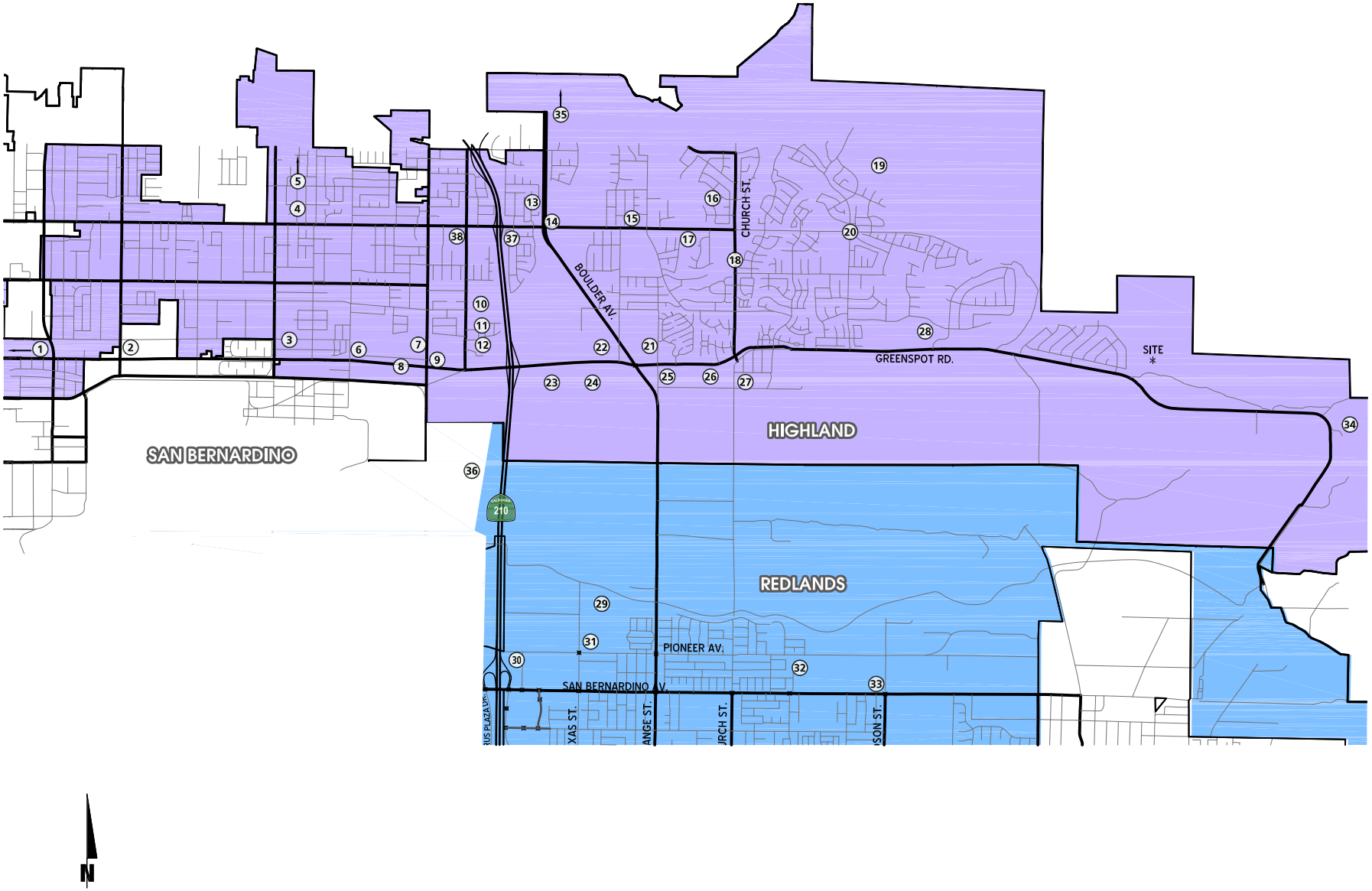


Table 4-3

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
1	Orange New Jersey Pro	Industrial	126.900	TSF
2	CT Reality Corporation	Business Park	85.000	TSF
3	CT Reality Corporation	Business Park	85.000	TSF
4	Pepito's	Restaurant / Commercial	Remodel	
5	Hispano Investors	Residential	17	DU
6	South Terminus of Lillian Lane	Single Family-Detached	13	DU
7	Jack Lanphere	General Light Industrial	25.000	TSF
8	Berry St. Peters	General Light Industrial	8.600	TSF
9	Industrial Center on Palm	Industrial	39.750	TSF
10	Town Center Retail (Family Dollar)	Shopping Center	101.300	TSF
	Fresh & Easy	Retail	14.250	TSF
11	KZ Holdings (Mixed use)	Residential	64	DU
		General Office	13.100	TSF
12	Baseline Commercial	Specialty Retail	17.200	TSF
		Sit-Down Restaurants	4.800	TSF
13	Randal Brank	Medical-Dental Office	25.000	TSF
14	NW corner of Baseline and Boulder	Bank	5.200	TSF
15	Immanual Baptist Church	Church	90.000	TSF
16	North American Residential	Single Family-Detached	8	DU
17	Assisted Living Facility	Senior Adult Housing-Attached	88	DU
18	Peter Le	Single Family-Detached	8	DU
19	Chong Homes	Residential	5	DU
20	Ross Jones	Single Family-Detached	4	DU
21	121 SFDR Housing Gated Community	SFDR	121	DU
22	Greenspot Village & Marketplace	Planning Area 1 (Commercial)		
		Superstore	200.000	TSF
		Anchor Retail	355.000	TSF
		Gas Station w/ Convenience Market	3.600	TSF
		Bank with Drive-Thru	10.000	TSF
		Fast-Food Restaurant with Drive-Thru	12.000	TSF
		High-Turnover (Sit-Down) Restaurant	25.000	TSF
		Sit-Down Restaurants	40.000	TSF
		Planning Area 2 (Residential)		
		Apartments	378	DU
		Condo/Townhomes	172	DU
		Planning Area 3 (Village Center - Mixed Use)		
		Daycare	7.000	TSF
		Shopping Center	80.000	TSF
		Sit-Down Restaurants	7.000	TSF
		Hotel (includes 20 TSF Conference Center)	240	RMS
		General Office	60.000	TSF
		Apartments	172	DU
		Condo/Townhomes	78	DU
23	Regency Center	Fast-Food Restaurant with Drive-Thru	3.417	TSF
		Shopping Center	42.840	TSF
24	Retail Center	Fast-Food Restaurant with Drive-Thru	6.280	TSF
		Shopping Center	7.065	TSF
		Retail	13.771	TSF
25	133 SFD Housing (SE corner of Orange St. & Greenspot Rd.)	SFDR	133	DU
26	Blossom Trails	SFDR	14	DU
		Condo/Townhomes	306	DU
27	Greenspot Retail Office	Retail	5.000	TSF
28	Wright, Alta Vista and Santa Ana	Residential	117	DU
29	TTM 18988	Residential	82	DU

Table 4-3
Page 2 of 2

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
30	Northwest of Tennessee and San Bernardino Ave.	Shopping Center	275.000	TSF
31	NE corner of Texas St. & Pioneer Av.	SFDR	12	DU
32	East of Deanna Wy., between San Bernardino Av. & Pioneer Av.	SFDR	26	DU
33	North of San Bernardino Av., west of Judson St.	SFDR	74	DU
34	Harmony Specific Plan	Residential	3466	DU
		Commercial Retail Center	225.000	TSF
35	San Manuel Village-Partially Built	Restaurant with Drive through	8.500	TSF
		Restaurant	5.800	TSF
		Bank with Drive Through	5.200	TSF
36	Santa Ana River Wash	Cement Plant		
37	Southeast Corner of Bas Line and Seine Avenue	Retail	23.500	TSF
38	St Adelaide's Academy Expansion - New Ministry Offices	General Office	9.000	TSF

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Position; RMS = Rooms

The cumulative projects for which the volumes were added manually for Opening Year (2018) traffic conditions are listed below.

1. Santa Ana River Wash Cement Plant
2. Blossom Trails Single Family Residential
3. 121 SFD Gated Community
4. San Manuel Village
5. Highland Crossroads
6. 30,000 SF Retail Center at Boulder Avenue / Greenspot Road
7. Centerstone -133 SFH
8. Greenspot Village & Marketplace Residential/
9. Harmony Specific Plan

For Opening Year (2018) conditions, an absorption percentage of 75% has been included for Harmony Specific Plan volumes.

4.7 HORIZON YEAR TRAFFIC FORECASTS

Traffic projections for Horizon Year Without Project conditions are typically derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing. The SBTAM does not appear to include all the dwelling units and square footage listed in the Greenspot Village and Marketplace and Harmony specific plans. (7) As such, based on discussions with City of Highland, 2035 forecasts from the recently approved *Harmony Specific Plan Traffic Impact Analysis* have been used to develop the Horizon Year Without Project traffic forecasts. (8) The Harmony Specific Plan long range forecasts were developed taking into account other specific plans in the region.

Similarly, Horizon Year (2035) forecasts from the *Texas Street / Pioneer Avenue Intersection Traffic Study Report* have been used for Orange Street / Pioneer Avenue intersection in an effort to be consistent with City of Redland's planning efforts in the area. (9)

The Horizon Year Without Project peak hour turning movements were then reviewed by Urban Crossroads for reasonableness, and in some cases, were adjusted to achieve reasonable growth. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.

5 EXISTING PLUS PROJECT TRAFFIC CONDITIONS

To comply with CEQA Guidelines Section 15125(a), an analysis of existing traffic volumes plus traffic generated by the proposed Project (E+P) has been included in this analysis. This section discusses the traffic forecasts for E+P conditions and the resulting intersection operations and traffic signal warrants. Project impacts to baseline traffic conditions (i.e., existing conditions) have been identified along with mitigation measures necessary to reduce Project-related impacts to less-than-significant.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions. In other words, no other off-site improvements are assumed beyond those that currently exist with the exception of the intersections and roadways that would be improved by the Project for access. In addition, analysis has been provided with the following improvements which are planned or under construction:

- Traffic signal at the intersection of Orange Street / Pioneer Avenue (planned per discussion with City of Redlands staff)
- Traffic signal at the intersection of Weaver Street / Greenspot Road (signal heads were in place during a field visit in July 2014)
- Eastbound right turn lane at the intersection of Boulder Avenue / Greenspot Road (under construction during a field visit in July 2014)

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1 shows the ADT, AM and PM peak hour intersection turning movement volumes for E+P traffic conditions.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.0 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that the study area intersections are anticipated to operate at acceptable levels of service.

Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2. These findings are consistent with the results of the Existing conditions analysis. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix “5.1” of this TIA.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
80(69) 1(8) 143(328) ← 780(594) ← 696(395)	← 205(246) ← 1059(620)	10(10) 268(321) 51(116) ← 55(49) ← 972(522) ← 402(314)	163(79) 369(339) 108(149) ← 123(138) ← 52(63) ← 91(47)
183(522) → 513(581)	43(92) → 283(759) → 418(369) 0(1) 310(577)	7(11) → 340(755) → 80(297) 94(128) 177(305) 326(446)	152(244) → 60(68) → 53(37) 24(37) 192(562) 16(61)
5 Church St. & Greenspot Rd.	**6 Weaver St. & Greenspot Rd.**	**7 Driveway 1 & Greenspot Rd.**	**8 Driveway 2 & Greenspot Rd.**
328(168) 5(9) 44(85) ← 87(74) ← 885(593) ← 0(5)	218(102) 19(31) ← 24(17) ← 541(405)	74(48) 4(2) ← 1(4) ← 491(374)	74(49) 4(3) ← 2(5) ← 418(329)
163(282) → 417(845) → 10(20) 16(19) 21(7) 1(1)	141(212) → 231(533) →	25(83) → 224(481) →	25(84) → 203(399) →

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

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Table 5-1

E+P Conditions Intersection Analysis

#	Intersection	Traffic Control[2]	Existing (2014) Delay [1] (secs.) AM	Existing (2014) Delay [1] (secs.) PM	Existing (2014) Level of Service AM	Existing (2014) Level of Service PM	E+P Delay [1] (secs.) AM	E+P Delay [1] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM	Acceptable LOS
1	SR-210 EB Ramps / 5th St.	TS	14.8	17.1	B	B	14.9	17.9	B	B	D
2	SR-210 WB Ramps / Greenspot Rd.	TS	21.3	17.9	C	B	21.9	18.1	C	B	D
3	Boulder Av. / Greenspot Rd.	TS	33.2	51.2	C	D	35.2	**59.5**	D	**E**	D
	Boulder Av. / Greenspot Rd.[3]	TS	32.3	40.8	C	D	34.1	45.8	C	D	D
4	Orange St. / Pioneer Av.	AWS	17.5	23.9	C	C	18.5	**25.1**	C	**D**	C
	Orange St. / Pioneer Av.[4]	**TS**	18.2	19.7	B	B	18.4	19.8	B	B	C
5	Church St. / Greenspot Rd.	TS	17.5	16.4	B	B	18.4	16.4	B	B	D
6	Weaver St. / Greenspot Rd.	CSS	19.9	27.3	C	D	25.9	**40.6**	D	**E**	D
	Weaver St. / Greenspot Rd.[5]	**TS**	19.3	13.5	B	B	20.2	13.9	C	B	D
7	Driveway 1 / Greenspot Rd.	**CSS**	--	--	--	--	10.4	9.9	B	A	D
8	Driveway 2 / Greenspot Rd.	**CSS**	--	--	--	--	10.1	9.8	B	A	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1) with the exception of the SR-210 Ramps at Greenspot Road, which have been analyzed using Synchro (Version 8)

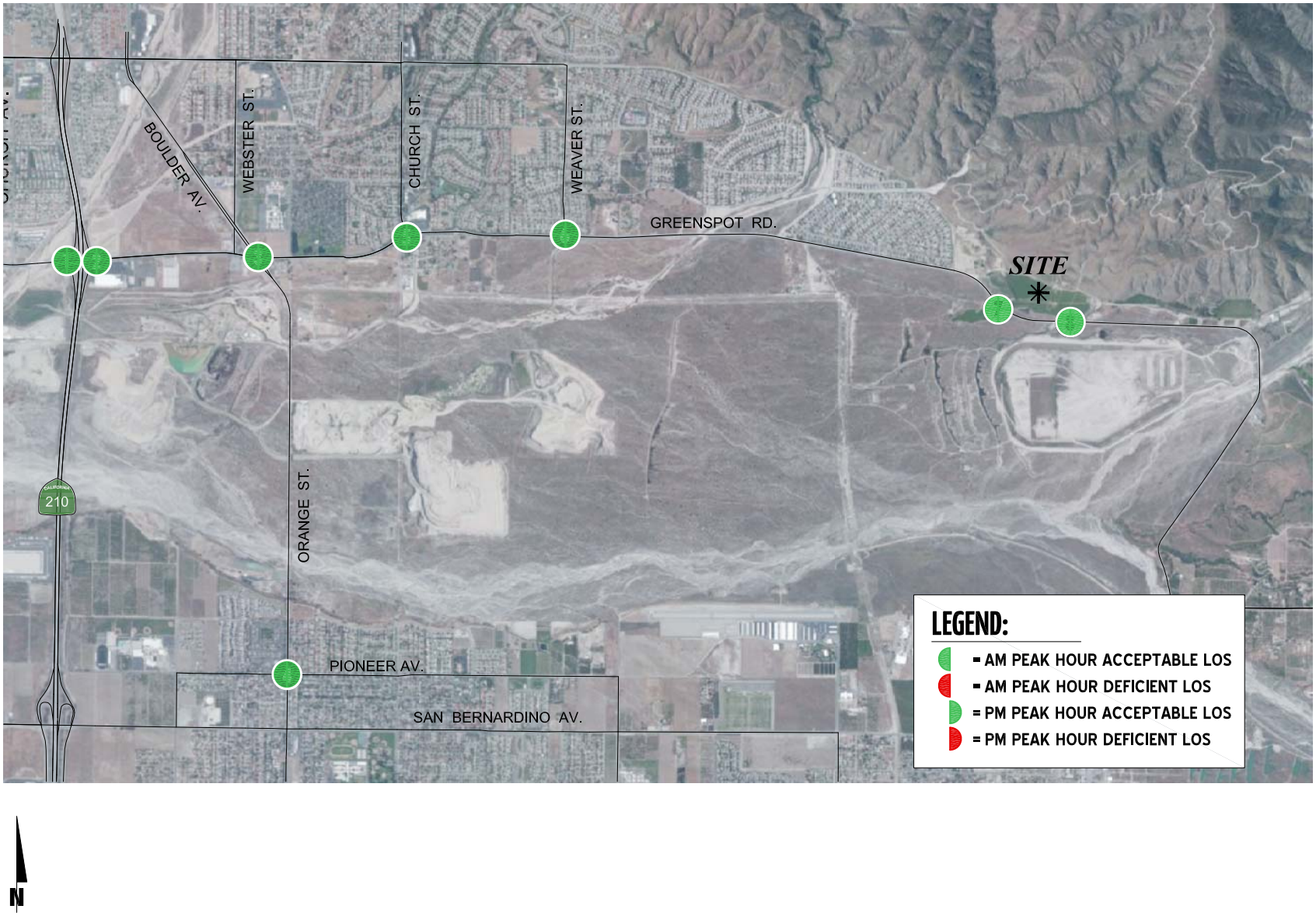
[2] AWS = All-Way Stop; CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] An eastbound right turn lane is currently under construction at the time of data collection for the preparation of this report. This intersection was also evaluated with an eastbound right turn lane.

[4] A traffic signal is planned to be installed at Orange St. / Pioneer Av. Per City of Redlands staff. The intersection was also evaluated with a traffic signal.

[5] The installation of traffic signal control was observed to be under construction at the time of data collection for the preparation of this report. The intersection was also evaluated with a traffic signal.

EXHIBIT 5-2: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR E+P CONDITIONS



5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on E+P daily volumes. For E+P conditions, no study area intersections appear to warrant a traffic signal in addition to those previously warranted under Existing condition based on ADT volumes.

Traffic signal warrant worksheets for E+P traffic conditions are included in Appendix "5.2" of this TIA.

5.5 EXISTING PLUS PROJECT IMPACTS AND RECOMMENDED IMPROVEMENTS

Based on the applicable jurisdiction's significance criteria as discussed in Section 2.5 *Thresholds of Significance*, there were no study area intersections found to be impacted by the Project for E+P traffic conditions.

5.6 FREEWAY OFF RAMP QUEUING ANALYSIS

A traffic progression analysis has been performed for the off-ramps at the SR-210 Freeway at 5th Street/Greenspot Road interchange to assess peak hour vehicle queues that may potentially impact the freeway mainline if spillback were to occur. A Peak hour off-ramp queuing summary for E+P traffic conditions is provided in Table 5-2. As shown on Table 5-2, there are no potential queuing issues anticipated during either the AM and PM peak hour 95th percentile traffic flows for E+P traffic conditions.

Worksheets for the E+P traffic conditions off-ramp queuing analysis are provided in Appendix "5.3" of this TIA.

Table 5-2

Existing plus Project Conditions
Peak Hour Off-Ramp Queuing Analysis

Intersection	Movement	Stacking (Feet)	95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
SR-210 EB Ramps / 5th St.	SBL/R	915	129 [2]	268 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	411 [2]	408 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

6 OPENING YEAR CUMULATIVE (2018) TRAFFIC ANALYSIS

This section discusses the methods used to develop Opening Year Cumulative (2018) Without and With Project and the resulting intersection operations and traffic signal warrants.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative Without and With Project conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions.
- Traffic signal at the intersection of Orange Street / Pioneer Avenue. Urban Crossroads was directed by City of Redlands Traffic Engineer to assume a traffic signal at this intersection for all future scenarios for other traffic studies in City of Redlands.
- Traffic signal at the intersection of Weaver Street / Greenspot Road (signal heads were in place during a field visit in July 2014)
- Eastbound right turn lane at the intersection of Boulder Avenue / Greenspot Road (under construction during a field visit in July 2014)

6.2 OPENING YEAR CUMULATIVE WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT, AM and PM peak hour intersection turning movement volumes for Opening Year Cumulative Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE WITH PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT, AM and PM peak hour intersection turning movement volumes for Opening Year Cumulative With Project traffic conditions are shown on Exhibit 6-2.

6.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2018) Without Project conditions with roadway and intersection geometrics consistent with those described in Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the study area intersections are anticipated to operate at acceptable levels of service under Opening Year Cumulative (2018) Without Project conditions with the exception of the following intersections:

ID	Intersection Location
1	SR-210 EB Ramps / 5th Street – LOS “F” AM and PM peak hours
2	SR-210 WB Ramps / Greenspot Road – LOS “F” AM peak hour and PM peak hours
3	Boulder Avenue / Greenspot Road– LOS “E” during the AM peak hour; LOS “F” during the PM peak hour

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
142(147) 1(9) 370(877) → ← 1153(1179) ← 1175(914)	← 535(701) ← 1867(1691)	12(52) 409(459) 121(298) → ← 194(207) ← 1601(1033) ← 458(369)	182(91) 459(475) 129(184) → ← 141(160) ← 67(72) ← 98(51)
451(1106) → 565(630) →	50(100) → 771(1882) → 461(402) 0(1) 636(1291) →	133(171) → 602(1561) → 142(453) → 207(316) 246(399) 355(491) →	177(264) → 72(88) → 63(46) → 32(48) 282(687) 17(66) →

5 Church St. & Greenspot Rd.	6 Weaver St. & Greenspot Rd.	7 Driveway 1 & Greenspot Rd.	8 Driveway 2 & Greenspot Rd.
378(232) 5(10) 68(135) → ← 133(112) ← 1546(1181) ← 0(5)	262(148) 31(74) → ← 57(43) ← 1187(972)	Future Intersection	Future Intersection
197(353) → 702(1677) → 12(25) → 19(24) 23(8) 1(1) →	175(266) → 499(1345) →		

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2018) WITH PROJECT TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
142(147) 1(9) 378(903) 1176(1194) 1198(940) 459(1132) 565(630)	558(716) 1914(1732) 50(100) 787(1935) 461(402) 0(1) 649(1335)	12(52) 409(459) 129(324) 217(222) 1671(1089) 497(384) 133(171) 631(1657) 142(453) 207(316) 246(399) 363(517)	198(91) 482(490) 129(184) 141(160) 67(72) 98(51) 177(264) 72(88) 63(46) 32(48) 290(713) 17(66)
5 Church St. & Greenspot Rd.	**6 Weaver St. & Greenspot Rd.**	**7 Driveway 1 & Greenspot Rd.**	**8 Driveway 2 & Greenspot Rd.**
378(232) 5(10) 71(144) 141(117) 1678(1268) 0(5) 197(353) 747(1826) 12(25) 19(24) 23(8) 1(1)	262(148) 34(83) 65(48) 1327(1064) 175(266) 547(1503)	74(48) 4(2) 1(4) 1318(1418) 25(83) 555(2498)	74(49) 4(3) 2(5) 1245(1019) 25(84) 534(1421)

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

Table 6-1

Opening Year Cumulative (2018) Conditions Intersection Analysis

#	Intersection	Traffic Control[2]	OYC (2018) Without Project				OYC (2018) With Project				Acceptable LOS
			Delay [1] (secs.)		Level of Service		Delay [1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-210 EB Ramps / 5th St.	TS	**44.8**	**166.2**	**F[3]**	**F**	**48.7**	**177.8**	**F[3]**	**F**	D
2	SR-210 WB Ramps / Greenspot Rd.	TS	**78.3**	**>200.0**	**F[3]**	**F**	**86.5**	**>200.0**	**F**	**F**	D
3	Boulder Av. / Greenspot Rd.	TS	**57.8**	**118.4**	**E**	**F**	**62.8**	**133.7**	**E**	**F**	D
4	Orange St. / Pioneer Av.	**TS**	20.1	22.5	C	C	20.5	22.7	C	C	C
5	Church St. / Greenspot Rd.	TS	31.8	27.1	C	C	36.8	30.6	D	D	D
6	Weaver St. / Greenspot Rd.	**TS**	20.7	15.2	C	B	23.2	16.0	C	B	D
7	Driveway 1 / Greenspot Rd.	**CSS**	--	--	--	--	16.5	14.6	C	B	D
8	Driveway 2 / Greenspot Rd.	**CSS**	--	--	--	--	15.8	14.9	C	B	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1) with the exception of the SR-210 Ramps at Greenspot Road, which have been analyzed using Synchro (Version 8).

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] Volume-to-capacity ratio is greater than 1.00; Intersection unstable; Level of Service "F"

As shown on Table 6-1, the addition of Project traffic is not anticipated to result in any additional intersections to operate at an unacceptable LOS as compared to those identified previously for Opening Year Cumulative Without Project traffic conditions.

Consistent with Table 6-1, a summary of the peak hour intersection LOS for Opening Year Cumulative Without Project traffic conditions are shown on Exhibit 6-3. Consistent with Table 6-1, a summary of the peak hour intersection LOS for Opening Year Cumulative With Project conditions are shown on Exhibit 6-4.

The intersection operations analysis worksheets for Opening Year Cumulative Without Project conditions are included in Appendix "6.1" of this TIA. The intersection operations analysis worksheets for Opening Year Cumulative With Project conditions are included in Appendix "6.2" of this TIA. Measures to address the cumulatively considerable impacts for Opening Year Cumulative With Project traffic conditions are discussed in Section 6.7 *Opening Year Cumulative Impacts and Recommended Improvements*.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For Opening Year Cumulative Without and With Project conditions, no additional intersections appear to warrant a traffic signal than those previously warranted under Existing and E+P traffic conditions.

Traffic signal warrant worksheets for Opening Year Cumulative traffic conditions are included in Appendix "6.3" of this TIA.

6.6 FREEWAY OFF RAMP QUEUING ANALYSIS

A traffic progression analysis has been performed for the off-ramps at the SR-210 Freeway at 5th Street/Greenspot Road interchange to assess peak hour vehicle queues that may potentially impact the freeway mainline if spillback were to occur. Peak hour off-ramp queuing summary for Opening Year Cumulative With Project traffic conditions is provided in Table 6-2. As shown on Table 6-2, there are potential queuing issues anticipated during PM peak hour 95th percentile traffic flows for Opening Year Cumulative Without and With Project traffic conditions at SR-210 westbound ramps at Greenspot Road.

The queuing issues are based on existing lane configurations and are anticipated to no longer exist with the completion of improvements that are currently being constructed at the SR-210 ramps at 5th Street/Greenspot Road. The queuing analysis with the improvements in place is discussed in Section 7.0 *Horizon Year (2035) Traffic Analysis*.

Worksheets for the Opening Year Cumulative Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendix "6.4" and Appendix "6.5" respectively.

EXHIBIT 6-3: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR OPENING YEAR CUMULATIVE (2018) WITHOUT PROJECT CONDITIONS

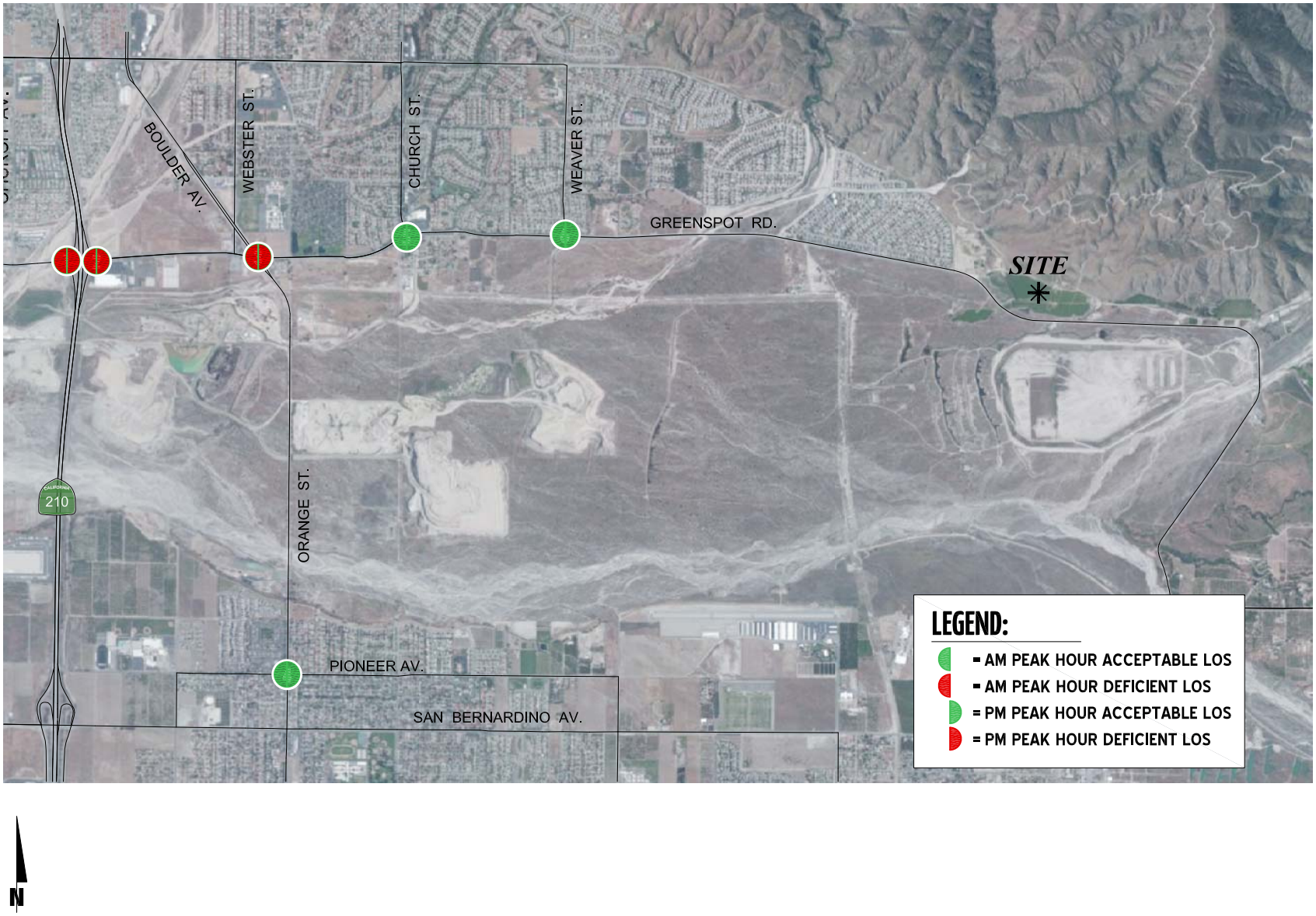


EXHIBIT 6-4: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR OPENING YEAR CUMULATIVE (2018) WITH PROJECT CONDITIONS

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Table 6-2

Opening Year Cumulative (2018) Conditions
Peak Hour Off-Ramp Queuing Analysis

Intersection	Movement	Stacking (Feet)	95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Opening Year Cumulative (2018) Without Project Conditions						
SR-210 EB Ramps / 5th St.	SBL/R	915	401 [2]	866 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	542 [2]	**1,233** [2]	Yes	**No**
Opening Year Cumulative (2018) With Project Conditions						
SR-210 EB Ramps / 5th St.	SBL/R	915	410 [2]	893 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	562 [2]	**1,278** [2]	Yes	**No**

BOLD = 95th percentile queue is anticipated to exceed the available storage.

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

6.7 CUMULATIVE IMPACTS AND RECOMMENDED IMPROVEMENTS

Based on the applicable jurisdiction's significance criteria as discussed in Section 2.5 *Thresholds of Significance*, the following intersections were found to be cumulatively impacted for Opening Year Cumulative Without and With Project traffic conditions. Improvement strategies have been recommended at intersections that have been identified as cumulatively impacted to reduce each location's peak hour delay to "less-than-significant" and are discussed below. The effectiveness of the recommended improvements discussed below to address Opening Year Cumulative traffic impacts are presented in Table 6-3.

SR-210 EB Ramps / 5th Street (#1) – This intersection was found to operate at an unacceptable LOS (LOS "F") during the weekday AM and PM peak hours under Opening Year Cumulative Without Project conditions. The intersection is anticipated to continue to operate at LOS "F" with the addition of Project traffic.

Recommended Improvement – *SR-210 SB Ramps / 5th Street (#1)* – The following improvements are necessary to reduce the Project's impact to "less-than-significant":

- Southbound left turn lane
- 3rd eastbound through lane

The Project will contribute its proportional share of this cumulative improvement need through its payment of the City of Highland Development Impact Fee (DIF) and/or fair share as directed by the City.

SR-210 WB Ramps / Greenspot Road (#2) – This intersection was found to operate at an unacceptable LOS (LOS "F") during the weekday AM and PM peak hours under Opening Year Cumulative Without Project conditions. The intersection is anticipated to continue to operate at LOS "F" with the addition of Project traffic.

Recommended Improvement – *SR-210 WB Ramps / Greenspot Road (#2)* – The following improvements are necessary to reduce the Project's impact to "less-than-significant":

- Northbound left turn lane
- 3rd eastbound through lane
- 4th westbound through lane
- Westbound right turn lane

The Project will contribute its proportional share of this cumulative improvement need through its payment of the City of Highland Development Impact Fee (DIF) and/or fair share as directed by the City.

Boulder Avenue / Greenspot Road (#3) – This intersection was found to operate at an unacceptable LOS (LOS "E" or worse) during the weekday AM and PM peak hours under Opening Year Cumulative Without Project conditions. The intersection is anticipated to continue to operate at an unacceptable LOS (LOS "E" or worse) with the addition of Project traffic.

Table 6-3

Opening Year Cumulative (2018) Conditions Intersection Analysis, with Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay [2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	SR-210 EB Ramps / 5th St.																	
	- OYC (2018) Without Project	TS	0	0	0	**1**	1	1	0	**3**	1	2	2	0	25.7	38.3	C	D
	- OYC (2018) With Project	TS	0	0	0	**1**	1	1	0	**3**	1	2	2	0	26.4	41.6	C	D
2	SR-210 WB Ramps / Greenspot Rd.																	
	- OYC (2018) Without Project	TS	**1**	1	1	0	0	0	1	**3**	0	0	**4**	**1**	19.5	24.7	B	C
	- OYC (2018) With Project	TS	**1**	1	1	0	0	0	1	**3**	0	0	**4**	**1**	19.9	26.6	B	C
3	Boulder Av. / Greenspot Rd.																	
	- OYC (2018) Without Project	TS	1	2	**1>**	2	2	**1**	1	**3**	1	**2**	2	1	46.3	47.0	D	D
	- OYC (2018) With Project	TS	1	2	**1>**	2	2	**1**	1	**3**	1	**2**	2	1	49.4	51.2	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right Turn Overlap Phasing; **1** = Improvement

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1).

[3] TS = Traffic Signal

Recommended Improvement – *Boulder Avenue / Greenspot Road (#3)* – The following improvements are necessary to reduce the Project's impact to "less-than-significant":

- Modify the traffic signal to provide overlap phasing for northbound right turns
- Southbound right turn lane
- 3rd eastbound through lane
- 2nd westbound left turn lane

The Project will contribute its proportional share of this cumulative improvement need through its payment of the City of Highland Development Impact Fee (DIF) and/or fair share as directed by the City.

Opening Year Cumulative Without and With Project traffic conditions intersection operations analysis worksheets, with improvements, are provided in Appendix "6.6" and Appendix "6.7" respectively.

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7 HORIZON YEAR (2035) TRAFFIC ANALYSIS

This section discusses the methods used to develop Horizon Year (2035) Without and With Project and the resulting intersection operations and traffic signal warrants.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year Without and With Project conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year conditions.
- Traffic signal at the intersection of Orange Street / Pioneer Avenue. Urban Crossroads was directed by City of Redlands Traffic Engineer to assume a traffic signal at this intersection for all future scenarios for other traffic studies in City of Redlands.
- Traffic signal at the intersection of Weaver Street / Greenspot Road (signal heads were in place during field visit in July 2014)
- Configurations based on City's master plan have been used for the SR-210 Ramps at 5th Street/Greenspot Road interchange and Boulder Avenue / Greenspot Road as directed by the City. The master plan provided by the City of Highland is included in Appendix 7.1 of this report.

7.2 HORIZON YEAR WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT, AM and PM peak hour intersection turning movement volumes for Horizon Year Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR WITH PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT, AM and PM peak hour intersection turning movement volumes for Horizon Year With Project traffic conditions are shown on Exhibit 7-2.

7.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2035) Without Project conditions with roadway and intersection geometrics consistent with roadway configurations described above. As shown on Table 7-1, the study area intersections are anticipated to operate at acceptable levels of service under Horizon Year (2035) Without Project conditions with the exception of the following intersections:

ID	Intersection Location
3	Boulder Avenue / Greenspot Road – LOS "F" PM peak hour only
4	Orange Street / Pioneer Avenue – LOS "F" PM peak hour only
5	Church Street / Greenspot Road – LOS "F" AM and PM peak hours

EXHIBIT 7-1: HORIZON YEAR (2035) WITHOUT PROJECT TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
180(145) 1(10) 587(1284) →	← 791(974) ← 2487(1800)	10(13) 355(471) 134(451) →	450(170) 590(790) 190(350) →
← 1307(1053) ← 1598(1186)		← 443(295) ← 2477(1340) ← 462(375)	← 160(176) ← 181(103) ← 120(56)
495(1443) → 513(691) →	61(148) → 1021(2579) →	18(63) → 751(2251) → 165(354) →	340(370) → 132(232) → 85(83) →
	418(439) 2(2) 747(635) →	150(203) 507(470) 432(528) →	82(85) 290(890) 20(90) →

5 Church St. & Greenspot Rd.	6 Weaver St. & Greenspot Rd.	7 Driveway 1 & Greenspot Rd.	8 Driveway 2 & Greenspot Rd.
449(318) 6(15) 78(165) →	329(155) 98(153) →	Future Intersection	Future Intersection
← 146(138) ← 2460(1523) ← 5(7)	← 130(97) ← 1956(1272)		
251(418) → 941(2581) → 20(59) →	168(252) → 779(2261) →		
58(24) 25(16) 1(7) →			

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

EXHIBIT 7-2: HORIZON YEAR (2035) WITH PROJECT TRAFFIC VOLUMES

1 SR-210 EB Ramps & 5th St.	2 SR-210 WB Ramps & Greenspot Rd.	3 Boulder Av. & Greenspot Rd.	4 Orange St. & Pioneer Av.
180(145) 1(10) 595(1310) → 1330(1068) ← 1621(1212)	814(989) ← 2534(1841)	10(13) 355(471) 142(477) → 466(310) ← 2547(1396) ← 501(390)	466(170) 613(805) 190(350) → 160(176) ← 181(103) ← 120(56)
503(1469) → 513(691) →	61(148) → 1037(2632) → 418(439) 2(2) 760(679)	18(63) → 780(2347) → 165(354) → 150(203) 507(470) 440(554)	340(370) → 132(232) → 85(83) → 82(85) 298(916) 20(90)

5 Church St. & Greenspot Rd.	6 Weaver St. & Greenspot Rd.	7 Driveway 1 & Greenspot Rd.	8 Driveway 2 & Greenspot Rd.
449(318) 6(15) 81(174) → 154(143) ← 2592(1610) ← 5(7)	329(155) 101(162) → 138(102) ← 2096(1364)	74(48) 4(2) → 1(4) ← 2160(1064)	74(49) 4(3) → 2(5) ← 2087(1373)
251(418) → 986(2730) → 20(59) → 58(24) 25(16) 1(7)	168(252) → 827(2419) →	25(83) → 902(1503) →	25(84) → 881(2416) →

LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

10(10) = AM(PM) PEAK HOUR VOLUMES

N

Table 7-1

Horizon Year (2035) Conditions Intersection Analysis

#	Intersection	Traffic Control[2]	HY (2035) Without Project				HY (2035) With Project				Acceptable LOS
			Delay [1] (secs.)		Level of Service		Delay [1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	SR-210 EB Ramps / 5th St.	TS	30.6	47.8	C	D	30.6	50.0	C	D	D
2	SR-210 WB Ramps / Greenspot Rd.	TS	23.4	29.9	C	C	24.0	30.9	C	C	D
3	Boulder Av. / Greenspot Rd.	TS	51.3	**85.9**	D	**F**	**55.9**	**98.7**	**E**	**F**	D
4	Orange St. / Pioneer Av.	**TS**	30.6	**52.4**	C	**F[3]**	31.5	**53.7**	C	**F[3,4]**	C
5	Church St. / Greenspot Rd.	TS	**98.5**	**68.0**	**F**	**F[3]**	**112.6**	**81.0**	**F**	**F**	D
6	Weaver St. / Greenspot Rd.	**TS**	33.9	17.3	C	B	40.6	19.7	D	B	D
7	Driveway 1 / Greenspot Rd.	**CSS**	--	--	--	--	34.7	23.2	D	C	D
8	Driveway 2 / Greenspot Rd.	**CSS**	--	--	--	--	32.0	25.5	D	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1) with the exception of the SR-210 Ramps at Greenspot Road, which have been analyzed using Synchro (Version 8).

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] Volume-to-capacity ratio is greater than 1.00; Intersection unstable; Level of Service "F"

[4] Delay does not meet the applicable jurisdictional standards of a deficiency.

As shown on Table 7-1, the addition of Project traffic is not anticipated to result in any additional intersections to operate at an unacceptable LOS as compared to those identified previously for Horizon Year Without Project traffic conditions with the exception of the following intersections:

ID	Intersection Location
7	Driveway 1 / Greenspot Road – LOS "E" AM peak hour only

As shown in Table 7-1, the addition of Project traffic is not anticipated to increase the peak hour delay by more than 3 seconds at the intersection of Orange Street / Pioneer Avenue. As such, based on the City of Redland's significance criteria as discussed in Section 2.5 *Thresholds of Significance*, it is not considered a significant cumulative impact.

Consistent with Table 7-1, a summary of the peak hour intersection LOS for Horizon Year Without and With Project traffic conditions are illustrated on Exhibits 7-3 and 7-4, respectively.

The intersection operations analysis worksheets for Horizon Year Without and With Project conditions are included in Appendices "7.2" and "7.3", respectively. Measures to address the cumulatively considerable impacts for Horizon Year With Project traffic conditions are discussed in Section 7.7 *Horizon Year Impacts and Recommended Improvements*.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For Horizon Year Without and With Project conditions, no additional intersections appear to warrant a traffic signal than those previously warranted under Existing and E+P traffic conditions (see Appendix "7.4").

7.6 FREEWAY OFF RAMP QUEUING ANALYSIS

A traffic progression analysis has been performed for the off-ramps at the SR-210 Freeway at 5th Street/Greenspot Road interchange to assess peak hour vehicle queues that may potentially impact the freeway mainline if spillback were to occur. Peak hour off-ramp queuing summary for Horizon Year With Project traffic conditions is provided in Table 7-2. As shown on Table 7-2, there are no potential queuing issues anticipated during AM and PM peak hour 95th percentile traffic flows for Horizon Year Without and With Project traffic conditions at the SR-210 Ramps at 5th Street/Greenspot Road.

Worksheets for the Horizon Year Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendix "7.5" and Appendix "7.6", respectively.

EXHIBIT 7-3: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR HORIZON YEAR (2035) WITHOUT PROJECT CONDITIONS

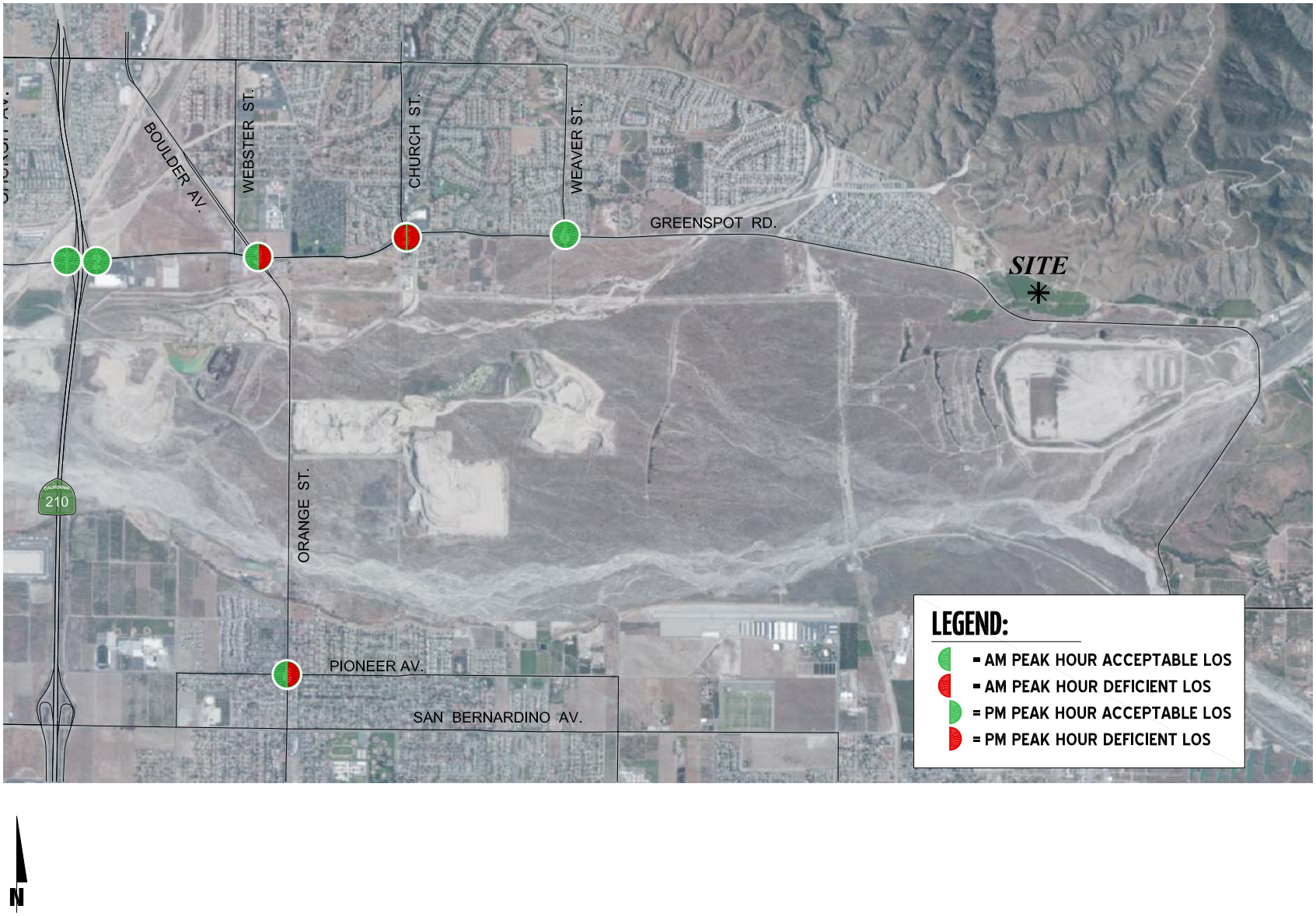

EXHIBIT 7-4: SUMMARY OF PEAK HOUR INTERSECTION LOS FOR HORIZON YEAR (2035) WITH PROJECT CONDITIONS

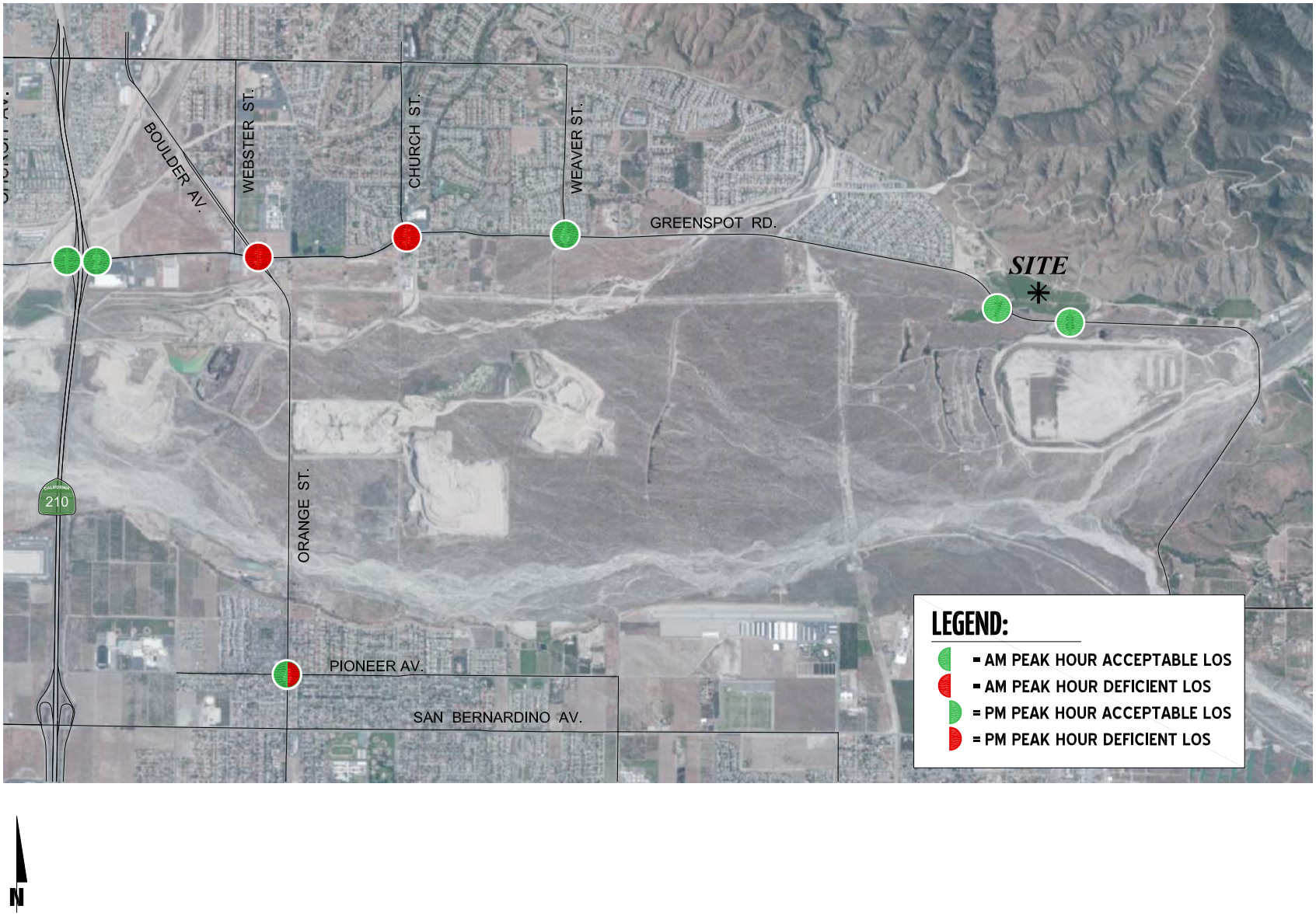

Table 7-2

Horizon Year (2035) Conditions
Peak Hour Off-Ramp Queuing Analysis

Intersection	Movement	Stacking (Feet)	95th Percentile Stacking Distance Required (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Horizon Year (2035) Without Project Conditions						
SR-210 EB Ramps / 5th St.	SBL/R	915	446 [2]	835 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	363 [2]	360 [2]	Yes	Yes
Horizon Year (2035) With Project Conditions						
SR-210 EB Ramps / 5th St.	SBL/R	915	455 [2]	861 [2]	Yes	Yes
SR-210 WB Ramps / Greenspot Rd.	NBL/R	1,160	392 [2]	391 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

7.7 CUMULATIVE IMPACTS AND RECOMMENDED IMPROVEMENTS

Based on the applicable jurisdiction's significance criteria as discussed in Section 2.5 *Thresholds of Significance*, the following intersections were found to be cumulatively impacted for Horizon Year Without and With Project traffic conditions. Improvement strategies have been recommended at intersections that have been identified as cumulatively impacted to reduce each location's peak hour delay to "less-than-significant" and are discussed below. The effectiveness of the recommended improvements discussed below to address Horizon Year traffic impacts are presented in Table 7-3.

Boulder Avenue / Greenspot Road (#3) – This intersection was found to operate at an unacceptable LOS (LOS "F") during the weekday PM peak hour under Horizon Year Without Project conditions. The intersection is anticipated to continue to operate at an unacceptable LOS with the addition of Project traffic.

Recommended Improvement – *Boulder Avenue / Greenspot Road (#3)* – The following improvements are necessary to reduce the Project's impact to "less-than-significant":

- Modify the traffic signal to provide overlap phasing for the northbound right turn lane *(consistent with Opening Year Cumulative conditions)*

The Project will contribute its proportional share of this cumulative improvement need through its payment of the City of Highland Development Impact Fee (DIF) and/or fair share as directed by the City.

Church Street / Greenspot Road (#5) – This intersection was found to operate at an unacceptable LOS (LOS "E" or worse) during the weekday AM and PM peak hours under Horizon Year Without Project conditions. The intersection is anticipated to continue to operate at an unacceptable LOS (LOS "E" or worse) with the addition of Project traffic.

Recommended Improvement – *Church Street / Greenspot Road (#5)* – The following improvements are necessary to reduce the Project's impact to "less-than-significant":

- 2nd southbound right turn lane
- Modify the traffic signal to provide overlap phasing for southbound right turns
- Eastbound right turn lane
- Westbound right turn lane

In addition to these recommended improvements for Horizon Year Without Project traffic conditions, the further modification of the traffic signal at the intersection of Church Street and Greenspot Road to provide for a 140 second cycle length during the PM peak hour is recommended to provide a volume to capacity ratio of 1.05 for all turning movements per City of Highland policy for Horizon Year With Project traffic conditions.

The Project will contribute its proportional share of this cumulative improvement need through its payment of the City of Highland Development Impact Fee (DIF) and/or fair share as directed by the City.

Table 7-3

Horizon Year (2035) Conditions Intersection Analysis, with Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay [2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
3	Boulder Av. / Greenspot Rd.																	
	- HY (2035) Without Project	TS	2	2	**1>**	2	2	1	2	3	1	2	3	1	33.0	44.4	C	D
	- HY (2035) With Project	TS	2	2	**1>**	2	2	1	2	3	1	2	3	1	33.8	51.0	C	D
5	Church St. / Greenspot Rd.																	
	- HY (2035) Without Project	TS	1	1	0	1	1	**2>**	2	2	**1**	1	2	**1**	19.4	24.8	B	C
	- HY (2035) With Project[4]	TS	1	1	0	1	1	**2>**	2	2	**1**	1	2	**1**	21.9	31.9	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right Turn Overlap Phasing;**1** = Improvement

[2] Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. All analysis locations have been analyzed using the Traffix Software (Version 8.0 R1) with the exception of the SR-210 Ramps at Greenspot Road, which have been analyzed using Synchro (Version 8).

[3] CSS = Cross-Street Stop; TS = Traffic Signal

[4] Improvement includes the modification of the traffic signal to allow for a cycle length of up to 140 seconds during the PM peak hour only.

Horizon Year Without and With Project traffic conditions intersection operations analysis worksheets, with improvements, are provided in Appendix “7.7” and Appendix “7.8” respectively.

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8 SITE ACCESS AND ON-SITE CIRCULATION

This section summarizes Project site access and on-site circulation recommendations.

Vehicular access to and from the Project site is assumed to be provided via Driveway 1 and Driveway 2 on Greenspot Road. Both driveways are proposed to allow for full access.

The Project will construct improvements on the site adjacent roadway of Greenspot Road.

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

8.1 ON-SITE ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as conditions of approval as part of the Project approval.

Exhibit 8-1 illustrates the site access and site-adjacent roadway improvement recommendations for the proposed Project.

Greenspot Road – Greenspot Road is an east-west oriented roadway located along the Project's southern boundary. Construct Greenspot Road from Project's western boundary to 600 feet east of Driveway 2 at its ultimate half-section width as a Major Highway (104-foor right-of-way) in compliance with applicable City of Highland standards. Provide median improvements on the north side of Greenspot Road as required by the final conditions of approval for the proposed Project and applicable City of Highland standards.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the recommended roadway classifications and respective cross-sections in the City of Highland General Plan Circulation Element.

8.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 7-1 illustrates the on-site circulation and site access recommendations.

Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

Driveway 1 at Greenspot Road (#7) – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

Northbound Approach: N/A.

Southbound Approach: One shared left-right turn lane.

EXHIBIT 8-1: SITE ACCESS AND SITE ADJACENT ROADWAY RECOMMENDATIONS

Eastbound Approach: One left turn lane with a minimum of 150-feet of storage and one through lane.

Westbound Approach: One through lane and one shared through-right turn lane.

Driveway 2 at Greenspot Road (#8) – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

Northbound Approach: N/A.

Southbound Approach: One shared left-right turn lane.

Eastbound Approach: One left turn lane with a minimum of 150-feet of storage and one through lane.

Westbound Approach: One through lane and one shared through-right turn lane.

The improvements to Greenspot Road along the Project's frontage shall extend at least 600 feet west and east of the Project driveways in order to provide acceptable storage for the westbound shared through-right turn lanes, as noted in the CMP Appendix C (1).

The storage length recommendations for the turning lanes on Greenspot Road at Driveway 1 and Driveway 2 are shown on Exhibit 8-1. The storage length recommendations for turn lanes are based on Opening Year Cumulative With Project HCM 95th percentile queues from Traffix which shows expected average queues of less than 1 passenger vehicle length for the westbound left turns. However a minimum storage length of 150 feet has been recommended to accommodate traffic from East Valley Water District's headquarters heading west on Greenspot Road. The East Valley Water District's existing driveway is located in between Project's proposed Driveway 1 and Driveway 2 and would be restricted to right-in-right-out access only. Vehicles heading west on Greenspot Road out of the East Valley Water District headquarters would either make a U-turn at Driveway 2 or make a left into the Project and head out after making a U-turn at the proposed roundabout at the end of Driveway 2 within the Project.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each Project access point should be reviewed with respect to standard Caltrans and City of Highland sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

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9 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Highland are funded through a combination of direct project mitigation, fair share contributions or development impact fee programs, such as the County's Measure "I" Fund and the City of Highland Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

9.1 MEASURE "I"

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by SANBAG and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in November 2011. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study.

While Measure "I" is a self-executing sales tax administered by SANBAG, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

9.2 CITY OF HIGHLAND DEVELOPMENT IMPACT FEE (DIF)

The City of Highland adopted a Development Impact Fee (DIF) program. Fees from new residential, commercial and industrial development are collected to fund Measure "I" compliant regional facilities as well as local facilities. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the City's DIF fees are collected, they are placed in a separate restricted use account. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's DIF program establishes a timeline to fund, design, and build the improvements.

A summary of off-site improvements needed to address cumulative traffic impacts for Opening Year Cumulative and Horizon Year traffic conditions is included in Table 9-1. Improvements

Table 9-1

Summary of Intersection Improvements

#	Intersection Location	Jurisdiction	OY (2018) With Project	HY (2035) With Project	Improvements in City DIF or Master Plan[1]?	Total Cost[2,3,4]	Fair Share %[4]	Fair Share Cost[5]
1	SR-210 EB Ramps / 5th St.	Caltrans	SB left turn lane	Same	Yes	$ 74,200	2.7%	$ 1,970
			2nd and 3rd EB through lane	Same	Yes	$ 534,240		$ 14,187
				4th EB through lane	Yes	$ 267,120		$ 7,094
				2nd EB right turn lane	Yes	$ 74,200		$ 1,970
					Total	**$ 949,760**		**$ 25,222**
2	SR-210 WB Ramps / Greenspot Rd.	Caltrans	NB left turn lane	Same	Yes	$ 74,200	3.6%	$ 2,691
			3rd EB through lane	Same	Yes	$ 267,120		$ 9,689
			4th WB through lane	Same	Yes	$ 267,120		$ 9,689
			WB right turn lane	Same	Yes	$ 74,200		$ 2,691
				2nd NB right turn lane	Yes	$ 74,200		$ 2,691
					Total	**$ 756,840**		**$ 27,453**
3	Boulder Av. / Greenspot Rd.	Highland	Modify the signal to provide overlap phasing for NB right turn lane	Same	No	$ 111,300	5.8%	$ 6,498
			SB right turn lane	Same	Yes	$ 74,200		$ 4,332
			3rd EB through lane	Same	Yes	$ 267,120		$ 15,595
			2nd WB left turn lane	Same	Yes	$ 74,200		$ 4,332
				2nd NB left turn lane	Yes	$ 74,200		$ 4,332
				2nd EB left turn lane	Yes	$ 74,200		$ 4,332
				3rd WB through lane	Yes	$ 267,120		$ 15,595
					Total	**$ 942,340**		**$ 55,017**
5	Church St. / Greenspot Rd.	Highland		2nd SB right turn lane	No	$ 74,200	6.8%	$ 5,064
				Modify the signal to provide overlap phasing for NB right turn lane	No	$ 111,300		$ 7,596
				Modify the signal to provide for up to a 140 second cycle length during the PM peak hour only	No	$ 111,300		$ 7,596
					Total	**$ 296,800**		**$ 20,257**
					Total Cost	**$ 2,945,740**		**$ 127,948**

[1] Improvements are identified as being included in the City of Highlands Transportation Impact Fee Program or Master Plan.

[2] Costs have been estimated using the data provided in Appendix "G" of the CMP (2003) for preliminary construction costs.

[3] Appendix "G" costs escalated by factor of 1.484 except for Traffic Signals in order to account for cost increases since the CMP (2003).

[4] Program improvements constructed by project may be eligible for fee credit, at discretion of City. See Table 9-2 for Fair Share Calculations.

[5] Rough order fo magnitude cost estimate.

found to be included in City of Highland Impact Fee (DIF) program and / or City's Master Plan have been identified as such. Payment of fees to this program may be considered as mitigation for these improvements. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases.

9.3 FAIR SHARE CONTRIBUTION

Project mitigation may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Conversely, minor fair share contributions may be waived in favor of excess, or focused, mitigation elsewhere. Detailed fair share calculations, for each peak hour, has been provided on Table 9-2 for the cumulatively impacted intersection shown on Table 9-1.

A rough order of magnitude cost has been prepared to determine the appropriate contribution value based upon the Project's fair share of traffic as part of the project approval process. The applicable cost associated with each of the recommended improvements shown on Table 9-1 are based on the preliminary construction cost estimates found in Appendix 'G' of the San Bernardino County CMP with an escalation factor of 1.484 to reflect current costs. The total cost of needed study area intersection improvements is $2,945,740. Based on the Project fair share percentages shown on Table 9-1, the Project's fair share cost is estimated at $127,948. The amount shown on Table 9-1 is being covered through a combination of payment of DIF fees, physical construction of improvements and/or a fair share monetary contribution. These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or mitigation.

The Project's estimated fair share cost of $127,948 includes $101,194 which will be covered by payments of DIF fees by the Project at the time of issuance of building permits; the remainder $26,754 are not included in the DIF and could be paid to the City by the Project as a Project-Specific Traffic Mitigation fee of $97 per residential unit ($26,754 divided by 277 units, the total number of units in the Project.

Table 9-2

Project Fair Share Calculations

#	Intersection		Existing	Project	2035 WP	Total New Traffic	Project % of New
1	SR-210 EB Ramps / 5th St.						
		AM:	2,334	62	4,743	2,409	2.6%
		PM:	2,403	93	5,905	3,502	**2.7%**
2	SR-210 WB Ramps / Greenspot Rd.						
		AM:	2,218	99	5,626	3,408	2.9%
		PM:	2,511	153	6,729	4,218	**3.6%**
3	Boulder Av. / Greenspot Rd.						
		AM:	2,604	177	6,083	3,479	5.1%
		PM:	3,040	234	7,048	4,008	**5.8%**
5	Church St. / Greenspot Rd.						
		AM:	1,789	188	4,628	2,839	6.6%
		PM:	1,858	250	5,521	3,663	**6.8%**

BOLD = Highest peak hour.

10 REFERENCES

1. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated December 2007.
2. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2000 and 2010.
3. **Federal Highway Administration.** Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2012.
4. **Institute of Transportation Engineers.** *Trip Generation.* 9th Edition. 2012.
5. **Southern California Association of Governments.** *2012 Regional Transportation Plan.* April 2012.
6. **City of Highland.** *Cumulative Project List.* [Email] Highland : s.n., 2014.
7. **Urban Crossroads, Inc.** *Greenspot Shopping Center.* Irvine : Urban Crossroads, Inc., 2013.
8. **LSA, Inc.** *Harmony Specific Plan Traffic Impact Analysis.* s.l. : LSA, Inc., 2014.
9. **Fehr & Peers.** *Texas Street / Pioneer Avenue Intersection Traffic Study Report.* Redlands : Fehr & Peers, 2014.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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Pranesh Tarikere

From: Nancy Holland [nancyc@hkagroup.com]
Sent: Monday, July 07, 2014 10:51 AM
To: Ernie Wong
Cc: Anne Hernandez; Pranesh Tarikere
Subject: FW: Mediterra At East Highlands
Attachments: 2014-06-19 Scoping letter with revised Dist Exhibit.pdf

Mr. Wong,

This is just to confirm that with the revised project trip distribution, we find the scope of the traffic study adequate for the City's use. We have provided the Consultant with the future configuration of Greenspot Road near the SR-210 and the City of Highland's cumulative project trip. We are ready to answer additional questions or provide other assistance.

Since the new distribution contributes more than 50 project peak hour trips to SR-210 (page C-2 of the SANBAG Congestion Management Program), Urban Crossroads will want to check with Caltrans to see if they want any other facilities evaluated.

Please call if you have any questions.

Nancy (Cooper) Holland
Hernandez, Kroone & Associates
(909) 884-3222 - Office
(909) 553-2273 – Cell
www.hkagroup.com

14-1016

From: Nancy Holland [mailto:nancyc@hkagroup.com]
Sent: Wednesday, July 2, 2014 2:31 PM
To: Ernie Wong
Subject: Mediterra At East Highlands

Mr. Wong,

We have received revised project trip distribution exhibits from Urban Crossroads. We find these distributions to be acceptable.
Do you have any comments?

Please call if you have any questions.

Nancy (Cooper) Holland
Hernandez, Kroone & Associates
(909) 884-3222 - Office
(909) 553-2273 – Cell
www.hkagroup.com

Pranesh Tarikere

From: Roberts, Mark B@DOT [mark.roberts@dot.ca.gov]
Sent: Monday, July 14, 2014 1:38 PM
To: Pranesh Tarikere
Subject: RE: 09245 : Mediterra at East Highlands TIA

Hello

Based on the size and location of the proposed development, the Caltrans facilities proposed to be studied as part of this TIA appears appropriate.

****

Caltrans
District 8 (San Bernardino and Riverside Counties)
Mark Roberts
Office of Forecasting, IGR, Regional Planning and Community Planning
Senior Transportation Planner, AICP
464 West 4th Street, 6th Floor, MS 726
San Bernardino, CA 92401-1400
(909) 388-7017

From: Pranesh Tarikere [mailto:ptarikere@urbanxroads.com]
Sent: Monday, July 07, 2014 3:53 PM
To: Roberts, Mark B@DOT
Cc: Aric Evatt; CMS Administrator
Subject: JN:09245 : Mediterra at East Highlands TIA

Hi Mark,

Thank you for your time to speak about the Mediterra at East Highlands TIA this afternoon. As discussed, I am attaching the scoping document approved by the City of Highlands, which shows the study area intersections, Project trip generation and trip distribution. Please let me know if any other facility needs to be evaluated.

Thank you,

Pranesh Tarikere
Senior Engineer

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Pranesh Tarikere

From: Nancy Holland [nancyc@hkagroup.com]
Sent: Friday, June 27, 2014 3:51 PM
To: Pranesh Tarikere
Attachments: 2014-06 Highland Cumulative Projects.pdf

Pranesh,

Here is Highland's updated list. Please check projects 1 – 13 to see if there are project trips that impact the intersections you are studying and include those cumulative project trips. The remaining ones are assumed to be included in the 2% annual growth rate.

Your Table 5 of the scoping letter included projects that I believe are completed: (76 Redlands Y, 85 DQ, 63 Farmer Boys).
I believe that projects 62 and 84 are the same project and that 90a and 90b are the same project.
Your project 92 Denny's is now Base Line Commercial (number 13 on my list).
Your project 54 Jack in the Box is now Retail Center (number 6 on my list).

I do not have any information on your project 77 but it will be adding trips to Greenspot Road.

Please call if you have any questions.

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June 27, 2014

Mr. Ernst Wong, P.E., P.L.S.
Public Works Director / City Engineer
City of Highland
27215 Base Line
Highland, CA 92346

RE: Mediterra at East Highlands — Project No.: 14-1016
Review of Urban Crossroads Scope of Work dated June 19, 2014

Dear Mr. Wong:

Thank you for the opportunity to review the subject scope of work. HKA welcomes the chance to work with the City of Highland (City) and Urban Crossroads to rapidly prepare a complete, accurate and defendable traffic study. HKA staff reviewed the referenced letter and had a phone conversation with Pranesh Tarikere of Urban Crossroads. HKA's review includes the comments in this letter and the attachments.

General requirements (apply to most if not all projects) –

The City of Highland uses the San Bernardino Associated Governments Congestion Management Program (CMP) for the traffic impact study guidelines and order. If the project will add more than 250 project trips during the peak periods, a Traffic Impact Analysis (TIA) will be needed. All intersections that are listed in the latest CMP which will receive 50 or more peak hour project trips (two-way) within a 5 miles radius should be evaluated. Additionally the City can request the evaluation of other key intersections.

All freeway segments receiving 50 or more peak hour project trips (two-way) within a 5-mile radius should be evaluated. City of Highland will forward the traffic study to Caltrans.

Generally traffic counts should be less than 12 months old.

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Saturation rates, lost time, V/C and other details should follow those listed in CMP Appendix C, Section titled Level of Service Analysis Procedures and Assumptions. The City has a policy that a turning movement with a V/C ratio higher than 1 means the intersection needs mitigation even if the intersection LOS meets the City's minimum acceptable LOS of D.

For wide street crossings (over 50 feet) where pedestrian traffic is expected, please calculate the minimum green time based on pedestrian crossing times. Please use that time as the minimum green on the through movements.

To expedite the review process, printouts of any models used in the study should be included in the appendices so reviewers and readers can check the model, inputs into the model adjustment program, or the distribution pattern of the traffic. Intermediate calculations need to be included in the appendices so that readers can easily follow the development of the volumes used in the LOS analysis.

The above requirements may be modified below as specific to this project if noted below.

Specific Requirements – Mediterra at East Highlands –
Site is north of Greenspot Road about 4.5 miles east of State Route 210 (SR-210). Access from the development is via two new driveways to Greenspot Road.

The site plan submitted showed 196 single family homes, but the scope for the traffic study is for up to 277 homes. It is assumed that the area labeled "PUD" on the site plan will be developed with up to 81 more homes. Access from the PUD area is assumed to be via internal streets to the new driveways. If another driveway is proposed, please add it to the analysis.

Project Trip Generation – HKA agrees with the project trip generation included as Table 1 in the scoping letter.

Project Trip Distribution – HKA reviewed the project trip distribution on Exhibit 3. The one area of concern is the Orange Street / Pioneer Avenue intersection showing a SB Right turn distribution of 10%. The only attraction in that area is the Citrus Valley High School. This distribution may be correct for outbound project trips in the AM Peak Hour, but HKA thinks the inbound trips in the AM Peak Hour and inbound and outbound trips during the PM Peak Hour are more likely to use San Bernardino Avenue or SR-210.

Please prepare separate distributions for the various directions and time periods for review and approval by the City of Highland. The intersections and freeway segment list will be revised when the distributions are accepted.

Intersections to be studied - HKA accepts the intersections and driveways Urban Crossroads proposes for analysis. If the change in generation is approved, other intersections and the freeway segment for SR-210 between Greenspot Road and San Bernardino Avenue as well as a merge diverge analysis on the ramps at Greenspot Road may be added.

Scenarios to analyze – HKA agrees that the LOS needs to be run for the AM and PM Peak Hours of the following scenarios:

- Existing Year
- Opening Year (including cumulative projects) without Project Trips
- Opening Year (including cumulative projects) with Project Trips
- Future Year without Project Trips
- Future Year with Project Trips

Level of Service Analysis – Use the CMP for guidance of the LOS techniques, inputs and other information.

Volumes – Existing Year volumes will be based on classified counts taken within the past 12 months. Since the Future volumes are to be in PCEs, classified counts will be needed. Balancing (unless needed for coordinated analysis) is not required.

Opening Year without Project Trips volumes will be based on a 2% annual growth rate of the existing volumes plus the cumulative project trips.

Urban Crossroads proposes to obtain the Future Year with Project Trips volumes from the SCAG SBTAM models. Urban Crossroads will post-process the model to develop those volumes. Urban Crossroads will remove the project trips from these volumes.

Urban Crossroads will review the model and provide documentation to the City that the model the Greenspot Village and Harmony developments are included in the model. If they are not included in the model, those project trips will be added by hand.

Cumulative - Urban Crossroads provided an extensive cumulative project trip list and map. HKA needs a little more time to review the list of projects from Highland.

HKA recommends that Urban Crossroads staff meets with the Planning Staff in the City of Redlands in person to review their cumulative project list and mapped locations. Several of the projects on the list are either completed, or will not be completed by Opening Year and can be dropped from the list.

The majority of the projects shown in Table 2 will not impact the intersections studied in this analysis because:

- The trips from a specific cumulative project will not use the same intersection.

- The trips from a specific cumulative project will use the intersections at a different time (for example a church would probably not impact the intersection unless the project is the addition of a school at the church).

- The volume of trips anticipated for a specific cumulative project are so small that a traffic study was not required. Those trips are anticipated to be covered by the 2% per annum growth rate.

HKA anticipates that Urban Crossroads will down select from their revised cumulative project list those cumulative projects that have traffic studies showing new trips at the intersections / freeway segments / other facilities to be studied for the Mediterra development. HKA would welcome the chance to review the resulting cumulative projects used in the analysis of the Mediterra development before the LOS analysis is completed.

Configurations - For the Existing and Opening Year scenarios, please use the road configuration currently in the area.

For the Future Year scenarios, please use the configurations on City's Master Plan for the intersections along 5th Street - Greenspot Road near SR-210. The City will provide these configurations to Urban Crossroads.

Other items to be addressed in the traffic study:

- Please determine and show the relationship of the driveways from East Valley Water District's Headquarters and the driveways from Mediterra.

- City of Highland is not requesting an analysis of the construction impacts as they will be temporary. The City will expect the construction traffic to use a route approved by the City and may require compensation for the repair of that route.

- Additional analysis may be required by Caltrans.

- Please proofread the report, exhibits, etc. For example, "Brockton" is misspelled on Exhibit 4. The locations of some of the cumulative projects on Exhibit 4 do not match the information in Table 2. Please use eastbound and westbound when discussing the ramps or segments of the SR-210 rather than northbound and southbound.

- HKA staff will be glad to review the trip distribution, trip assignment, cumulative projects, the proposed volumes and configurations for each scenario prior to the completion of the LOS analysis.

- Please let HKA and / or the City know if the construction in the SR-210 area will impact the counts that need to be taken. The City will determine if an adjustment is needed.

We will be glad to discuss or help clarify anything for Urban Crossroads as the project and study develops. Please call or email if you have any questions or concerns.

Sincerely,

Anne M. Hernandez, P.E.
Principal

Attachments: June 19, 2014 Letter from Urban Crossroads

234 East Drake Drive ▲ San Bernardino, California 92408
Phone: (909) 884-3222 ▲ Fax: (909) 383-1577 ▲ www.hkagroup.com

June 19, 2014

Ms. Nancy Cooper
Hernandez, Kroone & Associates
234 East Drake Drive
San Bernardino, CA 92408

SUBJECT: MEDITERRA AT EAST HIGHLANDS TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT

Dear Ms. Nancy Cooper:

The firm of Urban Crossroads, Inc. is pleased to provide this letter documenting the recommended scoping / assumptions for the proposed Mediterra at East Highlands ("Project"), which is located north of Greenspot Road in the City of Highlands. The study area and project location are illustrated on Exhibit 1.

Our goal is to obtain comments from City of Highlands to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the proposed analysis methodology, project trip generation, trip distribution, and project traffic assignment/project trips on the surrounding roadway network, which has been used, along with inputs from City staff to establish the proposed project study area. It should be noted that this scoping agreement has been prepared in accordance with the County of San Bernardino Congestion Management Program (CMP) traffic study guidelines (Appendix "C"). Your approval of the analysis locations is requested before the traffic count program is initiated.

PROPOSED PROJECT

The total development is proposed to consist of 277 single-family residential lots. The Project is anticipated to be completed and occupied in the year 2018. The conceptual site plan is illustrated on Exhibit 2.

TRIP GENERATION ASSUMPTIONS

Trip generation estimates for the proposed project have been developed using data from the Institute of Transportation Engineers (ITE) Trip Generation manual. The trip generation rates utilized for the purposes of this analysis are based upon data collected by the Institute of Transportation Engineers (ITE) and presented in ITE's most recent edition of Trip Generation, (9th Edition, 2012).

The trip generation rate used and estimated Project traffic are summarized in Table 1. The Project is anticipated to generate a net total of approximately 2,637 trip-ends per day with 208 AM peak hour trips and 277 PM peak hour trips.

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Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site and developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the regional arterial and state highway system.

The total volume on each roadway was divided by the total site traffic generation to indicate the percentage of Project traffic that would use each component of the regional roadway system in each relevant direction. The Project trip distribution patterns are graphically depicted on Exhibit 3.

PROPOSED STUDY AREA INTERSECTIONS

Per the City of Highlands traffic study guidelines, intersections where the Project is expected to add at least 50 peak hour trips should be analyzed. Based on this criterion, the anticipated trip generation and trip distribution patterns, the following intersections are proposed to be evaluated (see Exhibit 1):

1. SR-210 Southbound Ramps / 5th Street
2. SR-210 Northbound Ramps / Greenspot Road
3. Boulder Avenue / Greenspot Road
4. Orange Street / Pioneer Avenue
5. Church Street / Greenspot Road
6. Weaver Street / Greenspot Road
7. Driveway 1 / Greenspot Road – Future Intersection
8. Driveway 2 – Greenspot Road – Future Intersection

AMBIENT GROWTH ASSUMPTIONS

An ambient growth rate of 2% per year is proposed for the study area intersections.

ANALYSIS SCENARIOS

Intersection analyses will be provided for AM, PM and mid-day peak hour for the following analysis scenarios:

- Existing (2014) Conditions

- Existing Plus Project Conditions
- Opening Year Cumulative (2018) Without Project Conditions
- Opening Year Cumulative (2018) With Project Conditions
- Horizon Year (2035) Without Project Conditions
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CUMULATIVE DEVELOPMENTS

Please review the attached cumulative development projects and identify the cumulative projects that should be included in the traffic impact analysis (see Table 2 and Exhibit 4).

Please provide your approval or comments finalizing the study area and analysis assumptions.

If you have any questions or comments, I can be reached at (949) 660-1994 ext. 204.

URBAN CROSSROADS, INC.

Aric Evatt, PTP

Principal

Pranesh Tarikere

Senior Engineer

Attachment

EXHIBIT 1: LOCATION MAP

LEGEND:

- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
- 0 = FUTURE INTERSECTION ANALYSIS LOCATION

N

EXHIBIT 2: CONCEPTUAL SITE PLAN

EXHIBIT 3: PROJECT TRIP DISTRIBUTION

LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 4: CUMULATIVE DEVELOPMENT LOCATION MAP

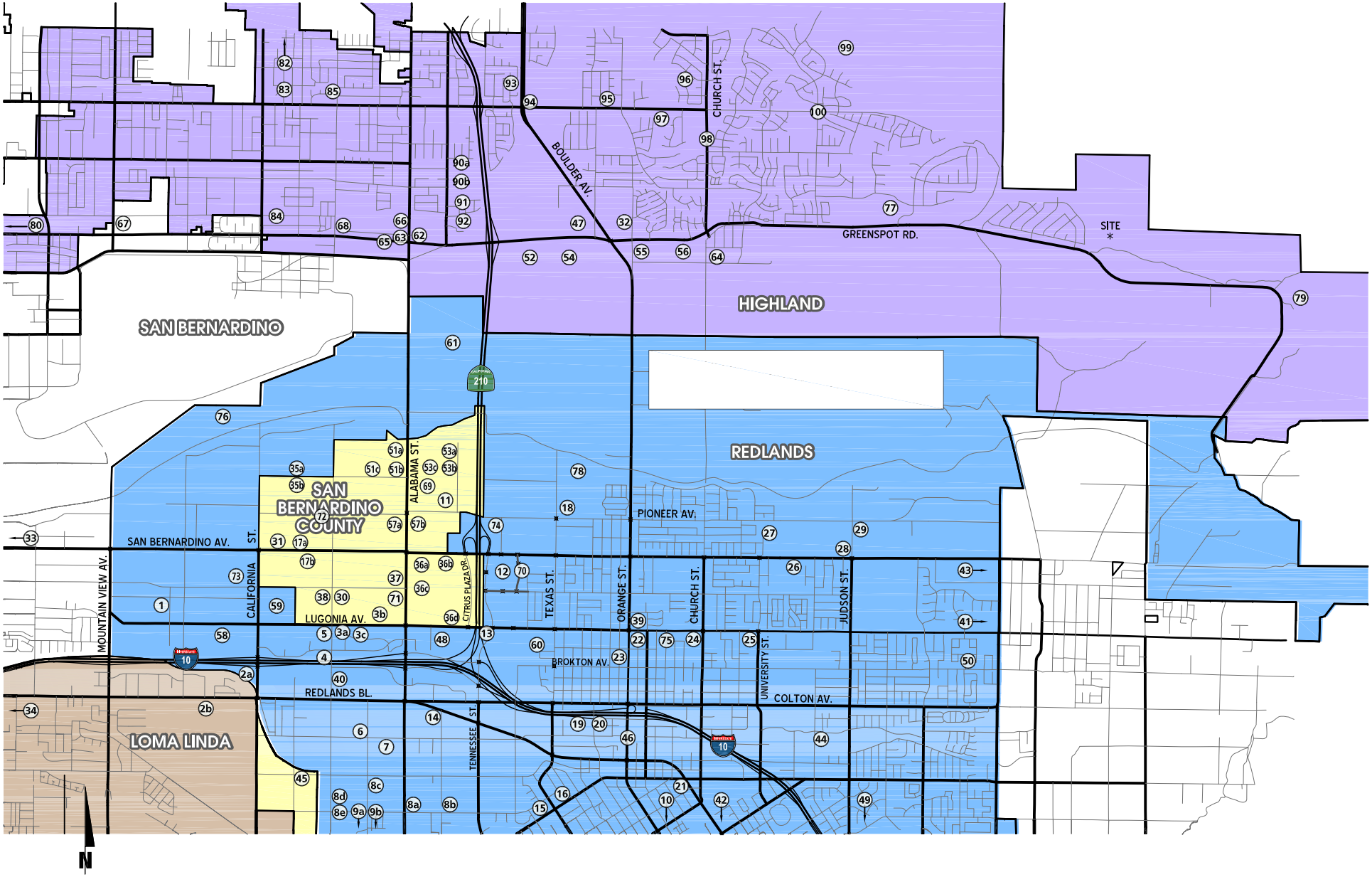

Table 1

Project Trip Generation

Land Use	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:[1]									
Single Family Detached	DU	210	0.19	0.56	0.75	0.63	0.37	1.00	9.52

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
Mediterra Development	277	DU	53	155	208	175	102	277	2,637

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

[2] DU = Dwelling Units

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
1	East of Research Dr., south of Almond Av., north of Lugonia Av.	Industrial Park	880.118	TSF
2a	South of I-10, west of California St.	Commercial Retail Center	51.101	TSF
2b	VA Hospital	Hospital	300.000	TSF
3a	NE corner of Plum Ln. & Idaho St.	General Office	8.132	TSF
3b	University Crossings	Apartments	321	DU
3c	Office Building	General Office	27.000	TSF
4	South of Orange Tree Ln., west of Nevada St.	General Office	51.432	TSF
5	South of Lugonia Ave., west of Nevada St.	Hotel	102	RMS
6	1776 Park Av.	Medical-Dental Office	52.559	TSF
7	415-495 Park Av.	Medical-Dental Office	122.604	TSF
8a	NE corner of Alabama St. & Orange Av.	Condo/Townhomes	77	DU
8b	NE corner of Orange Av. & Kansas St.	Senior Adult Housing-Attached	160	DU
8c	SE corner of Citrus Av. & Iowa St.	Industrial Park	141.000	TSF
8d	Church	Church	66.000	TSF
8e	Memory Care Facility	Assisted Living Facility	66	Bed
9a	Church	Church	84.000	TSF
9b	Wellness Center	Wellness Center	17.000	TSF
10	East side of Alessandro, North of Sunset Hills Ln.	SFDR	27	DU
11	Warehouse	High-Cube Warehouse	200.000	TSF
12	Redlands Crossing Shopping Center - SE corner of Tennessee St. & San Bernardino Av.	Discount Superstore	215.000	TSF
		Specialty Retail	25.700	TSF
		High-Turnover (Sit-Down) Restaurant	9.000	TSF
		Fast-Food Restaurant w/o Drive-Thru	12.300	TSF
		Fast-Food Restaurant with Drive-Thru	10.500	TSF
		Gas Station w/ Food Mart & Car Wash	12	VFP
13	SW corner of Tennessee St. & Lugonia Av.	Specialty Retail	8.048	TSF
14	South of Redlands Blvd., west of Kansas St.	Self-Service Car Wash	7	STALLS
15	708 Brookside Ave.	General Office	7.000	TSF

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
16	520 Brookside Ave.	Church	15.107	TSF
17a	Watson Land - North of San Bernardino Av., east of #31	High-Cube Warehouse	578.400	TSF
17b	General Light Industrial	General Light Industrial	94.600	TSF
18	NE corner of Texas St. & Pioneer Av.	SFDR	12	DU
19	South of I-10, west of Eureka St.	Specialty Retail	150.300	TSF
20	South of Pearl Ave., between Eureka St. & Third St.	Specialty Retail	18.200	TSF
21	500 East Citrus Ave.	Recreational Community Center	21.000	TSF
22	SE corner of Lugonia Av. & Orange St.	Specialty Retail	6.750	TSF
23	1135 Orange St.	Specialty Retail	3.243	TSF
24	SW corner of Lugonia Av. & Church St.	Condo/Townhomes	37	DU
25	SE corner of Lugonia Av. & Occidental	SFDR	12	DU
26	South of San Bernardino Av., west of Grove St.	SFDR	10	DU
27	East of Deanna Wy., between San Bernardino Av. & Pioneer Av.	SFDR	26	DU
28	North of San Bernardino Av., west of Judson St.	SFDR	74	DU
29	SE corner of Pioneer Av. & Judson St.	SFDR	33	DU
30	Redlands Distribution Facility (Lytle Development) - SE corner of Nevada St. & Almond Av.	High-Cube Warehouse	425.000	TSF
31	Watson Lane - North of San Bernardino Av., east of California St.	High-Cube Warehouse	377.692	TSF
32	121 SFDR Housing Gated Community	SFDR	121	DU
33	CUP No. 10-04	General Light Industrial	42.005	TSF
34	CUP No. 10-02	Self-Service Car Wash	3	STALLS
35a	Warehouse	High-Cube Warehouse	1,530.000	TSF
35b	Warehouse	High-Cube Warehouse	809.000	TSF

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
36a	Mountain Grove - SE corner of San Bernardino Av. & Alabama St.	Shopping Center	1,850.000	TSF
		Apartments	281	DU
		Hotel	200	RMS
		Theatre	3,544	SEATS
36b	Warehouse	High-Cube Warehouse	581.000	TSF
36c	Shopping Center	Retail	255.000	TSF
36d	Restaurant	High-Turnover (Sit-Down) Restaurant	8.600	TSF
37	Stone Creek - NW corner of Almond Av. and Alabama St.	Specialty Retail	52.500	TSF
		High-Turnover (Sit-Down) Restaurant	15.000	TSF
		General Office	149.000	TSF
		Hotel	180	RMS
38	Almond Avenue Industrial Project (Newcastle) - SW corner of Nevada St. & Almond Av.	High-Cube Warehouse	425.940	TSF
39	NE corner of Orange St. & Lugonia Av.	SFDR	228	DU
40	1020-1050 Nevada	Industrial Park	63.638	TSF
41	Madeira Ave., west of Sapphire	SFDR	27	DU
42	Center St., east of Burke St.	SFDR	15	DU
43	SW corner of San Bernardino Av. & Wabash Av.	SFDR	76	DU
44	SE corner of Grove St. & Sylvan Blvd.	Condo/Townhomes	40	DU
45	Church Addition	Church	22.000	TSF
46	Santa Fe Depot	Specialty Retail	2.554	TSF
		Fast-Food Restaurant with Drive-Thru	3.105	TSF
47	Greenspot Village & Marketplace CMP	Planning Area 1 (Commercial)		
		Superstore	200.000	TSF
		Anchor Retail	355.000	TSF
		Gas Station w/ Convenience Market	3.600	TSF
		Bank with Drive-Thru	10.000	TSF
		Fast-Food Restaurant with Drive-Thru	12.000	TSF
		High-Turnover (Sit-Down) Restaurant	25.000	TSF
		Sit-Down Restaurants	40.000	TSF
		Planning Area 2 (Residential)		
		Apartments	378	DU
		Condo/Townhomes	172	DU

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
47	Greenspot Village & Marketplace CMP	Planning Area 3 (Village Center - Mixed Use)		
		Daycare	7.000	TSF
		Shopping Center	80.000	TSF
		Sit-Down Restaurants	7.000	TSF
		Hotel (includes 20 TSF Conference Center)	240	RMS
		General Office	60.000	TSF
		Apartments	172	DU
		Condo/Townhomes	78	DU
48	1222 Indiana Ct.	General Light Industrial	5.550	TSF
49	NE corner of Ford St. & Patricia	Church	20.500	TSF
50	NE corner of Wabash Av. & Nice Av.	Mini-Warehouse	60.857	TSF
		General Light Industrial	48.045	TSF
51a	North of Palmetto Av., west of Alabama St.	High-Cube Warehouse	230.000	TSF
51b	Nevada St. & Palmetto Ave. (Newcastle)	High-Cube Warehouse	590.000	TSF
51c	Oakmont - North of Palmetto Av., between Nevada St. & Alabama St.	High-Cube Warehouse	561.000	TSF
52	Regency Center	Fast-Food Restaurant with Drive-Thru	3.417	TSF
		Shopping Center	42.840	TSF
53a	Warehouse	High-Cube Warehouse	670.000	TSF
53b	Warehouse	High-Cube Warehouse	205.000	TSF
53c	Redlands Distribution Center Buildings 9 & 10 (Prologis) - Buckeye St. between Pioneer Av., Palmetto Av. and Riverbluff Av.	High-Cube Warehouse	1,343.426	TSF
54	Jack in the Box Center	Fast-Food Restaurant with Drive-Thru	6.280	TSF
		Shopping Center	7.065	TSF
		Retail	13.771	TSF
55	133 SFD Housing (SE corner of Orange St. & Greenspot Rd.)	SFDR	133	DU
56	Blossom Trails	SFDR	14	DU
		Condo/Townhomes	306	DU
57a	Warehouse	High-Cube Warehouse	6,000.000	TSF
57b	Rossmore Enterprises - SE corner of Alabama St. & Pioneer Av.	High-Cube Warehouse	597.000	TSF
58	Redlands Fulfillment Center	Fulfillment Center	1,000.000	TSF
59	California St. High Cube Distribution Warehouse	High-Cube Warehouse	771.839	TSF
60	Texonia Parks	Apartments	80.000	DU
61	Santa Ana River Wash	Cement Plant		
62	Industrial Center on Palm	Industrial	39.750	TSF
63	Farmer Boys	Restaurant with Drive-Thru	3.600	TSF

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#	Project/Location	Land Use[1]	Quantity	Units[2]
64	Greenspot Retail Office	Retail	5.000	TSF
65	Berry St. Peters	General Light Industrial	8.600	TSF
66	Jack Lanphere	General Light Industrial	25.000	TSF
67	CT Reality Corporation	Business Park	85.000	TSF
68	South Terminus of Lillian Lane	Single Family-Detached	13	DU
69	South of Palmetto & East of Alabama Ave.	High-Cube Warehouse	200.000	TSF
70	SE of New York/San Bernardino Ave.	Residential	121	DU
71	Redlands Commerce Center (County)	General Office Building	60.800	TSF
72	Nevada St. & Palmetto Ave. (Newcastle)	High-Cube Warehouse	400.000	TSF
73	Southwest of Almond Ave. and San Bernardino Ave.	High-Cube Warehouse	703.000	TSF
74	Northwest of Tennessee and San Bernardino Ave.	Shopping Center	275.000	TSF
75	600 W. San Bernardino Ave.	General Office Building	14.000	TSF
76	500 East Citrus Ave.	Recreational Center	21.000	TSF
77	Wright, Alta Vista and Santa Ana	Residential	117	DU
78	TTM 18988	Residential	82	DU
79	Harmony Specific Plan	Residential	3466	DU
		Commercial Retail Center	225.000	TSF
80	Orange New Jersey Pro	Industrial	126.900	TSF
81	Gas Station and Motel Expansion	Convenience Store	4.300	TSF
		Motel	38.000	RMS
82	Hispano Investors	Residential	17	DU
83	Pepito's	Restaurant / Commercial	Remodel	
84	CT Reality Corporation	Business Park	85.000	TSF
85	Dairy Queen	Restaurant with Drive-Thru	2.240	TSF
86	Village Commercial	Shopping Center	9.900	TSF
87	Commercial Retail Center	Shopping Center	6.000	TSF
88	St. Adelaids Expansion	General Office	9.000	TSF
89	William Homes	Residential	36	DU
90a	Town Center Retail (Family Dollar)	Shopping Center	101.300	TSF
90b	Fresh & Easy	Retail	14.250	TSF
91	KZ Holdings (Mixed use)	Residential	64	DU
		General Office	13.100	TSF
92	Denny's	Specialty Retail	17.200	TSF
		Sit-Down Restaurants	4.800	TSF
93	Randal Brank	Medical-Dental Office	25.000	TSF
94	NW corner of Baseline and Boulder	Bank	5.200	TSF
95	Immanual Baptist Church	Church	90.000	TSF
96	North American Residential	Single Family-Detached	8	DU
97	Assisted Living Facility	Senior Adult Housing-Attached	88	DU
98	Peter Le	Single Family-Detached	8	DU
99	Chong Homes	Residential	5	DU
100	Ross Jones	Single Family-Detached	4	DU

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Position; RMS = Rooms

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- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
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EXHIBIT 2: CONCEPTUAL SITE PLAN

EXHIBIT 3-A: PROJECT TRIP DISTRIBUTION (AM PEAK-OUTBOUND)

LEGEND:

10 = PERCENT FROM PROJECT

N

EXHIBIT 3-B: PROJECT TRIP DISTRIBUTION (AM PEAK INBOUND, PM PEAK)

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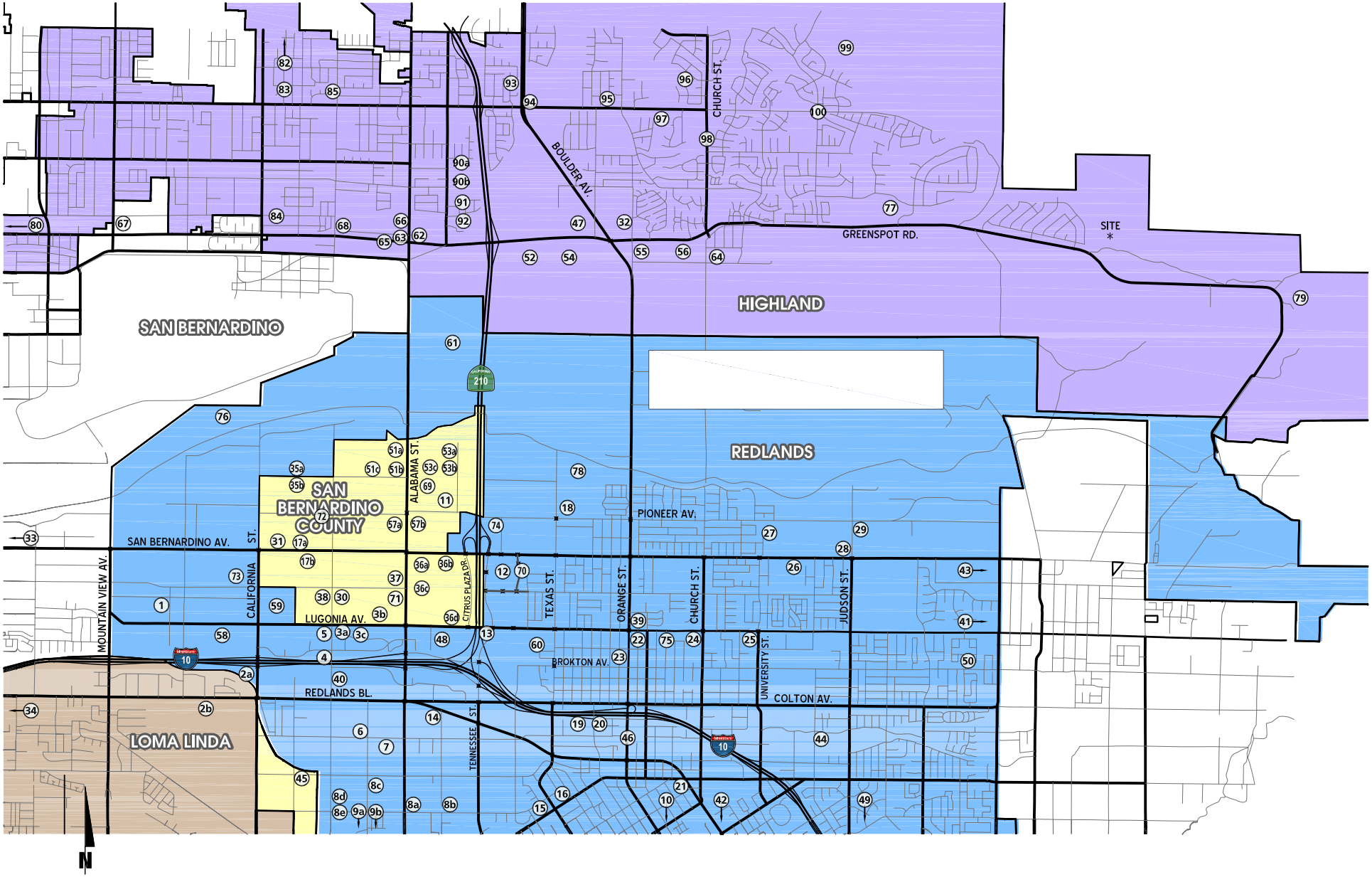
EXHIBIT 4: CUMULATIVE DEVELOPMENT LOCATION MAP



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		General Office	149.000	TSF
		Hotel	180	RMS
38	Almond Avenue Industrial Project (Newcastle) - SW corner of Nevada St. & Almond Av.	High-Cube Warehouse	425.940	TSF
39	NE corner of Orange St. & Lugonia Av.	SFDR	228	DU
40	1020-1050 Nevada	Industrial Park	63.638	TSF
41	Madeira Ave., west of Sapphire	SFDR	27	DU
42	Center St., east of Burke St.	SFDR	15	DU
43	SW corner of San Bernardino Av. & Wabash Av.	SFDR	76	DU
44	SE corner of Grove St. & Sylvan Blvd.	Condo/Townhomes	40	DU
45	Church Addition	Church	22.000	TSF
46	Santa Fe Depot	Specialty Retail	2.554	TSF
		Fast-Food Restaurant with Drive-Thru	3.105	TSF
47	Greenspot Village & Marketplace CMP	Planning Area 1 (Commercial)		
		Superstore	200.000	TSF
		Anchor Retail	355.000	TSF
		Gas Station w/ Convenience Market	3.600	TSF
		Bank with Drive-Thru	10.000	TSF
		Fast-Food Restaurant with Drive-Thru	12.000	TSF
		High-Turnover (Sit-Down) Restaurant	25.000	TSF
		Sit-Down Restaurants	40.000	TSF
		Planning Area 2 (Residential)		
		Apartments	378	DU
		Condo/Townhomes	172	DU

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
47	Greenspot Village & Marketplace CMP	Planning Area 3 (Village Center - Mixed Use)		
		Daycare	7.000	TSF
		Shopping Center	80.000	TSF
		Sit-Down Restaurants	7.000	TSF
		Hotel (includes 20 TSF Conference Center)	240	RMS
		General Office	60.000	TSF
		Apartments	172	DU
		Condo/Townhomes	78	DU
48	1222 Indiana Ct.	General Light Industrial	5.550	TSF
49	NE corner of Ford St. & Patricia	Church	20.500	TSF
50	NE corner of Wabash Av. & Nice Av.	Mini-Warehouse	60.857	TSF
		General Light Industrial	48.045	TSF
51a	North of Palmetto Av., west of Alabama St.	High-Cube Warehouse	230.000	TSF
51b	Nevada St. & Palmetto Ave. (Newcastle)	High-Cube Warehouse	590.000	TSF
51c	Oakmont - North of Palmetto Av., between Nevada St. & Alabama St.	High-Cube Warehouse	561.000	TSF
52	Regency Center	Fast-Food Restaurant with Drive-Thru	3.417	TSF
		Shopping Center	42.840	TSF
53a	Warehouse	High-Cube Warehouse	670.000	TSF
53b	Warehouse	High-Cube Warehouse	205.000	TSF
53c	Redlands Distribution Center Buildings 9 & 10 (Prologis) - Buckeye St. between Pioneer Av., Palmetto Av. and Riverbluff Av.	High-Cube Warehouse	1,343.426	TSF
54	Jack in the Box Center	Fast-Food Restaurant with Drive-Thru	6.280	TSF
		Shopping Center	7.065	TSF
		Retail	13.771	TSF
55	133 SFD Housing (SE corner of Orange St. & Greenspot Rd.)	SFDR	133	DU
56	Blossom Trails	SFDR	14	DU
		Condo/Townhomes	306	DU
57a	Warehouse	High-Cube Warehouse	6,000.000	TSF
57b	Rossmore Enterprises - SE corner of Alabama St. & Pioneer Av.	High-Cube Warehouse	597.000	TSF
58	Redlands Fulfillment Center	Fulfillment Center	1,000.000	TSF
59	California St. High Cube Distribution Warehouse	High-Cube Warehouse	771.839	TSF
60	Texonia Parks	Apartments	80.000	DU
61	Santa Ana River Wash	Cement Plant		
62	Industrial Center on Palm	Industrial	39.750	TSF
63	Farmer Boys	Restaurant with Drive-Thru	3.600	TSF

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
64	Greenspot Retail Office	Retail	5.000	TSF
65	Berry St. Peters	General Light Industrial	8.600	TSF
66	Jack Lanphere	General Light Industrial	25.000	TSF
67	CT Reality Corporation	Business Park	85.000	TSF
68	South Terminus of Lillian Lane	Single Family-Detached	13	DU
69	South of Palmetto & East of Alabama Ave.	High-Cube Warehouse	200.000	TSF
70	SE of New York/San Bernardino Ave.	Residential	121	DU
71	Redlands Commerce Center (County)	General Office Building	60.800	TSF
72	Nevada St. & Palmetto Ave. (Newcastle)	High-Cube Warehouse	400.000	TSF
73	Southwest of Almond Ave. and San Bernardino Ave.	High-Cube Warehouse	703.000	TSF
74	Northwest of Tennessee and San Bernardino Ave.	Shopping Center	275.000	TSF
75	600 W. San Bernardino Ave.	General Office Building	14.000	TSF
76	500 East Citrus Ave.	Recreational Center	21.000	TSF
77	Wright, Alta Vista and Santa Ana	Residential	117	DU
78	TTM 18988	Residential	82	DU
79	Harmony Specific Plan	Residential	3466	DU
		Commercial Retail Center	225.000	TSF
80	Orange New Jersey Pro	Industrial	126.900	TSF
81	Gas Station and Motel Expansion	Convenience Store	4.300	TSF
		Motel	38.000	RMS
82	Hispano Investors	Residential	17	DU
83	Pepito's	Restaurant / Commercial	Remodel	
84	CT Reality Corporation	Business Park	85.000	TSF
85	Dairy Queen	Restaurant with Drive-Thru	2.240	TSF
86	Village Commercial	Shopping Center	9.900	TSF
87	Commercial Retail Center	Shopping Center	6.000	TSF
88	St. Adelaids Expansion	General Office	9.000	TSF
89	William Homes	Residential	36	DU
90a	Town Center Retail (Family Dollar)	Shopping Center	101.300	TSF
90b	Fresh & Easy	Retail	14.250	TSF
91	KZ Holdings (Mixed use)	Residential	64	DU
		General Office	13.100	TSF
92	Denny's	Specialty Retail	17.200	TSF
		Sit-Down Restaurants	4.800	TSF
93	Randal Brank	Medical-Dental Office	25.000	TSF
94	NW corner of Baseline and Boulder	Bank	5.200	TSF
95	Immanual Baptist Church	Church	90.000	TSF
96	North American Residential	Single Family-Detached	8	DU
97	Assisted Living Facility	Senior Adult Housing-Attached	88	DU
98	Peter Le	Single Family-Detached	8	DU
99	Chong Homes	Residential	5	DU
100	Ross Jones	Single Family-Detached	4	DU

[1] SFDR = Single Family Detached Residential

[2] DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Position; RMS = Rooms

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.

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	29	0	17	7	46	160	144	0	0	304	0	0	0	0	0	0	32	143	13	175	20	525	545
07:15 AM	34	1	21	9	56	186	171	0	0	357	0	0	0	0	0	0	36	116	14	152	23	565	588
07:30 AM	21	0	19	9	40	142	200	0	0	342	0	0	0	0	0	0	57	117	15	174	24	556	580
07:45 AM	43	0	17	10	60	169	196	0	0	365	0	0	0	0	0	0	42	127	19	169	29	594	623
Total	127	1	74	35	202	657	711	0	0	1368	0	0	0	0	0	0	167	503	61	670	96	2240	2336
08:00 AM	34	0	14	6	48	106	118	0	0	224	0	0	0	0	0	0	35	80	4	115	10	387	397
08:15 AM	31	0	16	7	47	127	134	0	0	261	0	0	0	0	0	0	47	86	14	133	21	441	462
08:30 AM	34	1	13	9	48	141	102	0	0	243	0	0	0	0	0	0	45	90	16	135	25	426	451
08:45 AM	43	0	16	10	59	119	114	0	0	233	0	0	0	0	0	0	43	88	11	131	21	423	444
Total	142	1	59	32	202	493	468	0	0	961	0	0	0	0	0	0	170	344	45	514	77	1677	1754
Grand Total	269	2	133	67	404	1150	1179	0	0	2329	0	0	0	0	0	0	337	847	106	1184	173	3917	4090
Apprch %	66.6	0.5	32.9			49.4	50.6	0			0	0	0			0	28.5	71.5					
Total %	6.9	0.1	3.4		10.3	29.4	30.1	0		59.5	0	0	0		0	0	8.6	21.6		30.2	4.2	95.8	
Passenger Vehicles	260	2	126		452	1131	1133	0		2264	0	0	0		0	0	322	824		1246	0	0	3962
% Passenger Vehicles	96.7	100	94.7	95.5	96	98.3	96.1	0	0	97.2	0	0	0	0	0	0	95.5	97.3	94.3	96.6	0	0	96.9
Large 2 Axle Vehicles	2	0	1		4	3	23	0		26	0	0	0		0	0	8	15		26	0	0	56
% Large 2 Axle Vehicles	0.7	0	0.8	1.5	0.8	0.3	2	0	0	1.1	0	0	0	0	0	0	2.4	1.8	2.8	2	0	0	1.4
3 Axle Vehicles	6	0	3		9	12	6	0		18	0	0	0		0	0	6	2		8	0	0	35
% 3 Axle Vehicles	2.2	0	2.3	0	1.9	1	0.5	0	0	0.8	0	0	0	0	0	0	1.8	0.2	0	0.6	0	0	0.9
4+ Axle Trucks	1	0	3		6	4	17	0		21	0	0	0		0	0	1	6		10	0	0	37
% 4+ Axle Trucks	0.4	0	2.3	3	1.3	0.3	1.4	0	0	0.9	0	0	0	0	0	0	0.3	0.7	2.8	0.8	0	0	0.9

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	29	0	17	46	160	144	0	304	0	0	0	0	0	32	**143**	**175**	525
07:15 AM	34	**1**	**21**	56	**186**	171	0	357	0	0	0	0	0	36	116	152	565
07:30 AM	21	0	19	40	142	**200**	0	342	0	0	0	0	0	**57**	117	174	556
07:45 AM	**43**	0	17	**60**	169	196	0	**365**	0	0	0	0	0	42	127	169	**594**
Total Volume	127	1	74	202	657	711	0	1368	0	0	0	0	0	167	503	670	2240
% App. Total	62.9	0.5	36.6		48	52	0		0	0	0		0	24.9	75.1		
PHF	.738	.250	.881	.842	.883	.889	.000	.937	.000	.000	.000	.000	.000	.732	.879	.957	.943

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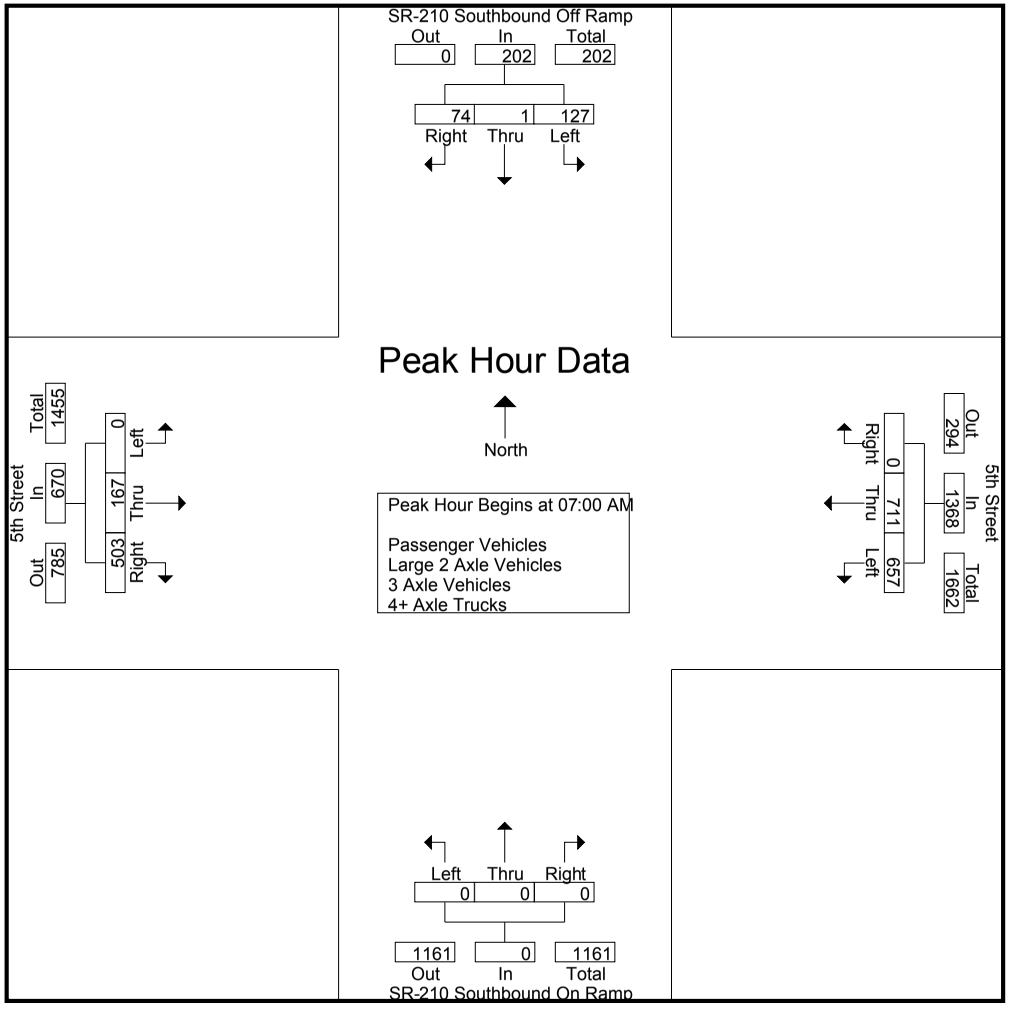
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	34	**1**	**21**	56	160	144	0	304	0	0	0	0	0	32	**143**	**175**	
+15 mins.	21	0	19	40	**186**	171	0	357	0	0	0	0	0	36	116	152	
+30 mins.	**43**	0	17	**60**	142	**200**	0	342	0	0	0	0	0	**57**	117	174	
+45 mins.	34	0	14	48	169	196	0	**365**	0	0	0	0	0	42	127	169	
Total Volume	132	1	71	204	657	711	0	1368	0	0	0	0	0	167	503	670	
% App. Total	64.7	0.5	34.8		48	52	0		0	0	0		0	24.9	75.1		
PHF	.767	.250	.845	.850	.883	.889	.000	.937	.000	.000	.000	.000	.000	.732	.879	.957	

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Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	29	0	17	7	46	160	144	0	0	304	0	0	0	0	0	0	32	141	13	173	20	523	543
07:15 AM	33	1	20	9	54	186	171	0	0	357	0	0	0	0	0	0	35	115	14	150	23	561	584
07:30 AM	18	0	18	9	36	140	195	0	0	335	0	0	0	0	0	0	55	116	15	171	24	542	566
07:45 AM	42	0	15	9	57	165	185	0	0	350	0	0	0	0	0	0	38	122	17	160	26	567	593
Total	122	1	70	34	193	651	695	0	0	1346	0	0	0	0	0	0	160	494	59	654	93	2193	2286
08:00 AM	34	0	13	6	47	105	116	0	0	221	0	0	0	0	0	0	33	75	3	108	9	376	385
08:15 AM	29	0	15	6	44	123	125	0	0	248	0	0	0	0	0	0	43	82	11	125	17	417	434
08:30 AM	33	1	12	8	46	136	94	0	0	230	0	0	0	0	0	0	43	88	16	131	24	407	431
08:45 AM	42	0	16	10	58	116	103	0	0	219	0	0	0	0	0	0	43	85	11	128	21	405	426
Total	138	1	56	30	195	480	438	0	0	918	0	0	0	0	0	0	162	330	41	492	71	1605	1676
Grand Total	260	2	126	64	388	1131	1133	0	0	2264	0	0	0	0	0	0	322	824	100	1146	164	3798	3962
Apprch %	67	0.5	32.5			50	50	0			0	0	0			0	28.1	71.9					
Total %	6.8	0.1	3.3		10.2	29.8	29.8	0		59.6	0	0	0		0	0	8.5	21.7		30.2	4.1	95.9	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	29	0	17	46	160	144	0	304	0	0	0	0	0	32	**141**	**173**	523
07:15 AM	33	**1**	**20**	54	**186**	171	0	**357**	0	0	0	0	0	35	115	150	561
07:30 AM	18	0	18	36	140	**195**	0	335	0	0	0	0	0	**55**	116	171	542
07:45 AM	**42**	0	15	**57**	165	185	0	350	0	0	0	0	0	38	122	160	**567**
Total Volume	122	1	70	193	651	695	0	1346	0	0	0	0	0	160	494	654	2193
% App. Total	63.2	0.5	36.3		48.4	51.6	0		0	0	0		0	24.5	75.5		
PHF	.726	.250	.875	.846	.875	.891	.000	.943	.000	.000	.000	.000	.000	.727	.876	.945	.967

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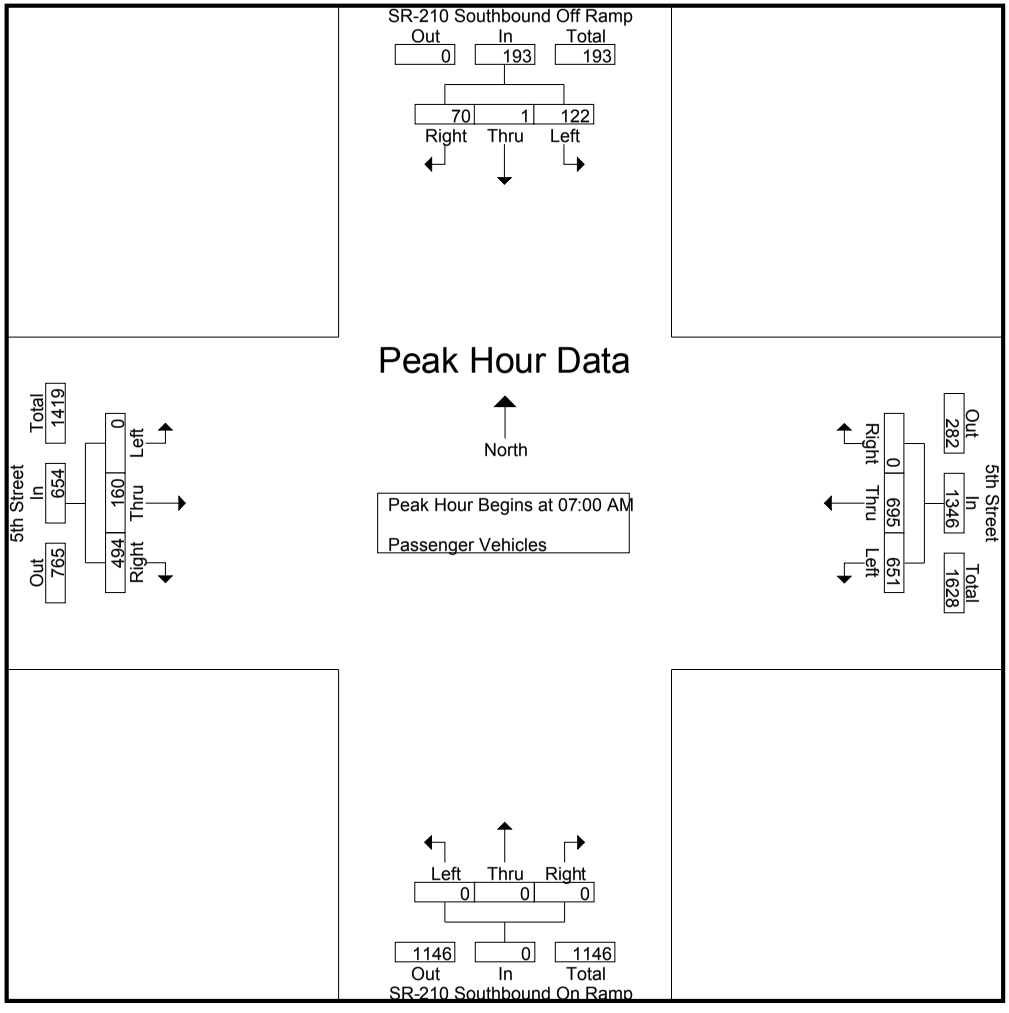
File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
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File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	29	0	17	46	160	144	0	304	0	0	0	0	0	32	**141**	**173**	
+15 mins.	33	**1**	**20**	54	**186**	171	0	**357**	0	0	0	0	0	35	115	150	
+30 mins.	18	0	18	36	140	**195**	0	335	0	0	0	0	0	**55**	116	171	
+45 mins.	**42**	0	15	**57**	165	185	0	350	0	0	0	0	0	38	122	160	
Total Volume	122	1	70	193	651	695	0	1346	0	0	0	0	0	160	494	654	
% App. Total	63.2	0.5	36.3		48.4	51.6	0		0	0	0		0	24.5	75.5		
PHF	.726	.250	.875	.846	.875	.891	.000	.943	.000	.000	.000	.000	.000	.727	.876	.945	

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Groups Printed- Large 2 Axle Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
07:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	4	2	1	6	1	11	12
Total	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	5	4	1	9	1	17	18
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	4	0	5	0	6	6
08:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	3	2	5	2	8	10
08:30 AM	1	0	1	1	2	2	4	0	0	6	0	0	0	0	0	0	0	2	0	2	1	10	11
08:45 AM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	0	2	0	2	0	11	11
Total	1	0	1	1	2	3	16	0	0	19	0	0	0	0	0	0	3	11	2	14	3	35	38
Grand Total	2	0	1	1	3	3	23	0	0	26	0	0	0	0	0	0	8	15	3	23	4	52	56
Apprch %	66.7	0	33.3			11.5	88.5	0			0	0	0			0	34.8	65.2					
Total %	3.8	0	1.9		5.8	5.8	44.2	0		50	0	0	0		0	0	15.4	28.8		44.2	7.1	92.9	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	**1**	0	0	**1**	0	2	0	2	0	0	0	0	0	1	0	1	4
07:45 AM	0	0	0	0	0	**5**	0	**5**	0	0	0	0	0	**4**	2	**6**	**11**
Total Volume	1	0	0	1	0	7	0	7	0	0	0	0	0	5	4	9	17
% App. Total	100	0	0		0	100	0		0	0	0		0	55.6	44.4		
PHF	.250	.000	.000	.250	.000	.350	.000	.350	.000	.000	.000	.000	.000	.313	.500	.375	.386

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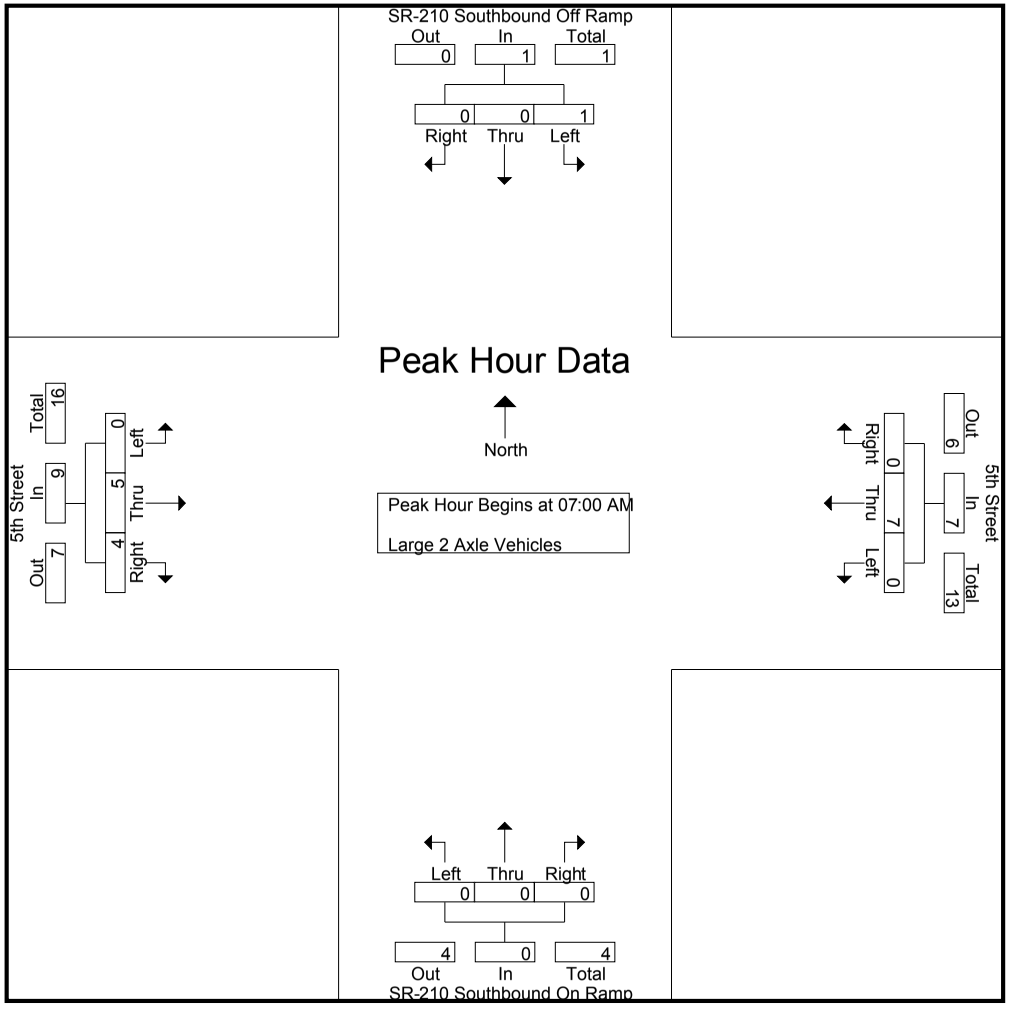
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	2	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	**1**	0	0	**1**	0	2	0	2	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	**5**	0	**5**	0	0	0	0	0	**4**	2	**6**	
Total Volume	1	0	0	1	0	7	0	7	0	0	0	0	0	5	4	9	
% App. Total	100	0	0		0	100	0		0	0	0		0	55.6	44.4		
PHF	.250	.000	.000	.250	.000	.350	.000	.350	.000	.000	.000	.000	.000	.313	.500	.375	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- 3 Axle Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	3
07:30 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	2	0	4	4
07:45 AM	1	0	1	0	2	4	3	0	0	7	0	0	0	0	0	0	0	1	0	1	0	10	10
Total	3	0	2	0	5	5	3	0	0	8	0	0	0	0	0	0	2	2	0	4	0	17	17
08:00 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
08:15 AM	2	0	0	0	2	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	0	8	8
08:30 AM	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
08:45 AM	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
Total	3	0	1	0	4	7	3	0	0	10	0	0	0	0	0	0	4	0	0	4	0	18	18
Grand Total	6	0	3	0	9	12	6	0	0	18	0	0	0	0	0	0	6	2	0	8	0	35	35
Apprch %	66.7	0	33.3			66.7	33.3	0			0	0	0			0	75	25					
Total %	17.1	0	8.6		25.7	34.3	17.1	0		51.4	0	0	0		0	0	17.1	5.7		22.9	0	100	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	0	**1**	0	1	3
07:30 AM	1	0	0	1	1	0	0	1	0	0	0	0	0	1	**1**	**2**	4
07:45 AM	1	0	1	2	**4**	**3**	0	**7**	0	0	0	0	0	0	1	1	**10**
Total Volume	3	0	2	5	5	3	0	8	0	0	0	0	0	2	2	4	17
% App. Total	60	0	40		62.5	37.5	0		0	0	0		0	50	50		
PHF	.750	.000	.500	.625	.313	.250	.000	.286	.000	.000	.000	.000	.000	.500	.500	.500	.425

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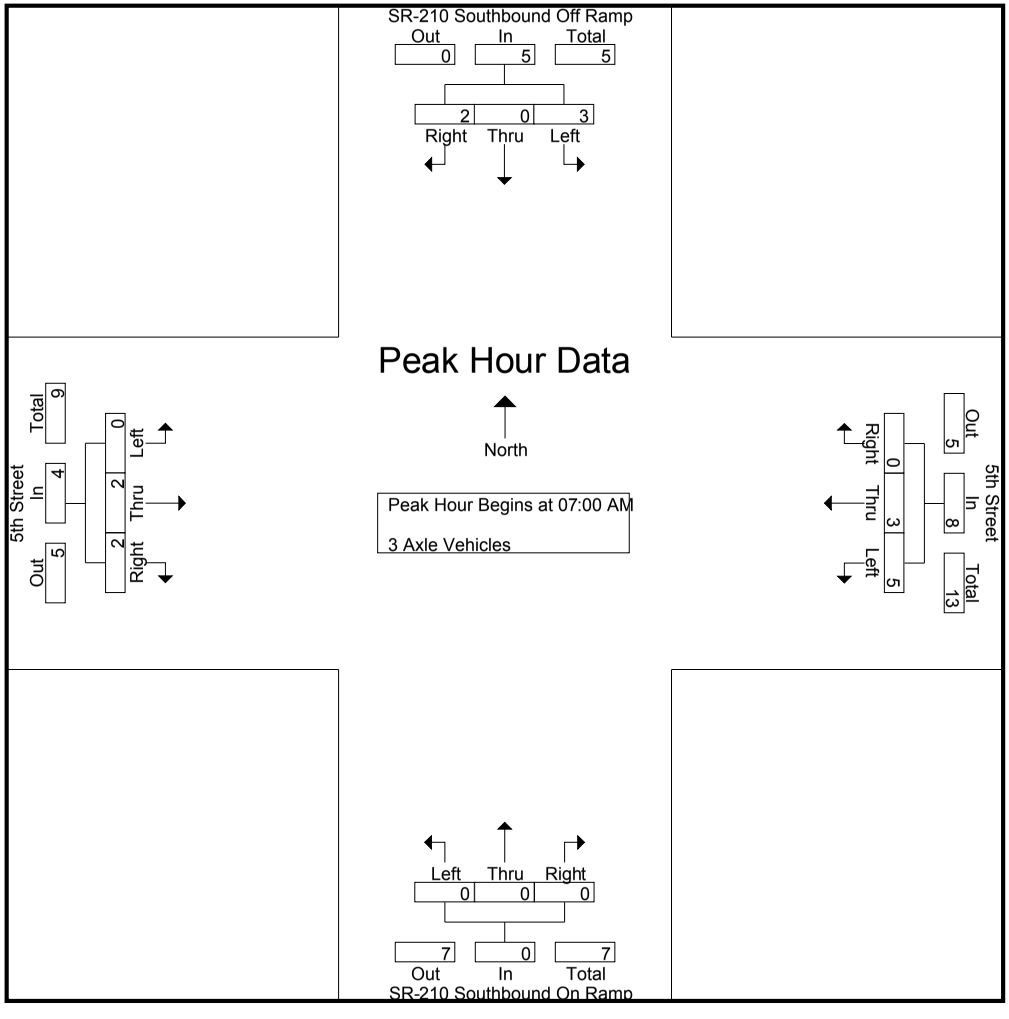
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	0	**1**	0	1	
+30 mins.	1	0	0	1	1	0	0	1	0	0	0	0	0	1	**1**	**2**	
+45 mins.	1	0	1	2	**4**	**3**	0	**7**	0	0	0	0	0	0	1	1	
Total Volume	3	0	2	5	5	3	0	8	0	0	0	0	0	2	2	4	
% App. Total	60	0	40		62.5	37.5	0		0	0	0		0	50	50		
PHF	.750	.000	.500	.625	.313	.250	.000	.286	.000	.000	.000	.000	.000	.500	.500	.500	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- 4+ Axle Trucks

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
07:30 AM	1	0	1	0	2	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	6	6
07:45 AM	0	0	1	1	1	0	3	0	0	3	0	0	0	0	0	0	0	2	1	2	2	6	8
Total	1	0	2	1	3	1	6	0	0	7	0	0	0	0	0	0	0	3	1	3	2	13	15
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	2	3
08:15 AM	0	0	1	1	1	2	4	0	0	6	0	0	0	0	0	0	0	1	1	1	2	8	10
08:30 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
08:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	0	4	4
Total	0	0	1	1	1	3	11	0	0	14	0	0	0	0	0	0	1	3	2	4	3	19	22
Grand Total	1	0	3	2	4	4	17	0	0	21	0	0	0	0	0	0	1	6	3	7	5	32	37
Apprch %	25	0	75			19	81	0			0	0	0			0	14.3	85.7					
Total %	3.1	0	9.4		12.5	12.5	53.1	0		65.6	0	0	0		0	0	3.1	18.8		21.9	13.5	86.5	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	**1**	0	**1**	**2**	**1**	**3**	0	**4**	0	0	0	0	0	0	0	0	**6**
07:45 AM	0	0	1	1	0	3	0	3	0	0	0	0	0	0	**2**	**2**	6
Total Volume	1	0	2	3	1	6	0	7	0	0	0	0	0	0	3	3	13
% App. Total	33.3	0	66.7		14.3	85.7	0		0	0	0		0	0	100		
PHF	.250	.000	.500	.375	.250	.500	.000	.438	.000	.000	.000	.000	.000	.000	.375	.375	.542

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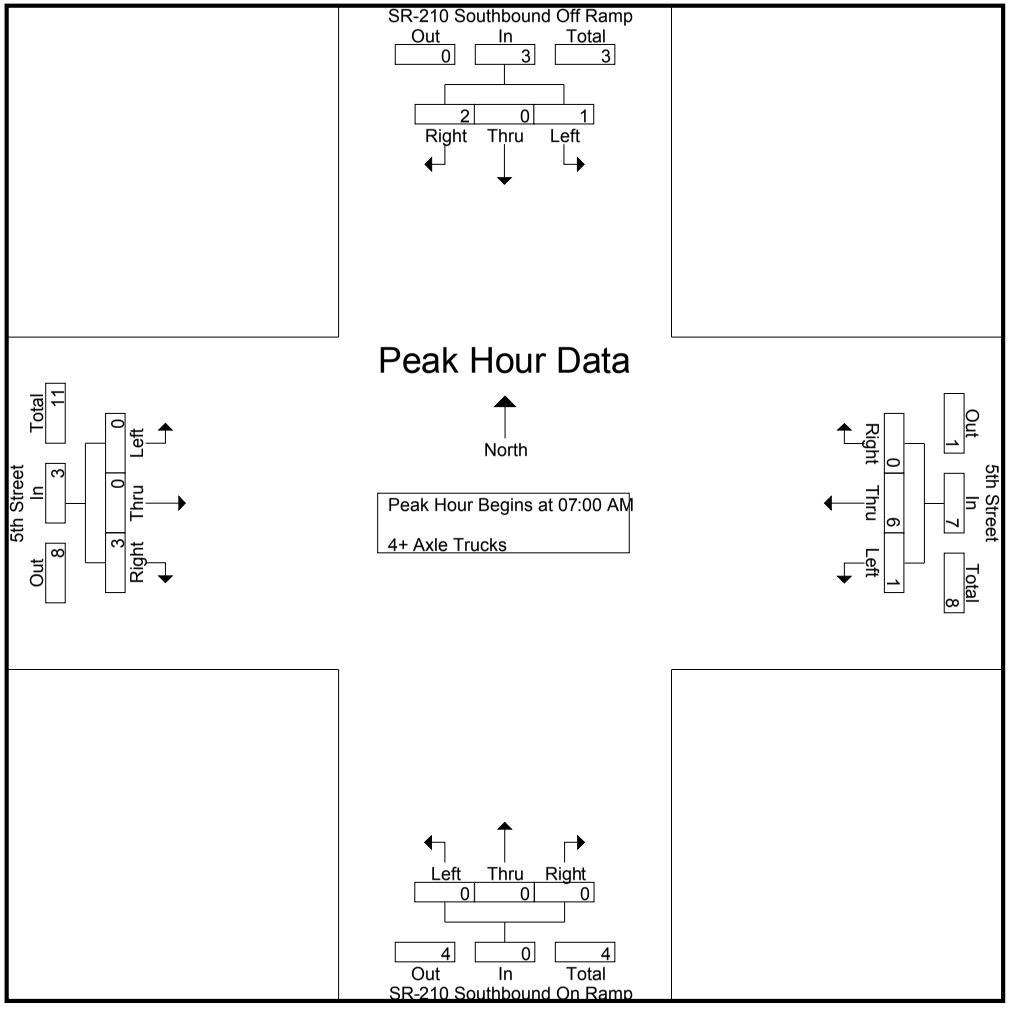
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5AM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
+30 mins.	**1**	0	**1**	**2**	**1**	**3**	0	**4**	0	0	0	0	0	0	0	0	
+45 mins.	0	0	1	1	0	3	0	3	0	0	0	0	0	0	**2**	**2**	
Total Volume	1	0	2	3	1	6	0	7	0	0	0	0	0	0	3	3	
% App. Total	33.3	0	66.7		14.3	85.7	0		0	0	0		0	0	100		
PHF	.250	.000	.500	.375	.250	.500	.000	.438	.000	.000	.000	.000	.000	.000	.375	.375	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	55	0	14	5	69	90	176	0	0	266	0	0	0	0	0	0	106	106	23	212	28	547	575
04:15 PM	36	1	20	7	57	87	155	0	0	242	0	0	0	0	0	0	70	96	15	166	22	465	487
04:30 PM	47	0	14	6	61	81	142	0	0	223	0	0	0	0	0	0	96	145	43	241	49	525	574
04:45 PM	75	1	18	7	94	95	132	0	0	227	0	0	0	0	0	0	115	129	33	244	40	565	605
Total	213	2	66	25	281	353	605	0	0	958	0	0	0	0	0	0	387	476	114	863	139	2102	2241
05:00 PM	73	1	23	18	97	90	142	0	0	232	0	0	0	0	0	0	127	151	31	278	49	607	656
05:15 PM	87	5	13	3	105	94	132	0	0	226	0	0	0	0	0	0	146	144	37	290	40	621	661
05:30 PM	53	1	13	6	67	75	141	0	0	216	0	0	0	0	0	0	106	142	44	248	50	531	581
05:45 PM	62	9	23	15	94	90	132	0	0	222	0	0	0	0	0	0	110	116	25	226	40	542	582
Total	275	16	72	42	363	349	547	0	0	896	0	0	0	0	0	0	489	553	137	1042	179	2301	2480
Grand Total	488	18	138	67	644	702	1152	0	0	1854	0	0	0	0	0	0	876	1029	251	1905	318	4403	4721
Apprch %	75.8	2.8	21.4			37.9	62.1	0			0	0	0			0	46	54					
Total %	11.1	0.4	3.1		14.6	15.9	26.2	0		42.1	0	0	0		0	0	19.9	23.4		43.3	6.7	93.3	
Passenger Vehicles	470	18	128		681	698	1118	0		1816	0	0	0		0	0	870	1014		2134	0	0	4631
% Passenger Vehicles	96.3	100	92.8	97	95.8	99.4	97	0	0	98	0	0	0	0	0	0	99.3	98.5	99.6	99	0	0	98.1
Large 2 Axle Vehicles	0	0	5		6	2	11	0		13	0	0	0		0	0	3	5		8	0	0	27
% Large 2 Axle Vehicles	0	0	3.6	1.5	0.8	0.3	1	0	0	0.7	0	0	0	0	0	0	0.3	0.5	0	0.4	0	0	0.6
3 Axle Vehicles	1	0	3		4	0	10	0		10	0	0	0		0	0	2	0		2	0	0	16
% 3 Axle Vehicles	0.2	0	2.2	0	0.6	0	0.9	0	0	0.5	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.3
4+ Axle Trucks	17	0	2		20	2	13	0		15	0	0	0		0	0	1	10		12	0	0	47
% 4+ Axle Trucks	3.5	0	1.4	1.5	2.8	0.3	1.1	0	0	0.8	0	0	0	0	0	0	0.1	1	0.4	0.6	0	0	1

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	75	1	18	94	**95**	132	0	227	0	0	0	0	0	115	129	244	565
05:00 PM	73	1	**23**	97	90	**142**	0	**232**	0	0	0	0	0	127	**151**	278	607
05:15 PM	**87**	**5**	13	**105**	94	132	0	226	0	0	0	0	0	**146**	144	**290**	**621**
05:30 PM	53	1	13	67	75	141	0	216	0	0	0	0	0	106	142	248	531
Total Volume	288	8	67	363	354	547	0	901	0	0	0	0	0	494	566	1060	2324
% App. Total	79.3	2.2	18.5		39.3	60.7	0		0	0	0		0	46.6	53.4		
PHF	.828	.400	.728	.864	.932	.963	.000	.971	.000	.000	.000	.000	.000	.846	.937	.914	.936

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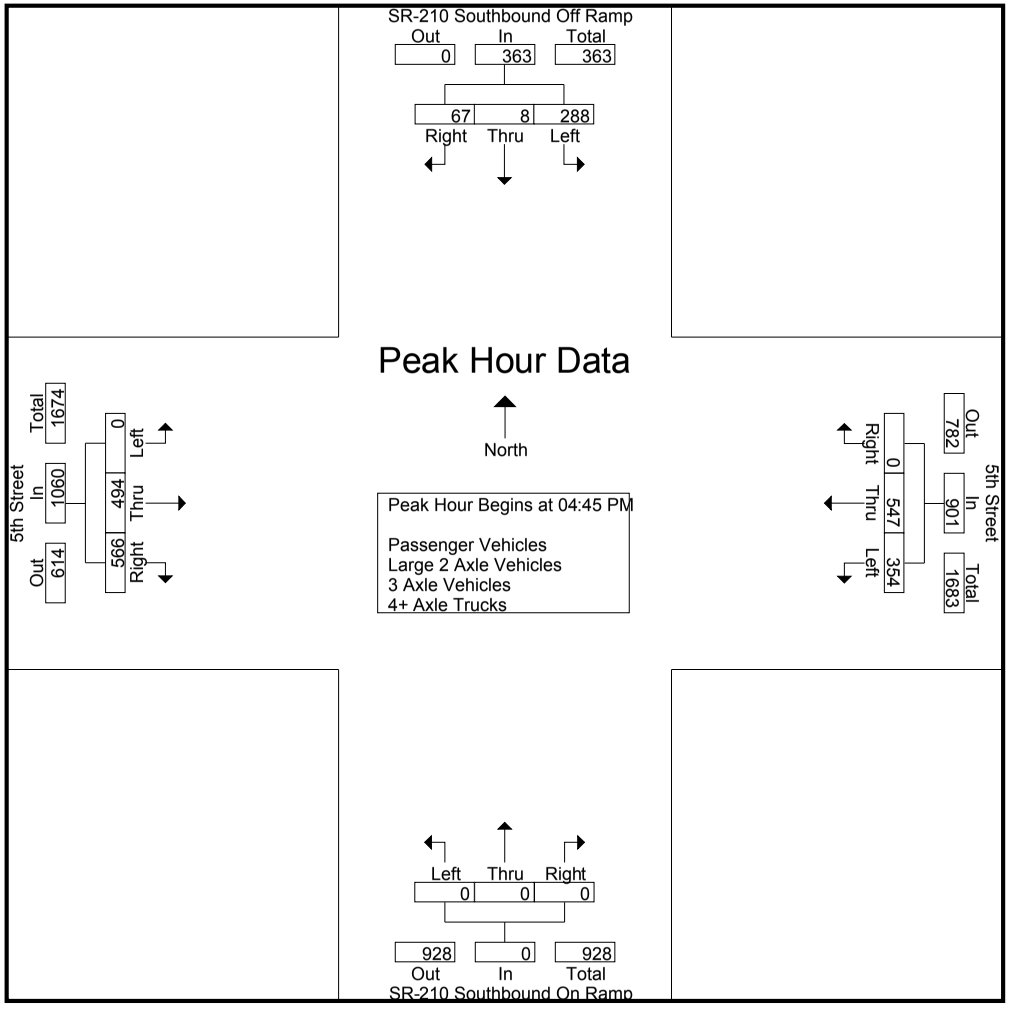
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:00 PM				04:00 PM				04:45 PM				
+0 mins.	75	1	18	94	90	**176**	0	**266**	0	0	0	0	0	115	129	244	
+15 mins.	73	1	**23**	97	87	155	0	242	0	0	0	0	0	127	**151**	278	
+30 mins.	**87**	**5**	13	**105**	81	142	0	223	0	0	0	0	0	**146**	144	**290**	
+45 mins.	53	1	13	67	**95**	132	0	227	0	0	0	0	0	106	142	248	
Total Volume	288	8	67	363	353	605	0	958	0	0	0	0	0	494	566	1060	
% App. Total	79.3	2.2	18.5		36.8	63.2	0		0	0	0		0	46.6	53.4		
PHF	.828	.400	.728	.864	.929	.859	.000	.900	.000	.000	.000	.000	.000	.846	.937	.914	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	50	0	12	5	62	90	168	0	0	258	0	0	0	0	0	0	103	105	23	208	28	528	556
04:15 PM	33	1	16	7	50	87	151	0	0	238	0	0	0	0	0	0	70	93	15	163	22	451	473
04:30 PM	44	0	14	6	58	79	138	0	0	217	0	0	0	0	0	0	94	143	43	237	49	512	561
04:45 PM	71	1	15	6	87	93	127	0	0	220	0	0	0	0	0	0	115	126	33	241	39	548	587
Total	198	2	57	24	257	349	584	0	0	933	0	0	0	0	0	0	382	467	114	849	138	2039	2177
05:00 PM	72	1	23	18	96	90	139	0	0	229	0	0	0	0	0	0	126	151	31	277	49	602	651
05:15 PM	85	5	13	3	103	94	128	0	0	222	0	0	0	0	0	0	146	144	37	290	40	615	655
05:30 PM	53	1	13	6	67	75	140	0	0	215	0	0	0	0	0	0	106	137	43	243	49	525	574
05:45 PM	62	9	22	14	93	90	127	0	0	217	0	0	0	0	0	0	110	115	25	225	39	535	574
Total	272	16	71	41	359	349	534	0	0	883	0	0	0	0	0	0	488	547	136	1035	177	2277	2454
Grand Total	470	18	128	65	616	698	1118	0	0	1816	0	0	0	0	0	0	870	1014	250	1884	315	4316	4631
Apprch %	76.3	2.9	20.8			38.4	61.6	0			0	0	0			0	46.2	53.8					
Total %	10.9	0.4	3		14.3	16.2	25.9	0		42.1	0	0	0		0	0	20.2	23.5		43.7	6.8	93.2	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	71	1	15	87	93	127	0	220	0	0	0	0	0	115	126	241	548
05:00 PM	72	1	**23**	96	90	139	0	**229**	0	0	0	0	0	126	**151**	277	602
05:15 PM	**85**	**5**	13	**103**	**94**	128	0	222	0	0	0	0	0	**146**	144	**290**	**615**
05:30 PM	53	1	13	67	75	**140**	0	215	0	0	0	0	0	106	137	243	525
Total Volume	281	8	64	353	352	534	0	886	0	0	0	0	0	493	558	1051	2290
% App. Total	79.6	2.3	18.1		39.7	60.3	0		0	0	0		0	46.9	53.1		
PHF	.826	.400	.696	.857	.936	.954	.000	.967	.000	.000	.000	.000	.000	.844	.924	.906	.931

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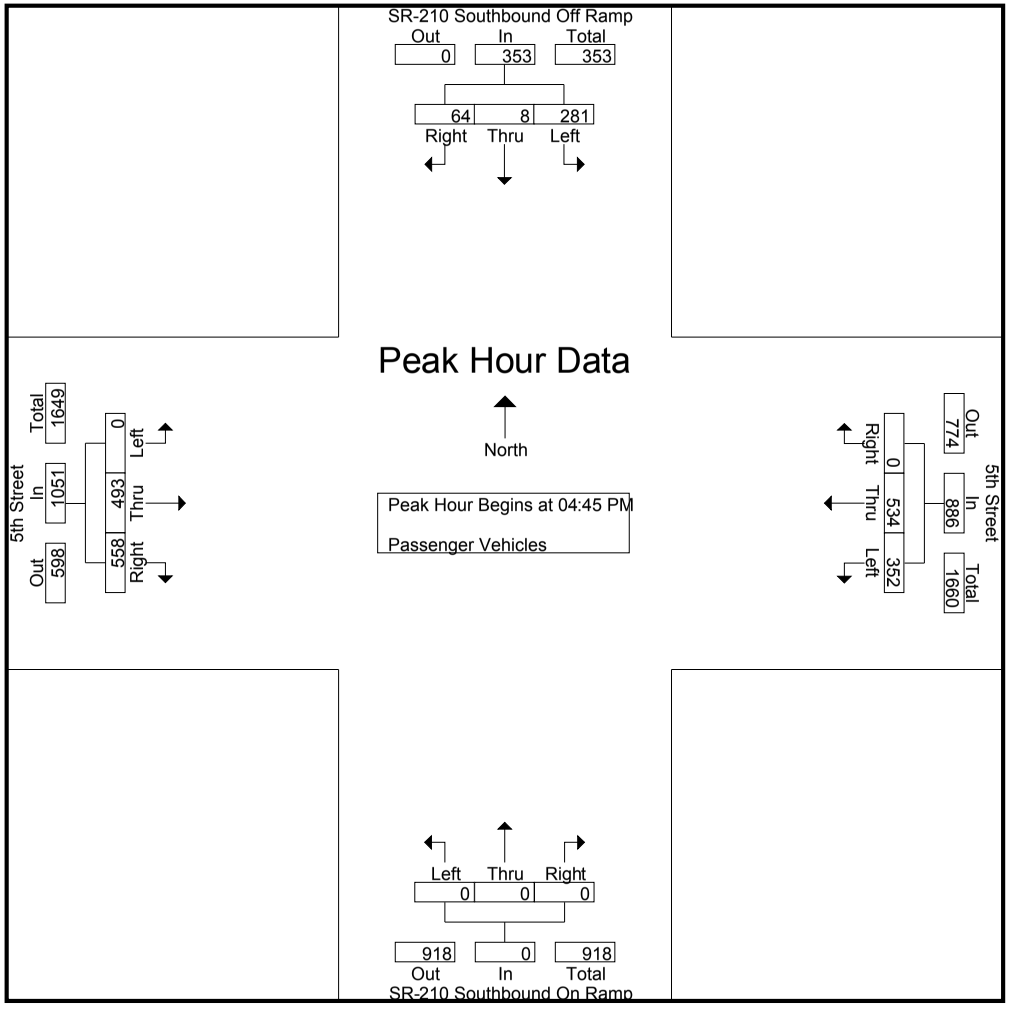
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	71	1	15	87	93	127	0	220	0	0	0	0	0	115	126	241	
+15 mins.	72	1	**23**	96	90	139	0	**229**	0	0	0	0	0	126	**151**	277	
+30 mins.	**85**	**5**	13	**103**	**94**	128	0	222	0	0	0	0	0	**146**	144	**290**	
+45 mins.	53	1	13	67	75	**140**	0	215	0	0	0	0	0	106	137	243	
Total Volume	281	8	64	353	352	534	0	886	0	0	0	0	0	493	558	1051	
% App. Total	79.6	2.3	18.1		39.7	60.3	0		0	0	0		0	46.9	53.1		
PHF	.826	.400	.696	.857	.936	.954	.000	.967	.000	.000	.000	.000	.000	.844	.924	.906	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	0	5	5
04:15 PM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	4	4
04:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	2	0	4	0	6	6
04:45 PM	0	0	2	1	2	1	1	0	0	2	0	0	0	0	0	0	0	1	0	1	1	5	6
Total	0	0	5	1	5	2	5	0	0	7	0	0	0	0	0	0	3	5	0	8	1	20	21
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	6
Grand Total	0	0	5	1	5	2	11	0	0	13	0	0	0	0	0	0	3	5	0	8	1	26	27
Apprch %	0	0	100			15.4	84.6	0			0	0	0			0	37.5	62.5					
Total %	0	0	19.2		19.2	7.7	42.3	0		50	0	0	0		0	0	11.5	19.2		30.8	3.7	96.3	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	**2**	**2**	**1**	1	0	**2**	0	0	0	0	0	0	**1**	**1**	**5**
05:00 PM	0	0	0	0	0	**2**	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	2	2	1	6	0	7	0	0	0	0	0	0	1	1	10
% App. Total	0	0	100		14.3	85.7	0		0	0	0		0	0	100		
PHF	.000	.000	.250	.250	.250	.750	.000	.875	.000	.000	.000	.000	.000	.000	.250	.250	.500

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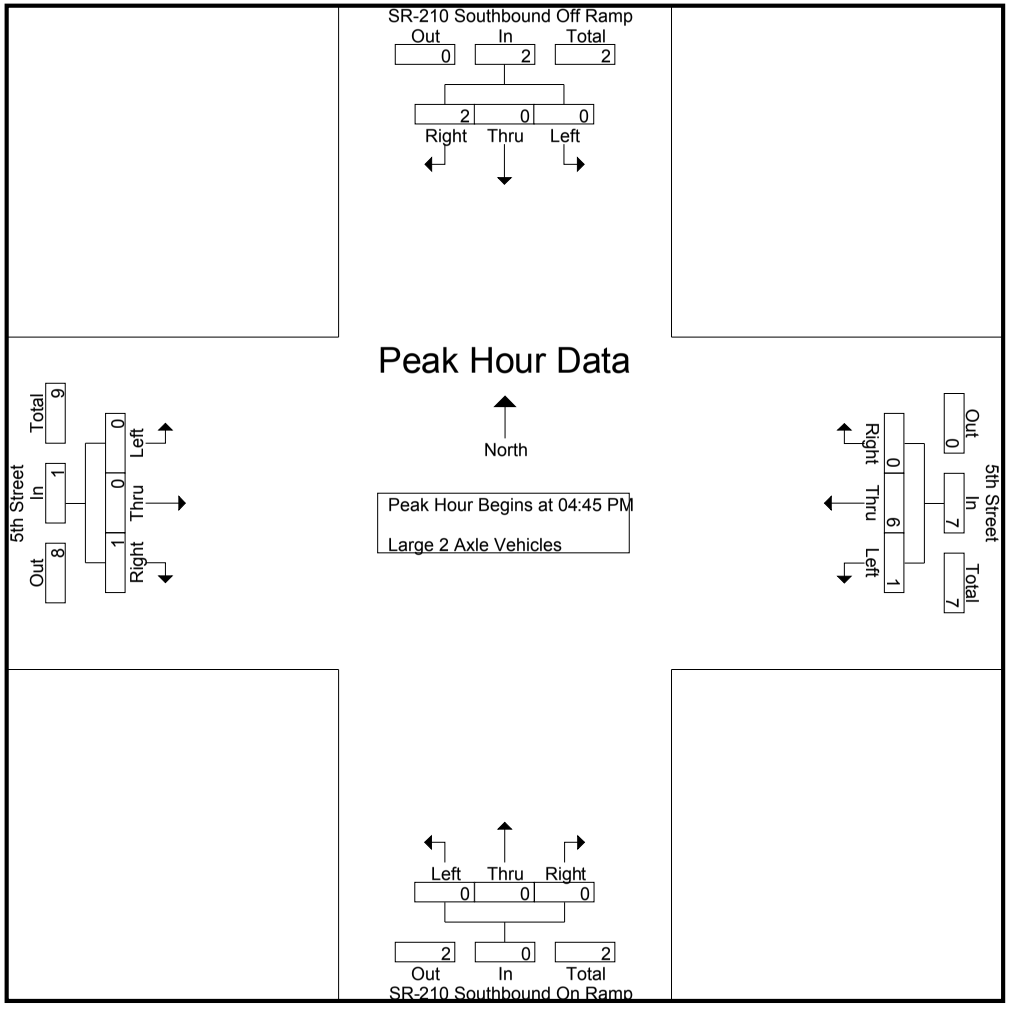
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	**2**	**2**	**1**	1	0	**2**	0	0	0	0	0	0	**1**	**1**	
+15 mins.	0	0	0	0	0	**2**	0	2	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
Total Volume	0	0	2	2	1	6	0	7	0	0	0	0	0	0	1	1	
% App. Total	0	0	100		14.3	85.7	0		0	0	0		0	0	100		
PHF	.000	.000	.250	.250	.250	.750	.000	.875	.000	.000	.000	.000	.000	.000	.250	.250	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- 3 Axle Vehicles

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	8	8
04:15 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
04:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
04:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	1	0	3	0	4	0	8	0	0	8	0	0	0	0	0	0	2	0	0	2	0	14	14
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Grand Total	1	0	3	0	4	0	10	0	0	10	0	0	0	0	0	0	2	0	0	2	0	16	16
Apprch %	25	0	75			0	100	0			0	0	0			0	100	0					
Total %	6.2	0	18.8		25	0	62.5	0		62.5	0	0	0		0	0	12.5	0		12.5	0	100	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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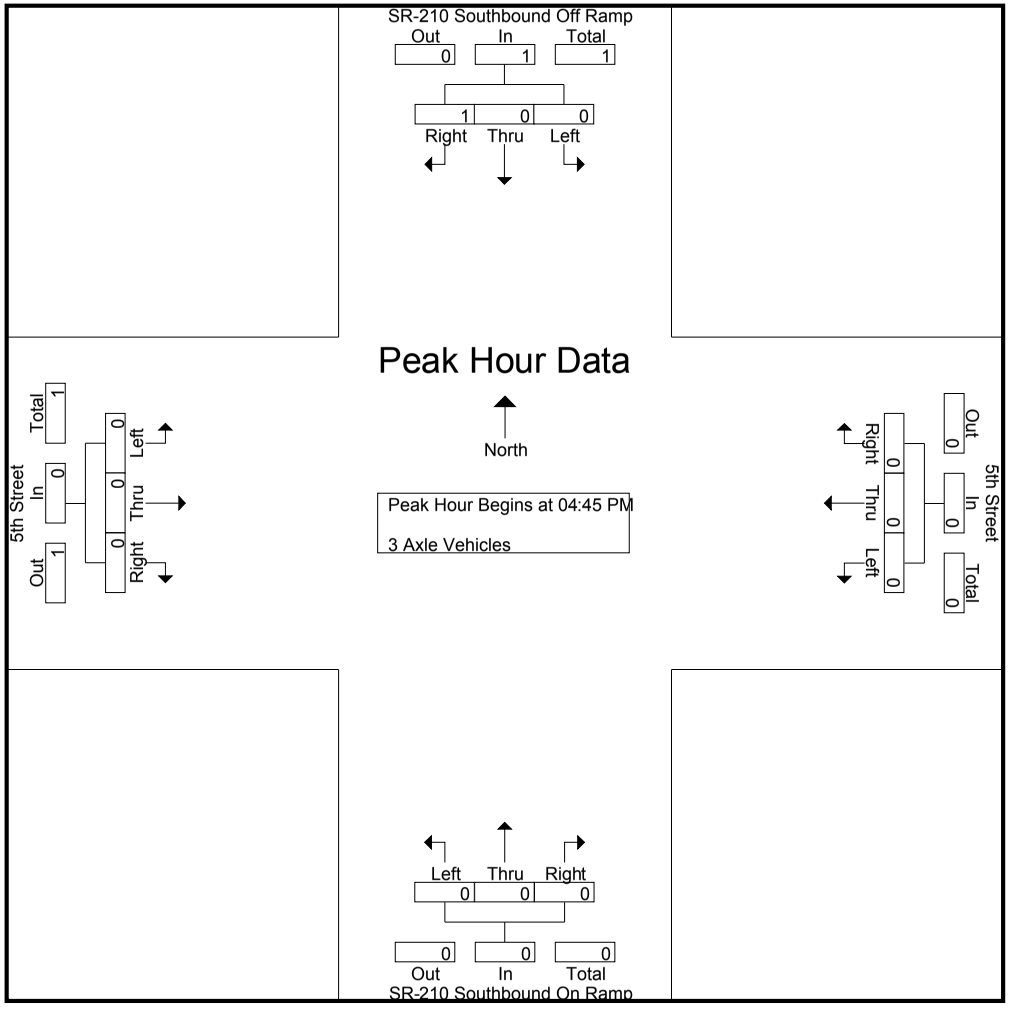
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
% App. Total	0	0	100		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- 4+ Axle Trucks

	SR-210 Southbound Off Ramp Southbound					5th Street Westbound					SR-210 Southbound On Ramp Northbound					5th Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	5	0	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6	6
04:15 PM	3	0	1	0	4	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2	0	7	7
04:30 PM	2	0	0	0	2	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	5
04:45 PM	4	0	0	0	4	1	4	0	0	5	0	0	0	0	0	0	0	2	0	2	0	11	11
Total	14	0	1	0	15	2	8	0	0	10	0	0	0	0	0	0	0	4	0	4	0	29	29
05:00 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
05:15 PM	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	5	1	5	6
05:45 PM	0	0	1	1	1	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	1	4	5
Total	3	0	1	1	4	0	5	0	0	5	0	0	0	0	0	0	1	6	1	7	2	16	18
Grand Total	17	0	2	1	19	2	13	0	0	15	0	0	0	0	0	0	1	10	1	11	2	45	47
Apprch %	89.5	0	10.5			13.3	86.7	0			0	0	0			0	9.1	90.9					
Total %	37.8	0	4.4		42.2	4.4	28.9	0		33.3	0	0	0		0	0	2.2	22.2		24.4	4.3	95.7	

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**4**	0	0	**4**	**1**	**4**	0	**5**	0	0	0	0	0	0	2	2	**11**
05:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	**1**	0	1	3
05:15 PM	2	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**	**5**	5
Total Volume	7	0	0	7	1	7	0	8	0	0	0	0	0	1	7	8	23
% App. Total	100	0	0		12.5	87.5	0		0	0	0		0	12.5	87.5		
PHF	.438	.000	.000	.438	.250	.438	.000	.400	.000	.000	.000	.000	.000	.250	.350	.400	.523

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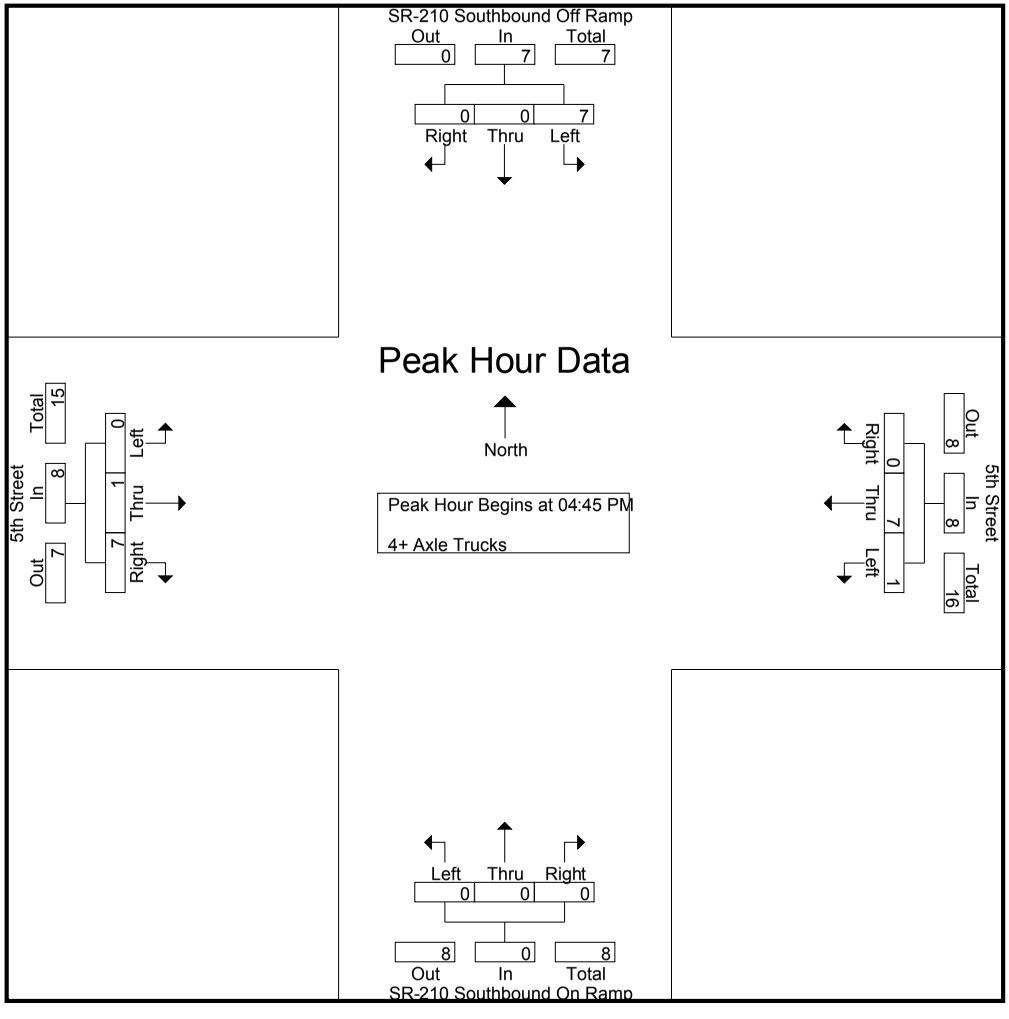
City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Southbound Ramps
E/W: 5th Street
Weather: Clear

File Name : HLD210S5PM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	SR-210 Southbound Off Ramp Southbound				5th Street Westbound				SR-210 Southbound On Ramp Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**4**	0	0	**4**	**1**	**4**	0	**5**	0	0	0	0	0	0	2	2	
+15 mins.	1	0	0	1	0	1	0	1	0	0	0	0	0	**1**	0	1	
+30 mins.	2	0	0	2	0	2	0	2	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**	**5**	
Total Volume	7	0	0	7	1	7	0	8	0	0	0	0	0	1	7	8	
% App. Total	100	0	0		12.5	87.5	0		0	0	0		0	12.5	87.5		
PHF	.438	.000	.000	.438	.250	.438	.000	.400	.000	.000	.000	.000	.000	.250	.350	.400	

Location: Highland
N/S: SR-210 SB Ramps
E/W: 5th Street

Date: 6/5/2014
Weather: Clear

Pedestrians

	North Leg SR-210 SB Ramps	East Leg 5th Street	South Leg SR-210 SB Ramps	West Leg 5th Street	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	2	0	1	0	3
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	1	0	3

	North Leg SR-210 SB Ramps	East Leg 5th Street	South Leg SR-210 SB Ramps	West Leg 5th Street	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	1	0	2

Location: Highland
N/S: SR-210 SB Ramps
E/W: 5th Street

Date: 6/5/2014
Weather: Clear

Bicycles

	North Leg SR-210 SB Ramps	East Leg 5th Street	South Leg SR-210 SB Ramps	West Leg 5th Street	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

	North Leg SR-210 SB Ramps	East Leg 5th Street	South Leg SR-210 SB Ramps	West Leg 5th Street	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	1	0	1	0	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	1	0	2

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	232	37	1	269	73	0	59	18	132	10	45	0	0	55	19	456	475
07:15 AM	0	0	0	0	0	0	252	36	0	288	83	0	79	33	162	8	69	0	0	77	33	527	560
07:30 AM	0	0	0	0	0	0	217	45	10	262	106	0	73	27	179	10	65	0	0	75	37	516	553
07:45 AM	0	0	0	0	0	0	256	50	6	306	114	0	69	26	183	8	74	0	0	82	32	571	603
Total	0	0	0	0	0	0	957	168	17	1125	376	0	280	104	656	36	253	0	0	289	121	2070	2191
08:00 AM	0	0	0	0	0	0	153	45	14	198	68	0	69	19	137	8	59	0	0	67	33	402	435
08:15 AM	0	0	0	0	0	0	160	46	2	206	73	0	85	29	158	7	66	0	0	73	31	437	468
08:30 AM	0	0	0	0	0	0	213	56	11	269	42	1	75	31	118	10	71	0	0	81	42	468	510
08:45 AM	0	0	0	0	0	0	166	33	13	199	62	0	62	24	124	12	78	0	0	90	37	413	450
Total	0	0	0	0	0	0	692	180	40	872	245	1	291	103	537	37	274	0	0	311	143	1720	1863
Grand Total	0	0	0	0	0	0	1649	348	57	1997	621	1	571	207	1193	73	527	0	0	600	264	3790	4054
Apprch %	0	0	0			0	82.6	17.4			52.1	0.1	47.9			12.2	87.8	0					
Total %	0	0	0		0	0	43.5	9.2		52.7	16.4	0	15.1		31.5	1.9	13.9	0		15.8	6.5	93.5	
Passenger Vehicles	0	0	0		0	0	1615	331		1997	582	1	533		1315	62	505	0		567	0	0	3879
% Passenger Vehicles	0	0	0	0	0	0	97.9	95.1	89.5	97.2	93.7	100	93.3	96.1	93.9	84.9	95.8	0	0	94.5	0	0	95.7
Large 2 Axle Vehicles	0	0	0		0	0	11	7		23	15	0	23		46	7	8	0		15	0	0	84
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.7	2	8.8	1.1	2.4	0	4	3.9	3.3	9.6	1.5	0	0	2.5	0	0	2.1
3 Axle Vehicles	0	0	0		0	0	13	1		15	4	0	3		7	3	11	0		14	0	0	36
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0.3	1.8	0.7	0.6	0	0.5	0	0.5	4.1	2.1	0	0	2.3	0	0	0.9
4+ Axle Trucks	0	0	0		0	0	10	9		19	20	0	12		32	1	3	0		4	0	0	55
% 4+ Axle Trucks	0	0	0	0	0	0	0.6	2.6	0	0.9	3.2	0	2.1	0	2.3	1.4	0.6	0	0	0.7	0	0	1.4

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	232	37	269	73	0	59	132	**10**	45	0	55	456
07:15 AM	0	0	0	0	0	252	36	288	83	0	**79**	162	8	69	0	77	527
07:30 AM	0	0	0	0	0	217	45	262	106	0	73	179	10	65	0	75	516
07:45 AM	0	0	0	0	0	**256**	**50**	**306**	**114**	0	69	**183**	8	**74**	0	**82**	**571**
Total Volume	0	0	0	0	0	957	168	1125	376	0	280	656	36	253	0	289	2070
% App. Total	0	0	0		0	85.1	14.9		57.3	0	42.7		12.5	87.5	0		
PHF	.000	.000	.000	.000	.000	.935	.840	.919	.825	.000	.886	.896	.900	.855	.000	.881	.906

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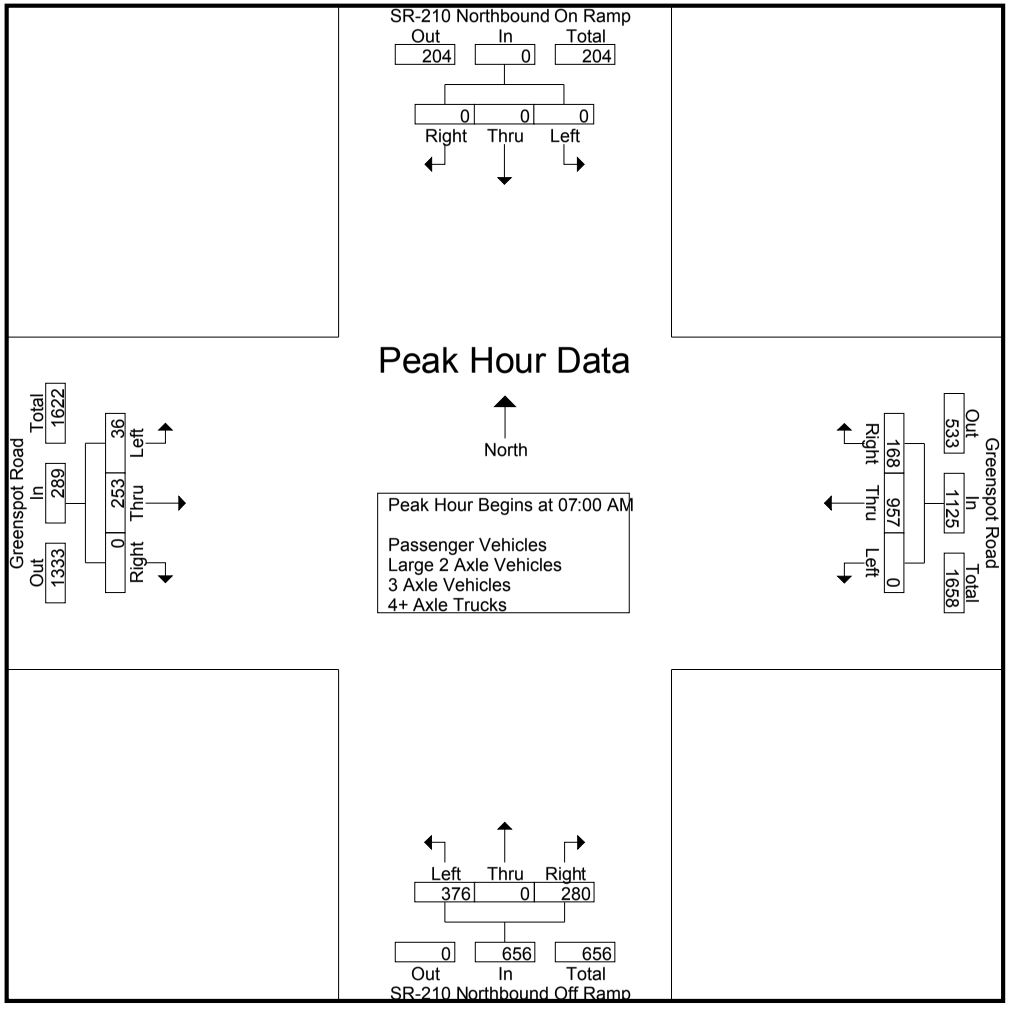
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:15 AM				08:00 AM				
+0 mins.	0	0	0	0	0	232	37	269	83	0	**79**	162	8	59	0	67	
+15 mins.	0	0	0	0	0	252	36	288	106	0	73	179	7	66	0	73	
+30 mins.	0	0	0	0	0	217	45	262	**114**	0	69	**183**	10	71	0	81	
+45 mins.	0	0	0	0	0	**256**	**50**	**306**	68	0	69	137	**12**	**78**	0	**90**	
Total Volume	0	0	0	0	0	957	168	1125	371	0	290	661	37	274	0	311	
% App. Total	0	0	0		0	85.1	14.9		56.1	0	43.9		11.9	88.1	0		
PHF	.000	.000	.000	.000	.000	.935	.840	.919	.814	.000	.918	.903	.771	.878	.000	.864	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	229	35	1	264	72	0	54	18	126	10	44	0	0	54	19	444	463
07:15 AM	0	0	0	0	0	0	251	35	0	286	82	0	73	32	155	8	66	0	0	74	32	515	547
07:30 AM	0	0	0	0	0	0	213	45	10	258	101	0	69	27	170	7	60	0	0	67	37	495	532
07:45 AM	0	0	0	0	0	0	249	49	5	298	107	0	65	25	172	7	70	0	0	77	30	547	577
Total	0	0	0	0	0	0	942	164	16	1106	362	0	261	102	623	32	240	0	0	272	118	2001	2119
08:00 AM	0	0	0	0	0	0	149	38	12	187	65	0	66	19	131	5	58	0	0	63	31	381	412
08:15 AM	0	0	0	0	0	0	155	43	2	198	68	0	79	27	147	5	61	0	0	66	29	411	440
08:30 AM	0	0	0	0	0	0	206	54	9	260	36	1	68	28	105	9	70	0	0	79	37	444	481
08:45 AM	0	0	0	0	0	0	163	32	12	195	51	0	59	23	110	11	76	0	0	87	35	392	427
Total	0	0	0	0	0	0	673	167	35	840	220	1	272	97	493	30	265	0	0	295	132	1628	1760
Grand Total	0	0	0	0	0	0	1615	331	51	1946	582	1	533	199	1116	62	505	0	0	567	250	3629	3879
Apprch %	0	0	0			0	83	17			52.2	0.1	47.8			10.9	89.1	0					
Total %	0	0	0		0	0	44.5	9.1		53.6	16	0	14.7		30.8	1.7	13.9	0		15.6	6.4	93.6	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	229	35	264	72	0	54	126	**10**	44	0	54	444
07:15 AM	0	0	0	0	0	**251**	35	286	82	0	**73**	155	8	66	0	74	515
07:30 AM	0	0	0	0	0	213	45	258	101	0	69	170	7	60	0	67	495
07:45 AM	0	0	0	0	0	249	**49**	**298**	**107**	0	65	**172**	7	**70**	0	**77**	**547**
Total Volume	0	0	0	0	0	942	164	1106	362	0	261	623	32	240	0	272	2001
% App. Total	0	0	0		0	85.2	14.8		58.1	0	41.9		11.8	88.2	0		
PHF	.000	.000	.000	.000	.000	.938	.837	.928	.846	.000	.894	.906	.800	.857	.000	.883	.915

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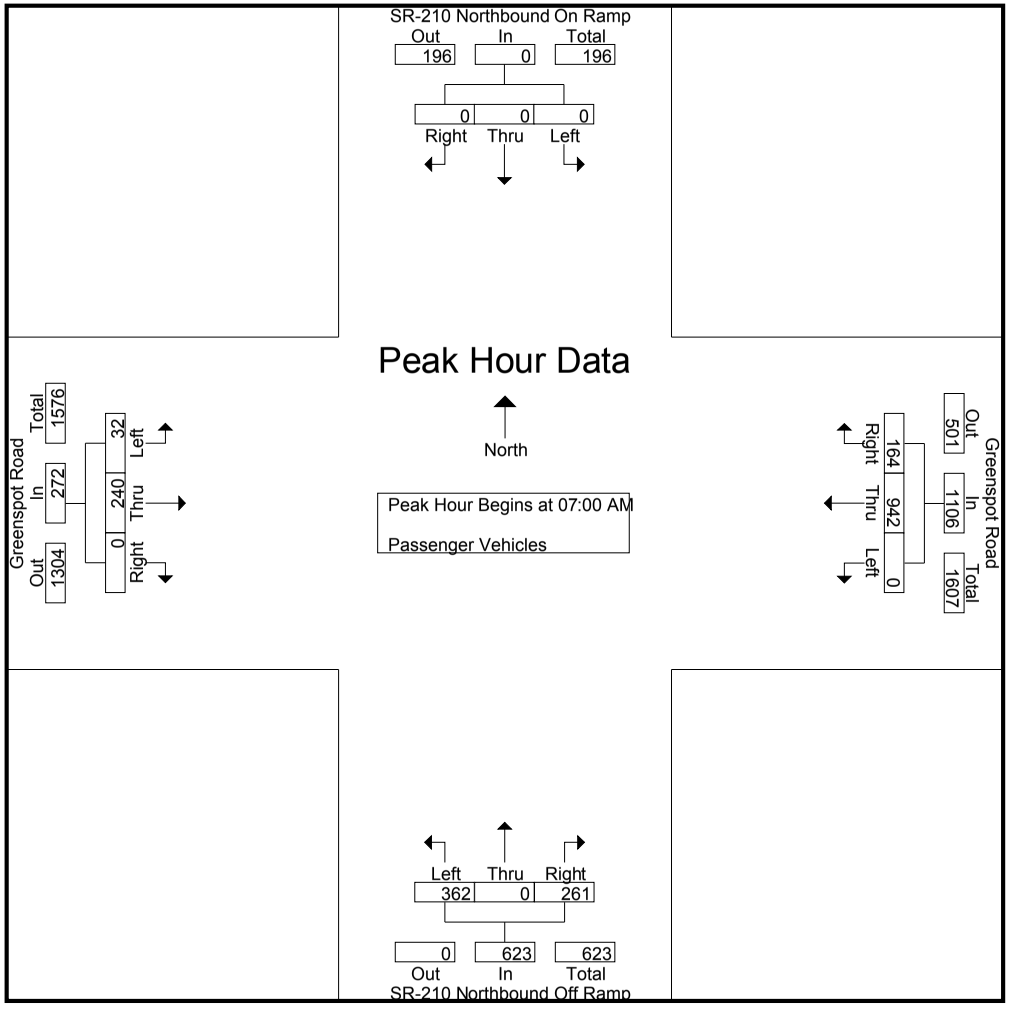
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:15 AM				08:00 AM				
+0 mins.	0	0	0	0	0	229	35	264	82	0	**73**	155	5	58	0	63	
+15 mins.	0	0	0	0	0	**251**	35	286	101	0	69	170	5	61	0	66	
+30 mins.	0	0	0	0	0	213	45	258	**107**	0	65	**172**	9	70	0	79	
+45 mins.	0	0	0	0	0	249	**49**	**298**	65	0	66	131	**11**	**76**	0	**87**	
Total Volume	0	0	0	0	0	942	164	1106	355	0	273	628	30	265	0	295	
% App. Total	0	0	0		0	85.2	14.8		56.5	0	43.5		10.2	89.8	0		
PHF	.000	.000	.000	.000	.000	.938	.837	.928	.829	.000	.935	.913	.682	.872	.000	.848	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	0	4	4
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	1	4	0	1	0	0	1	1	5	6
07:30 AM	0	0	0	0	0	0	2	0	0	2	3	0	3	0	6	1	2	0	0	3	0	11	11
07:45 AM	0	0	0	0	0	0	0	1	1	1	4	0	2	1	6	1	3	0	0	4	2	11	13
Total	0	0	0	0	0	0	4	1	1	5	7	0	11	2	18	2	6	0	0	8	3	31	34
08:00 AM	0	0	0	0	0	0	3	3	1	6	2	0	1	0	3	3	0	0	0	3	1	12	13
08:15 AM	0	0	0	0	0	0	1	0	0	1	1	0	5	2	6	2	1	0	0	3	2	10	12
08:30 AM	0	0	0	0	0	0	1	2	2	3	1	0	5	3	6	0	1	0	0	1	5	10	15
08:45 AM	0	0	0	0	0	0	2	1	1	3	4	0	1	1	5	0	0	0	0	0	2	8	10
Total	0	0	0	0	0	0	7	6	4	13	8	0	12	6	20	5	2	0	0	7	10	40	50
Grand Total	0	0	0	0	0	0	11	7	5	18	15	0	23	8	38	7	8	0	0	15	13	71	84
Apprch %	0	0	0			0	61.1	38.9			39.5	0	60.5			46.7	53.3	0					
Total %	0	0	0		0	0	15.5	9.9		25.4	21.1	0	32.4		53.5	9.9	11.3	0		21.1	15.5	84.5	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	2	0	2	3	0	3	**6**	1	2	0	3	11
07:45 AM	0	0	0	0	0	0	1	1	**4**	0	2	6	1	**3**	0	**4**	11
08:00 AM	0	0	0	0	0	**3**	**3**	**6**	2	0	1	3	**3**	0	0	3	**12**
08:15 AM	0	0	0	0	0	1	0	1	1	0	**5**	6	2	1	0	3	10
Total Volume	0	0	0	0	0	6	4	10	10	0	11	21	7	6	0	13	44
% App. Total	0	0	0		0	60	40		47.6	0	52.4		53.8	46.2	0		
PHF	.000	.000	.000	.000	.000	.500	.333	.417	.625	.000	.550	.875	.583	.500	.000	.813	.917

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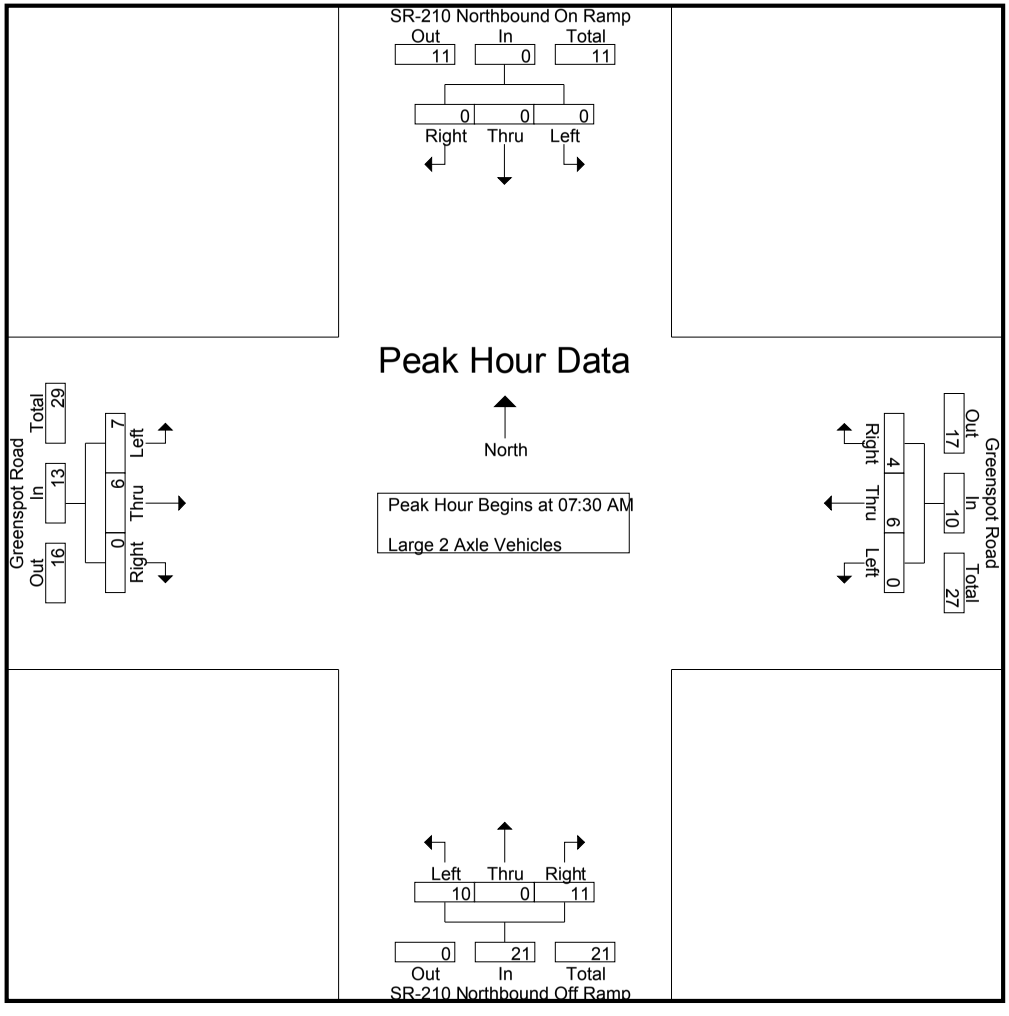
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				08:00 AM				07:30 AM				07:30 AM				
+0 mins.	0	0	0	0	0	**3**	**3**	**6**	3	0	3	**6**	1	2	0	3	
+15 mins.	0	0	0	0	0	1	0	1	**4**	0	2	6	1	**3**	0	**4**	
+30 mins.	0	0	0	0	0	1	2	3	2	0	1	3	**3**	0	0	3	
+45 mins.	0	0	0	0	0	2	1	3	1	0	**5**	6	2	1	0	3	
Total Volume	0	0	0	0	0	7	6	13	10	0	11	21	7	6	0	13	
% App. Total	0	0	0		0	53.8	46.2		47.6	0	52.4		53.8	46.2	0		
PHF	.000	.000	.000	.000	.000	.583	.500	.542	.625	.000	.550	.875	.583	.500	.000	.813	

Counts Unlimited, Inc.
PO Box 1178
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(951) 268-6268

City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- 3 Axle Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2	1	0	0	3	0	5	5
07:45 AM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	0	1	0	0	1	0	8	8
Total	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	2	4	0	0	6	0	15	15
08:00 AM	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	1	1	2	3
08:15 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	4	0	0	4	0	7	7
08:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	0	0	0	1	0	6	6
08:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	0	2	0	0	2	0	5	5
Total	0	0	0	0	0	0	6	1	1	7	3	0	2	0	5	1	7	0	0	8	1	20	21
Grand Total	0	0	0	0	0	0	13	1	1	14	4	0	3	0	7	3	11	0	0	14	1	35	36
Apprch %	0	0	0			0	92.9	7.1			57.1	0	42.9			21.4	78.6	0					
Total %	0	0	0		0	0	37.1	2.9		40	11.4	0	8.6		20	8.6	31.4	0		40	2.8	97.2	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	**6**	0	**6**	**1**	0	0	**1**	0	1	0	1	**8**
08:00 AM	0	0	0	0	0	0	**1**	1	0	0	0	0	0	1	0	1	2
08:15 AM	0	0	0	0	0	2	0	2	1	0	0	1	0	**4**	0	**4**	7
08:30 AM	0	0	0	0	0	4	0	4	0	0	**1**	1	**1**	0	0	1	6
Total Volume	0	0	0	0	0	12	1	13	2	0	1	3	1	6	0	7	23
% App. Total	0	0	0		0	92.3	7.7		66.7	0	33.3		14.3	85.7	0		
PHF	.000	.000	.000	.000	.000	.500	.250	.542	.500	.000	.250	.750	.250	.375	.000	.438	.719

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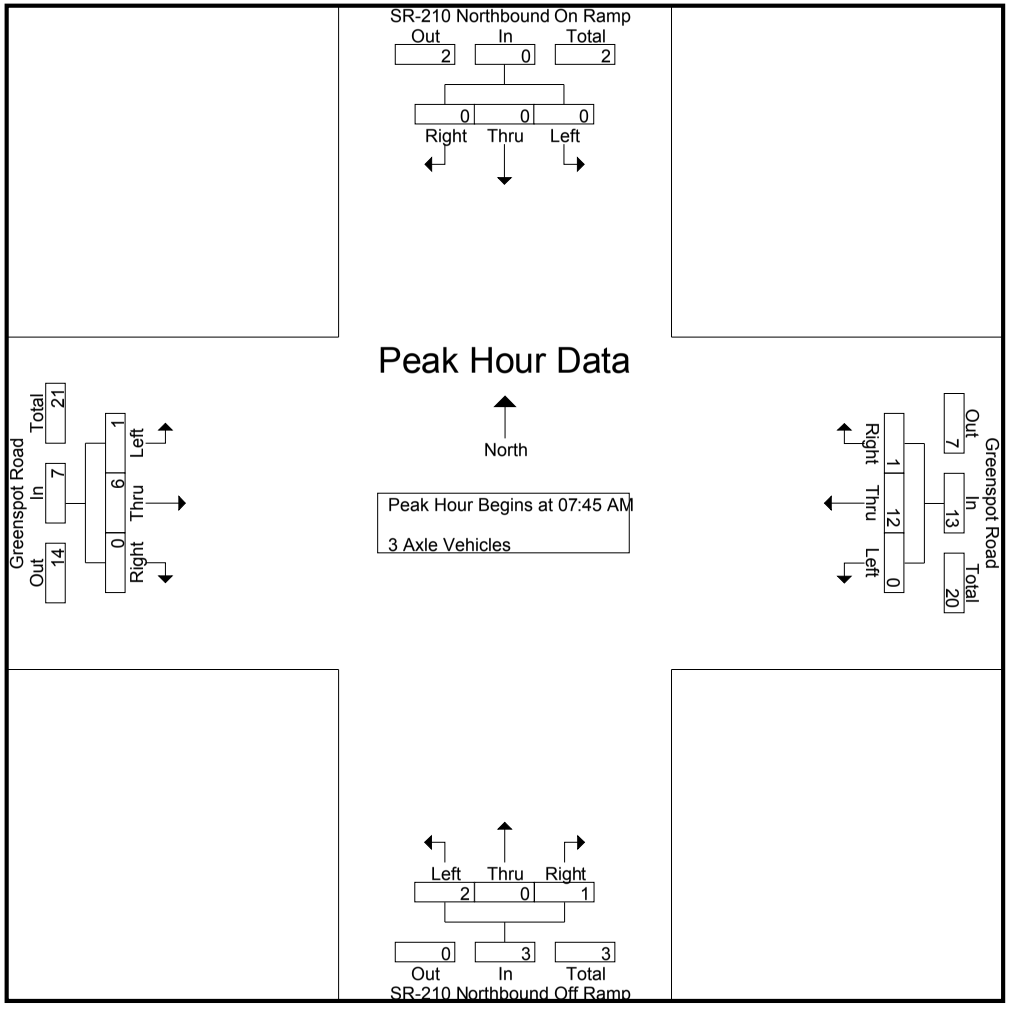
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				08:00 AM				07:30 AM				
+0 mins.	0	0	0	0	0	**6**	0	**6**	0	0	0	0	**2**	1	0	3	
+15 mins.	0	0	0	0	0	0	**1**	1	1	0	0	1	0	1	0	1	
+30 mins.	0	0	0	0	0	2	0	2	0	0	**1**	1	0	1	0	1	
+45 mins.	0	0	0	0	0	4	0	4	**2**	0	1	**3**	0	**4**	0	**4**	
Total Volume	0	0	0	0	0	12	1	13	3	0	2	5	2	7	0	9	
% App. Total	0	0	0		0	92.3	7.7		60	0	40		22.2	77.8	0		
PHF	.000	.000	.000	.000	.000	.500	.250	.542	.375	.000	.500	.417	.250	.438	.000	.563	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- 4+ Axle Trucks

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	2	0	3	1	0	3	0	4	0	1	0	0	1	0	8	8
07:15 AM	0	0	0	0	0	0	1	1	0	2	1	0	2	0	3	0	0	0	0	0	0	5	5
07:30 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2	0	5	5
07:45 AM	0	0	0	0	0	0	1	0	0	1	2	0	2	0	4	0	0	0	0	0	0	5	5
Total	0	0	0	0	0	0	4	3	0	7	6	0	7	0	13	0	3	0	0	3	0	23	23
08:00 AM	0	0	0	0	0	0	1	3	0	4	1	0	2	0	3	0	0	0	0	0	0	7	7
08:15 AM	0	0	0	0	0	0	2	3	0	5	3	0	1	0	4	0	0	0	0	0	0	9	9
08:30 AM	0	0	0	0	0	0	2	0	0	2	5	0	1	0	6	0	0	0	0	0	0	8	8
08:45 AM	0	0	0	0	0	0	1	0	0	1	5	0	1	0	6	1	0	0	0	1	0	8	8
Total	0	0	0	0	0	0	6	6	0	12	14	0	5	0	19	1	0	0	0	1	0	32	32
Grand Total	0	0	0	0	0	0	10	9	0	19	20	0	12	0	32	1	3	0	0	4	0	55	55
Apprch %	0	0	0			0	52.6	47.4			62.5	0	37.5			25	75	0					
Total %	0	0	0		0	0	18.2	16.4		34.5	36.4	0	21.8		58.2	1.8	5.5	0		7.3	0	100	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	1	**3**	4	1	0	**2**	3	0	0	0	0	7
08:15 AM	0	0	0	0	0	**2**	3	**5**	3	0	1	4	0	0	0	0	**9**
08:30 AM	0	0	0	0	0	2	0	2	**5**	0	1	**6**	0	0	0	0	8
08:45 AM	0	0	0	0	0	1	0	1	5	0	1	6	**1**	0	0	**1**	8
Total Volume	0	0	0	0	0	6	6	12	14	0	5	19	1	0	0	1	32
% App. Total	0	0	0		0	50	50		73.7	0	26.3		100	0	0		
PHF	.000	.000	.000	.000	.000	.750	.500	.600	.700	.000	.625	.792	.250	.000	.000	.250	.889

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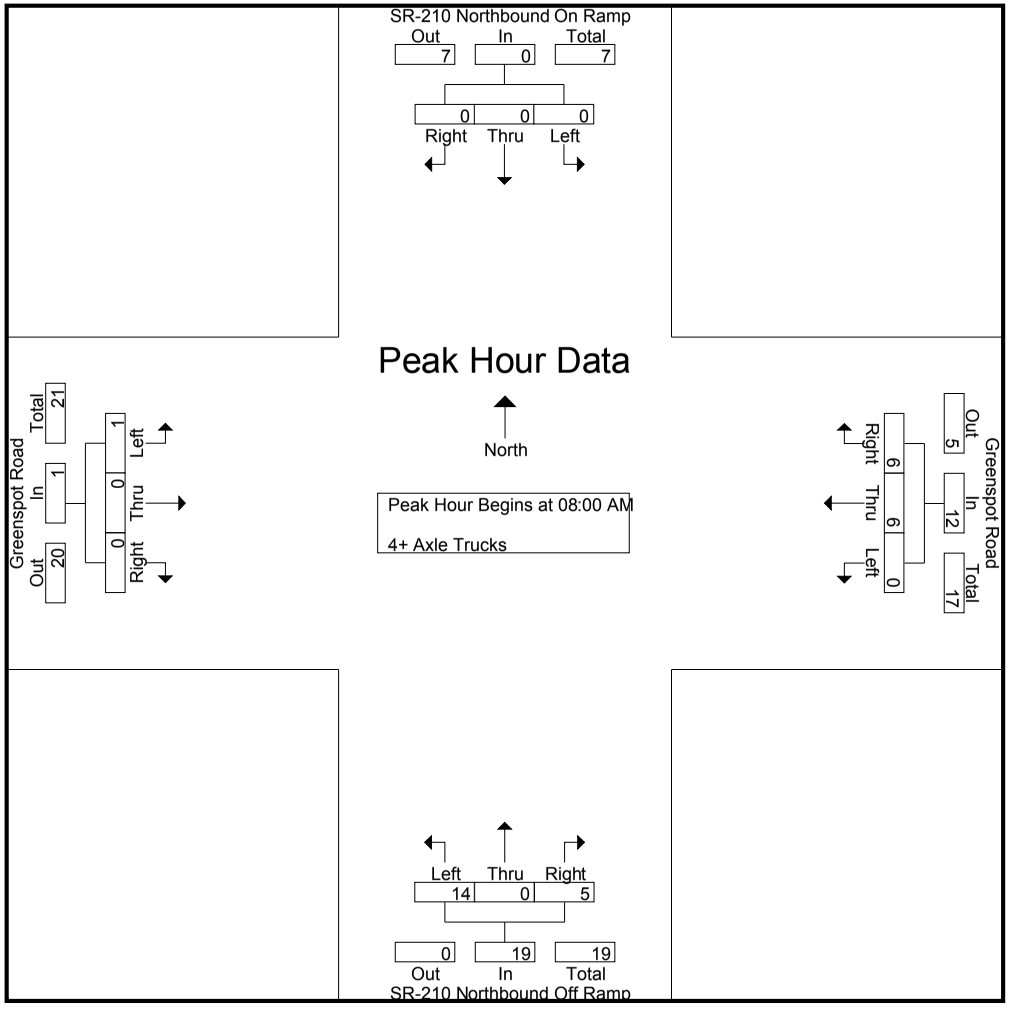
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210S5AM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:45 AM				08:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	1	0	1	1	0	**2**	3	0	1	0	1	
+15 mins.	0	0	0	0	0	1	**3**	4	3	0	1	4	0	0	0	0	
+30 mins.	0	0	0	0	0	**2**	3	**5**	**5**	0	1	**6**	0	**2**	0	**2**	
+45 mins.	0	0	0	0	0	2	0	2	5	0	1	6	0	0	0	0	
Total Volume	0	0	0	0	0	6	6	12	14	0	5	19	0	3	0	3	
% App. Total	0	0	0		0	50	50		73.7	0	26.3		0	100	0		
PHF	.000	.000	.000	.000	.000	.750	.500	.600	.700	.000	.625	.792	.000	.375	.000	.375	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	150	65	14	215	98	0	103	40	201	21	133	0	0	154	54	570	624
04:15 PM	0	0	0	0	0	0	144	56	17	200	98	1	108	45	207	10	104	0	0	114	62	521	583
04:30 PM	0	0	0	0	0	0	136	56	15	192	90	1	125	50	216	26	113	0	0	139	65	547	612
04:45 PM	0	0	0	0	0	0	153	49	10	202	84	0	121	37	205	20	172	0	0	192	47	599	646
Total	0	0	0	0	0	0	583	226	56	809	370	2	457	172	829	77	522	0	0	599	228	2237	2465
05:00 PM	0	0	0	0	0	0	164	56	22	220	79	0	144	38	223	18	174	0	0	192	60	635	695
05:15 PM	0	0	0	0	0	0	137	51	12	188	87	0	111	38	198	25	202	0	0	227	50	613	663
05:30 PM	0	0	0	0	0	0	129	59	16	188	86	1	149	51	236	15	152	0	0	167	67	591	658
05:45 PM	0	0	0	0	0	0	146	63	12	209	96	0	126	44	222	28	154	0	0	182	56	613	669
Total	0	0	0	0	0	0	576	229	62	805	348	1	530	171	879	86	682	0	0	768	233	2452	2685
Grand Total	0	0	0	0	0	0	1159	455	118	1614	718	3	987	343	1708	163	1204	0	0	1367	461	4689	5150
Apprch %	0	0	0			0	71.8	28.2			42	0.2	57.8			11.9	88.1	0					
Total %	0	0	0		0	0	24.7	9.7		34.4	15.3	0.1	21		36.4	3.5	25.7	0		29.2	9	91	
Passenger Vehicles	0	0	0		0	0	1146	450		1713	688	3	983		2016	158	1184	0		1342	0	0	5071
% Passenger Vehicles	0	0	0	0	0	0	98.9	98.9	99.2	98.9	95.8	100	99.6	99.7	98.3	96.9	98.3	0	0	98.2	0	0	98.5
Large 2 Axle Vehicles	0	0	0		0	0	8	1		9	7	0	2		9	3	1	0		4	0	0	22
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.7	0.2	0	0.5	1	0	0.2	0	0.4	1.8	0.1	0	0	0.3	0	0	0.4
3 Axle Vehicles	0	0	0		0	0	1	0		1	8	0	1		9	1	1	0		2	0	0	12
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0.1	1.1	0	0.1	0	0.4	0.6	0.1	0	0	0.1	0	0	0.2
4+ Axle Trucks	0	0	0		0	0	4	4		9	15	0	1		17	1	18	0		19	0	0	45
% 4+ Axle Trucks	0	0	0	0	0	0	0.3	0.9	0.8	0.5	2.1	0	0.1	0.3	0.8	0.6	1.5	0	0	1.4	0	0	0.9

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**164**	56	**220**	79	0	144	223	18	174	0	192	**635**
05:15 PM	0	0	0	0	0	137	51	188	87	0	111	198	25	**202**	0	**227**	613
05:30 PM	0	0	0	0	0	129	59	188	86	**1**	**149**	**236**	15	152	0	167	591
05:45 PM	0	0	0	0	0	146	**63**	209	**96**	0	126	222	**28**	154	0	182	613
Total Volume	0	0	0	0	0	576	229	805	348	1	530	879	86	682	0	768	2452
% App. Total	0	0	0		0	71.6	28.4		39.6	0.1	60.3		11.2	88.8	0		
PHF	.000	.000	.000	.000	.000	.878	.909	.915	.906	.250	.889	.931	.768	.844	.000	.846	.965

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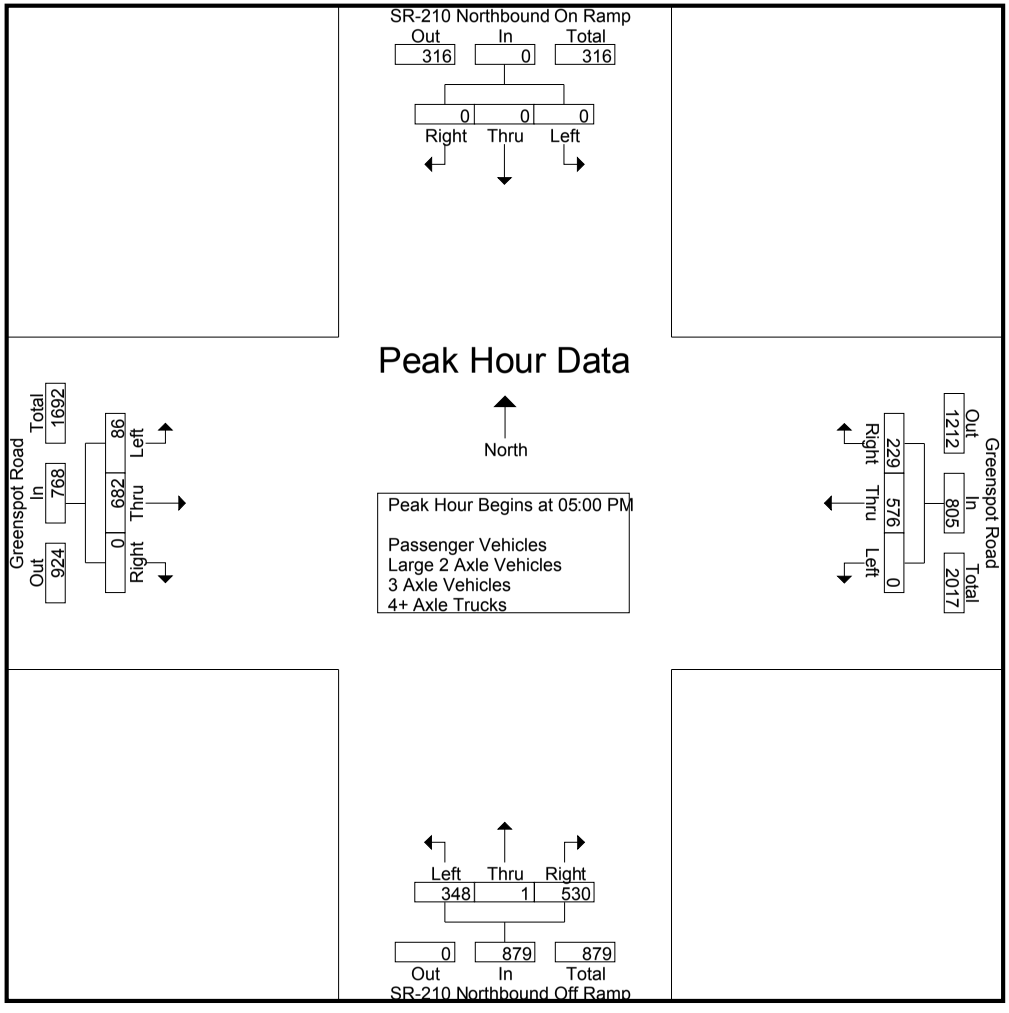
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:15 PM				05:00 PM				04:45 PM				
+0 mins.	0	0	0	0	0	144	**56**	200	79	0	144	223	20	172	0	192	
+15 mins.	0	0	0	0	0	136	56	192	87	0	111	198	18	174	0	192	
+30 mins.	0	0	0	0	0	153	49	202	86	**1**	**149**	**236**	**25**	**202**	0	**227**	
+45 mins.	0	0	0	0	0	**164**	56	**220**	**96**	0	126	222	15	152	0	167	
Total Volume	0	0	0	0	0	597	217	814	348	1	530	879	78	700	0	778	
% App. Total	0	0	0		0	73.3	26.7		39.6	0.1	60.3		10	90	0		
PHF	.000	.000	.000	.000	.000	.910	.969	.925	.906	.250	.889	.931	.780	.866	.000	.857	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Passenger Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	146	63	14	209	91	0	103	40	194	19	126	0	0	145	54	548	602
04:15 PM	0	0	0	0	0	0	144	56	17	200	95	1	108	45	204	10	101	0	0	111	62	515	577
04:30 PM	0	0	0	0	0	0	134	54	14	188	86	1	125	50	212	24	110	0	0	134	64	534	598
04:45 PM	0	0	0	0	0	0	150	49	10	199	79	0	120	37	199	20	168	0	0	188	47	586	633
Total	0	0	0	0	0	0	574	222	55	796	351	2	456	172	809	73	505	0	0	578	227	2183	2410
05:00 PM	0	0	0	0	0	0	163	55	22	218	77	0	144	38	221	17	173	0	0	190	60	629	689
05:15 PM	0	0	0	0	0	0	136	51	12	187	83	0	110	38	193	25	200	0	0	225	50	605	655
05:30 PM	0	0	0	0	0	0	128	59	16	187	84	1	148	50	233	15	152	0	0	167	66	587	653
05:45 PM	0	0	0	0	0	0	145	63	12	208	93	0	125	44	218	28	154	0	0	182	56	608	664
Total	0	0	0	0	0	0	572	228	62	800	337	1	527	170	865	85	679	0	0	764	232	2429	2661
Grand Total	0	0	0	0	0	0	1146	450	117	1596	688	3	983	342	1674	158	1184	0	0	1342	459	4612	5071
Apprch %	0	0	0			0	71.8	28.2			41.1	0.2	58.7			11.8	88.2	0					
Total %	0	0	0		0	0	24.8	9.8		34.6	14.9	0.1	21.3		36.3	3.4	25.7	0		29.1	9.1	90.9	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**163**	55	**218**	77	0	144	221	17	173	0	190	**629**
05:15 PM	0	0	0	0	0	136	51	187	83	0	110	193	25	**200**	0	**225**	605
05:30 PM	0	0	0	0	0	128	59	187	84	**1**	**148**	**233**	15	152	0	167	587
05:45 PM	0	0	0	0	0	145	**63**	208	**93**	0	125	218	**28**	154	0	182	608
Total Volume	0	0	0	0	0	572	228	800	337	1	527	865	85	679	0	764	2429
% App. Total	0	0	0		0	71.5	28.5		39	0.1	60.9		11.1	88.9	0		
PHF	.000	.000	.000	.000	.000	.877	.905	.917	.906	.250	.890	.928	.759	.849	.000	.849	.965

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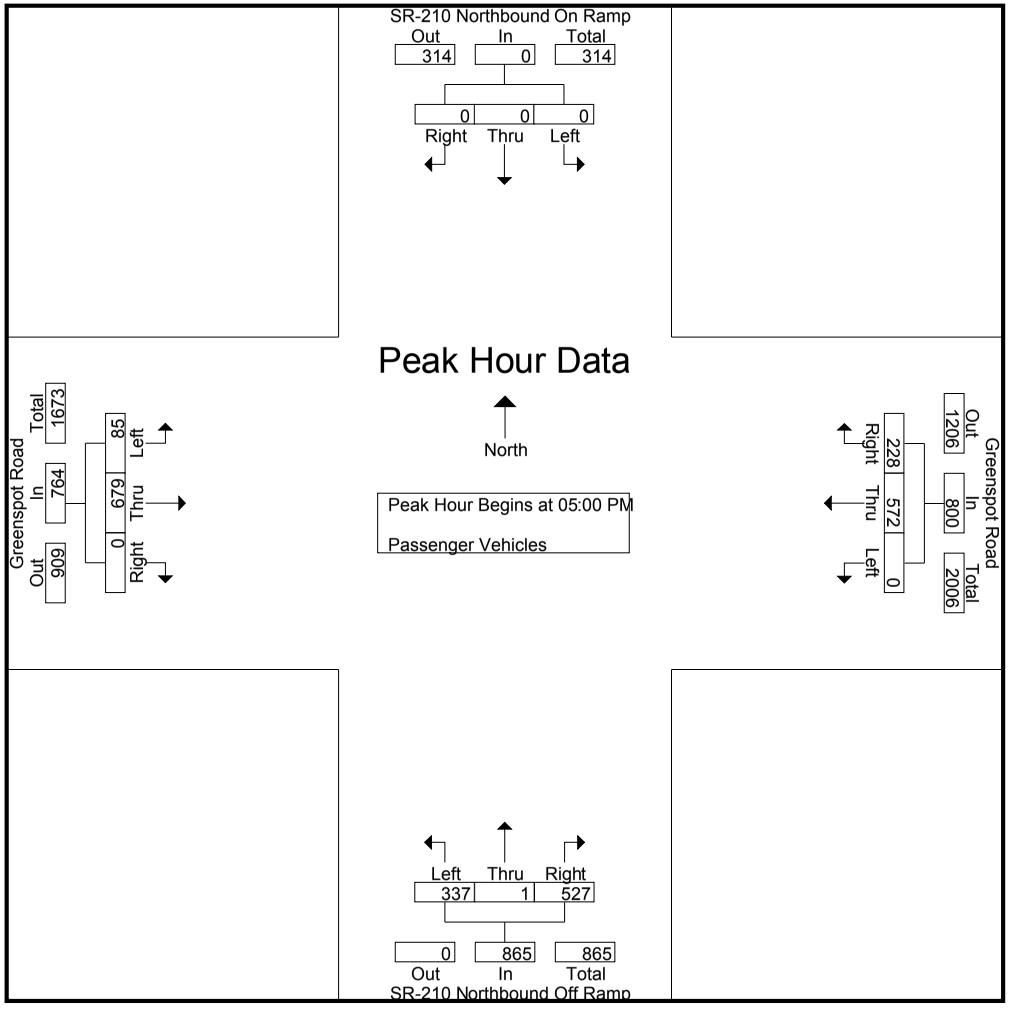
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	**163**	55	**218**	77	0	144	221	17	173	0	190	
+15 mins.	0	0	0	0	0	136	51	187	83	0	110	193	25	**200**	0	**225**	
+30 mins.	0	0	0	0	0	128	59	187	84	**1**	**148**	**233**	15	152	0	167	
+45 mins.	0	0	0	0	0	145	**63**	208	**93**	0	125	218	**28**	154	0	182	
Total Volume	0	0	0	0	0	572	228	800	337	1	527	865	85	679	0	764	
% App. Total	0	0	0		0	71.5	28.5		39	0.1	60.9		11.1	88.9	0		
PHF	.000	.000	.000	.000	.000	.877	.905	.917	.906	.250	.890	.928	.759	.849	.000	.849	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	1	0	2	4	0	0	0	4	1	1	0	0	2	0	8	8
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2	0	0	0	2	0	4	4
04:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	3	3
Total	0	0	0	0	0	0	4	1	0	5	6	0	0	0	6	3	1	0	0	4	0	15	15
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	4	0	0	4	1	0	2	0	3	0	0	0	0	0	0	7	7
Grand Total	0	0	0	0	0	0	8	1	0	9	7	0	2	0	9	3	1	0	0	4	0	22	22
Apprch %	0	0	0			0	88.9	11.1			77.8	0	22.2			75	25	0					
Total %	0	0	0		0	0	36.4	4.5		40.9	31.8	0	9.1		40.9	13.6	4.5	0		18.2	0	100	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	1	0	1	0	0	**1**	**1**	0	0	0	0	**2**
05:30 PM	0	0	0	0	0	1	0	1	**1**	0	0	1	0	0	0	0	2
05:45 PM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
Total Volume	0	0	0	0	0	4	0	4	1	0	2	3	0	0	0	0	7
% App. Total	0	0	0		0	100	0		33.3	0	66.7		0	0	0		
PHF	.000	.000	.000	.000	.000	1.00	.000	1.00	.250	.000	.500	.750	.000	.000	.000	.000	.875

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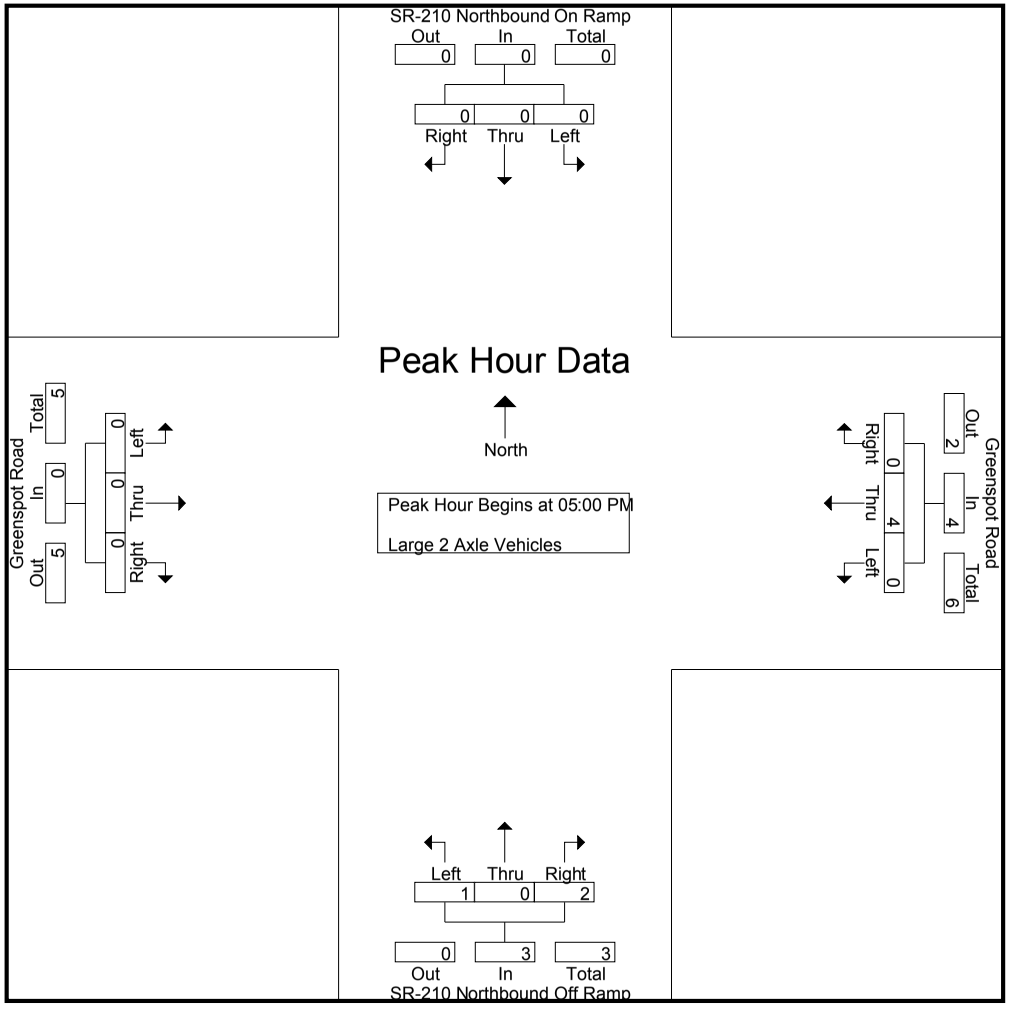
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	1	0	1	0	0	**1**	**1**	0	0	0	0	
+30 mins.	0	0	0	0	0	1	0	1	**1**	0	0	1	0	0	0	0	
+45 mins.	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	
Total Volume	0	0	0	0	0	4	0	4	1	0	2	3	0	0	0	0	
% App. Total	0	0	0		0	100	0		33.3	0	66.7		0	0	0		
PHF	.000	.000	.000	.000	.000	1.000	.000	1.000	.250	.000	.500	.750	.000	.000	.000	.000	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- 3 Axle Vehicles

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	1	0	0	0	1	0	4	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	4	0	1	0	5	1	1	0	0	2	0	8	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	4	4
Grand Total	0	0	0	0	0	0	1	0	0	1	8	0	1	0	9	1	1	0	0	2	0	12	12
Apprch %	0	0	0			0	100	0			88.9	0	11.1			50	50	0					
Total %	0	0	0		0	0	8.3	0		8.3	66.7	0	8.3		75	8.3	8.3	0		16.7	0	100	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	**1**
05:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
% App. Total	0	0	0		0	0	0		100	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	1.00	.000	.000	1.00	.000	.000	.000	.000	1.00

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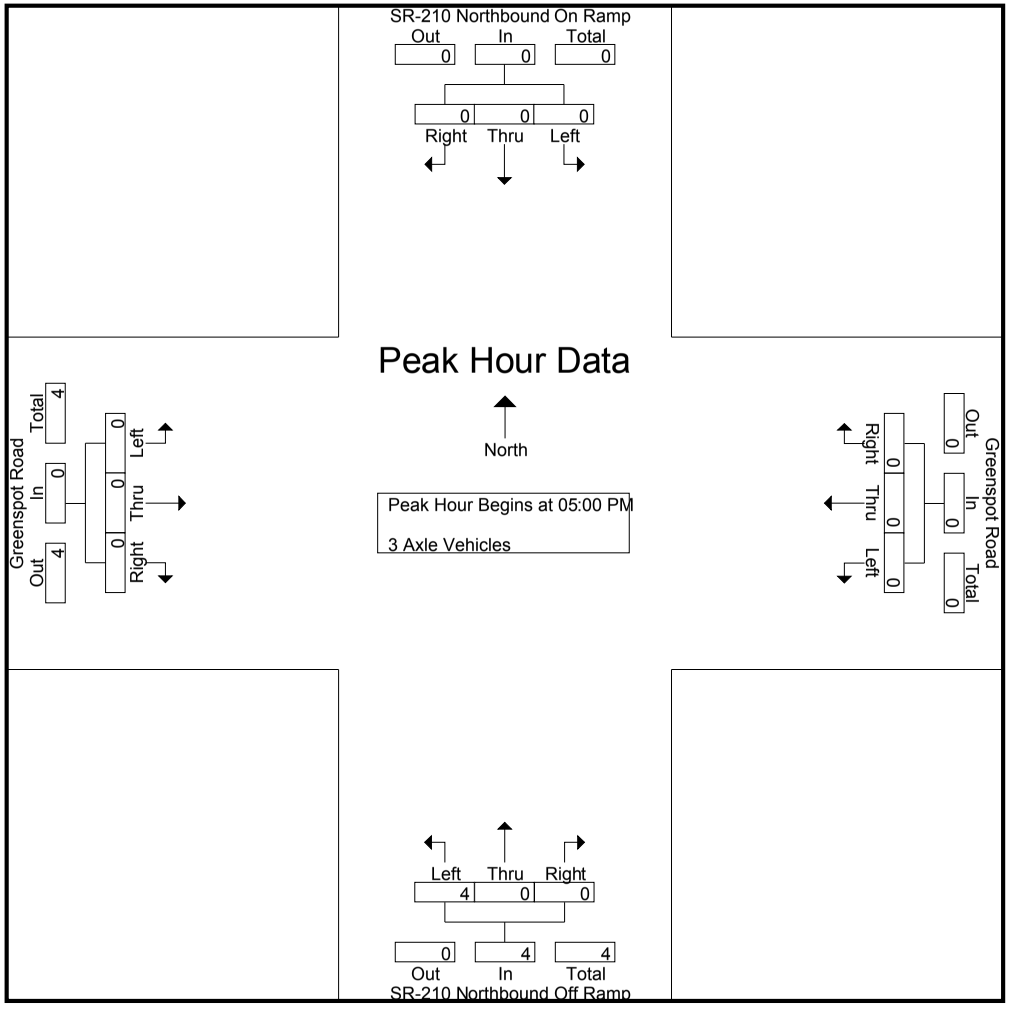
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	
% App. Total	0	0	0		0	0	0		100	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000	1.000	.000	.000	.000	.000	

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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 1

Groups Printed- 4+ Axle Trucks

	SR-210 Northbound On Ramp Southbound					Greenspot Road Westbound					SR-210 Northbound Off Ramp Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	6	0	0	6	0	10	10
04:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	3	0	0	3	0	5	5
04:30 PM	0	0	0	0	0	0	1	2	1	3	2	0	0	0	2	0	2	0	0	2	1	7	8
04:45 PM	0	0	0	0	0	0	1	0	0	1	4	0	0	0	4	0	4	0	0	4	0	9	9
Total	0	0	0	0	0	0	4	3	1	7	9	0	0	0	9	0	15	0	0	15	1	31	32
05:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	1	1	0	0	2	0	4	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	2	0	0	2	0	5	5
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	0	1	0	1	6	0	1	1	7	1	3	0	0	4	1	12	13
Grand Total	0	0	0	0	0	0	4	4	1	8	15	0	1	1	16	1	18	0	0	19	2	43	45
Apprch %	0	0	0			0	50	50			93.8	0	6.2			5.3	94.7	0					
Total %	0	0	0		0	0	9.3	9.3		18.6	34.9	0	2.3		37.2	2.3	41.9	0		44.2	4.4	95.6	

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	**1**	**1**	1	0	0	1	**1**	1	0	**2**	4
05:15 PM	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	**2**	0	2	**5**
05:30 PM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total Volume	0	0	0	0	0	0	1	1	6	0	1	7	1	3	0	4	12
% App. Total	0	0	0		0	0	100		85.7	0	14.3		25	75	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.500	.000	.250	.583	.250	.375	.000	.500	.600

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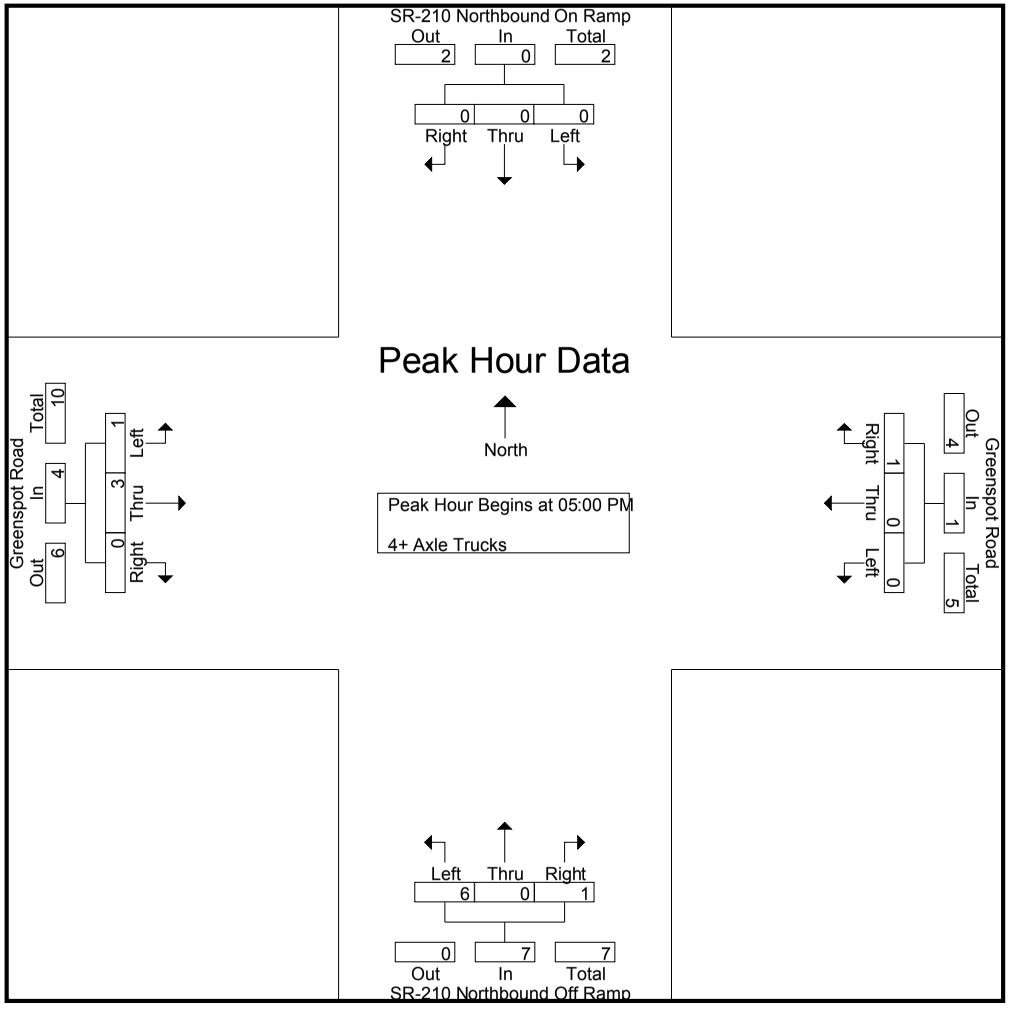
City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: SR-210 Northbound Ramps
E/W: Greenspot Road
Weather: Clear

File Name : HLD210NGSPM
Site Code : 00000111
Start Date : 6/5/2014
Page No : 3

	SR-210 Northbound On Ramp Southbound				Greenspot Road Westbound				SR-210 Northbound Off Ramp Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				05:00 PM				05:00 PM				
+0 mins.	0	0	0	0	0	0	**1**	**1**	1	0	0	1	**1**	1	0	**2**	
+15 mins.	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	**2**	0	2	
+30 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	
Total Volume	0	0	0	0	0	0	1	1	6	0	1	7	1	3	0	4	
% App. Total	0	0	0		0	0	100		85.7	0	14.3		25	75	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.500	.000	.250	.583	.250	.375	.000	.500	

Location: Highland
N/S: SR-210 NB Ramps
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Pedestrians

	North Leg SR-210 NB Ramps	East Leg Greenspot Road	South Leg SR-210 NB Ramps	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	2	0	1	0	3
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	1	0	3

	North Leg SR-210 NB Ramps	East Leg Greenspot Road	South Leg SR-210 NB Ramps	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	2	0	3

Location: Highland
N/S: SR-210 NB Ramps
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Bicycles

	North Leg SR-210 NB Ramps	East Leg Greenspot Road	South Leg SR-210 NB Ramps	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

	North Leg SR-210 NB Ramps	East Leg Greenspot Road	South Leg SR-210 NB Ramps	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	1	0	1	0	2
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	2	0	3

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City of Highland
N/S: Boulder Avenue
E/W: Greenspot Road
Weather: Clear

File Name : HLDBOGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Boulder Avenue Southbound					Greenspot Road Westbound					Boulder Avenue Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	8	120	0	0	128	129	208	6	0	343	18	29	62	33	109	0	48	18	1	66	34	646	680
07:15 AM	8	54	0	0	62	80	207	6	0	293	19	42	116	25	177	1	73	25	1	99	26	631	657
07:30 AM	13	45	0	0	58	94	245	8	0	347	31	53	90	13	174	2	74	14	0	90	13	669	682
07:45 AM	14	44	0	0	58	60	200	12	0	272	26	47	50	3	123	4	90	23	0	117	3	570	573
Total	43	263	0	0	306	363	860	32	0	1255	94	171	318	74	583	7	285	80	2	372	76	2516	2592
08:00 AM	11	31	0	0	42	50	134	18	2	202	23	25	41	3	89	1	66	14	2	81	7	414	421
08:15 AM	5	52	0	0	57	72	173	33	4	278	16	34	35	10	85	1	71	13	2	85	16	505	521
08:30 AM	16	35	0	0	51	57	167	30	8	254	21	30	46	10	97	5	72	11	5	88	23	490	513
08:45 AM	13	22	0	0	35	46	136	4	0	186	18	25	28	9	71	2	62	15	1	79	10	371	381
Total	45	140	0	0	185	225	610	85	14	920	78	114	150	32	342	9	271	53	10	333	56	1780	1836
Grand Total	88	403	0	0	491	588	1470	117	14	2175	172	285	468	106	925	16	556	133	12	705	132	4296	4428
Apprch %	17.9	82.1	0			27	67.6	5.4			18.6	30.8	50.6			2.3	78.9	18.9					
Total %	2	9.4	0		11.4	13.7	34.2	2.7		50.6	4	6.6	10.9		21.5	0.4	12.9	3.1		16.4	3	97	

	Boulder Avenue Southbound				Greenspot Road Westbound				Boulder Avenue Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	8	**120**	0	**128**	**129**	208	6	343	18	29	62	109	0	48	18	66	646
07:15 AM	8	54	0	62	80	207	6	293	19	42	**116**	**177**	1	73	**25**	99	631
07:30 AM	13	45	0	58	94	**245**	8	**347**	**31**	**53**	90	174	2	74	14	90	**669**
07:45 AM	**14**	44	0	58	60	200	**12**	272	26	47	50	123	**4**	**90**	23	**117**	570
Total Volume	43	263	0	306	363	860	32	1255	94	171	318	583	7	285	80	372	2516
% App. Total	14.1	85.9	0		28.9	68.5	2.5		16.1	29.3	54.5		1.9	76.6	21.5		
PHF	.768	.548	.000	.598	.703	.878	.667	.904	.758	.807	.685	.823	.438	.792	.800	.795	.940

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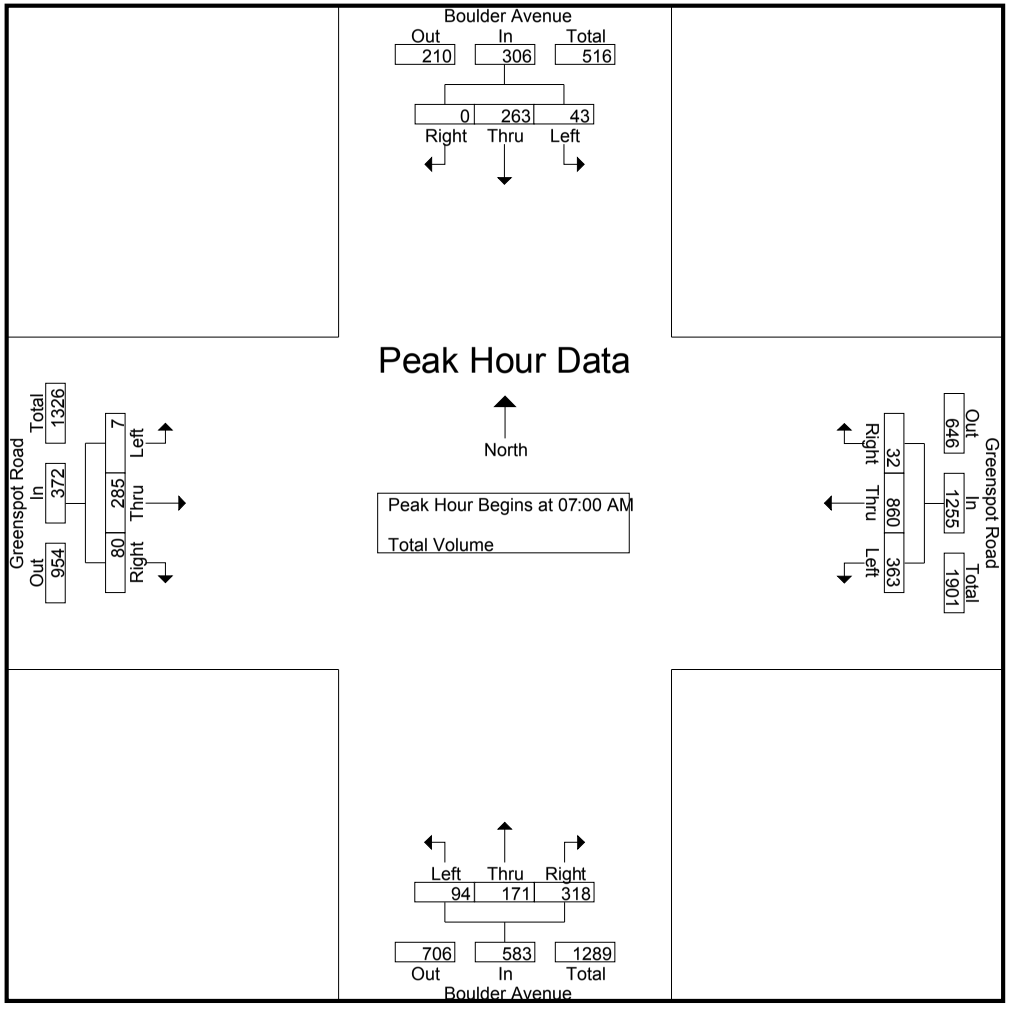
City of Highland
N/S: Boulder Avenue
E/W: Greenspot Road
Weather: Clear

File Name : HLDBOGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: Boulder Avenue
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Site Code : 051
Start Date : 6/5/2014
Page No : 3

	Boulder Avenue Southbound				Greenspot Road Westbound				Boulder Avenue Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	8	**120**	0	**128**	**129**	208	6	343	18	29	62	109	1	73	**25**	99	
+15 mins.	8	54	0	62	80	207	6	293	19	42	**116**	**177**	2	74	14	90	
+30 mins.	13	45	0	58	94	**245**	8	**347**	**31**	**53**	90	174	**4**	**90**	23	**117**	
+45 mins.	**14**	44	0	58	60	200	**12**	272	26	47	50	123	1	66	14	81	
Total Volume	43	263	0	306	363	860	32	1255	94	171	318	583	8	303	76	387	
% App. Total	14.1	85.9	0		28.9	68.5	2.5		16.1	29.3	54.5		2.1	78.3	19.6		
PHF	.768	.548	.000	.598	.703	.878	.667	.904	.758	.807	.685	.823	.500	.842	.760	.827	

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City of Highland
N/S: Boulder Avenue
E/W: Greenspot Road
Weather: Clear

File Name : HLDBOGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Boulder Avenue Southbound					Greenspot Road Westbound					Boulder Avenue Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	20	45	0	0	65	61	92	8	0	161	33	59	65	43	157	3	133	26	8	162	51	545	596
04:15 PM	19	47	0	0	66	60	104	6	1	170	37	65	105	53	207	2	116	31	5	149	59	592	651
04:30 PM	17	60	3	3	80	49	98	10	3	157	32	75	105	56	212	2	123	26	4	151	66	600	666
04:45 PM	22	67	3	2	92	79	128	12	4	219	31	75	89	48	195	3	155	62	3	220	57	726	783
Total	78	219	6	5	303	249	422	36	8	707	133	274	364	200	771	10	527	145	20	682	233	2463	2696
05:00 PM	19	82	2	0	103	81	121	5	1	207	36	67	98	60	201	3	145	65	3	213	64	724	788
05:15 PM	19	82	4	2	105	59	104	12	3	175	32	97	129	75	258	2	166	96	19	264	99	802	901
05:30 PM	30	88	1	0	119	80	108	5	0	193	29	63	104	61	196	3	178	74	5	255	66	763	829
05:45 PM	14	52	1	1	67	84	129	6	1	219	38	70	83	57	191	7	163	43	3	213	62	690	752
Total	82	304	8	3	394	304	462	28	5	794	135	297	414	253	846	15	652	278	30	945	291	2979	3270
Grand Total	160	523	14	8	697	553	884	64	13	1501	268	571	778	453	1617	25	1179	423	50	1627	524	5442	5966
Apprch %	23	75	2			36.8	58.9	4.3			16.6	35.3	48.1			1.5	72.5	26					
Total %	2.9	9.6	0.3		12.8	10.2	16.2	1.2		27.6	4.9	10.5	14.3		29.7	0.5	21.7	7.8		29.9	8.8	91.2	

	Boulder Avenue Southbound				Greenspot Road Westbound				Boulder Avenue Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	22	67	3	92	79	**128**	**12**	**219**	31	75	89	195	**3**	155	62	220	726
05:00 PM	19	82	2	103	**81**	121	5	207	**36**	67	98	201	3	145	65	213	724
05:15 PM	19	82	**4**	105	59	104	12	175	32	**97**	**129**	**258**	2	166	**96**	**264**	**802**
05:30 PM	**30**	**88**	1	**119**	80	108	5	193	29	63	104	196	3	**178**	74	255	763
Total Volume	90	319	10	419	299	461	34	794	128	302	420	850	11	644	297	952	3015
% App. Total	21.5	76.1	2.4		37.7	58.1	4.3		15.1	35.5	49.4		1.2	67.6	31.2		
PHF	.750	.906	.625	.880	.923	.900	.708	.906	.889	.778	.814	.824	.917	.904	.773	.902	.940

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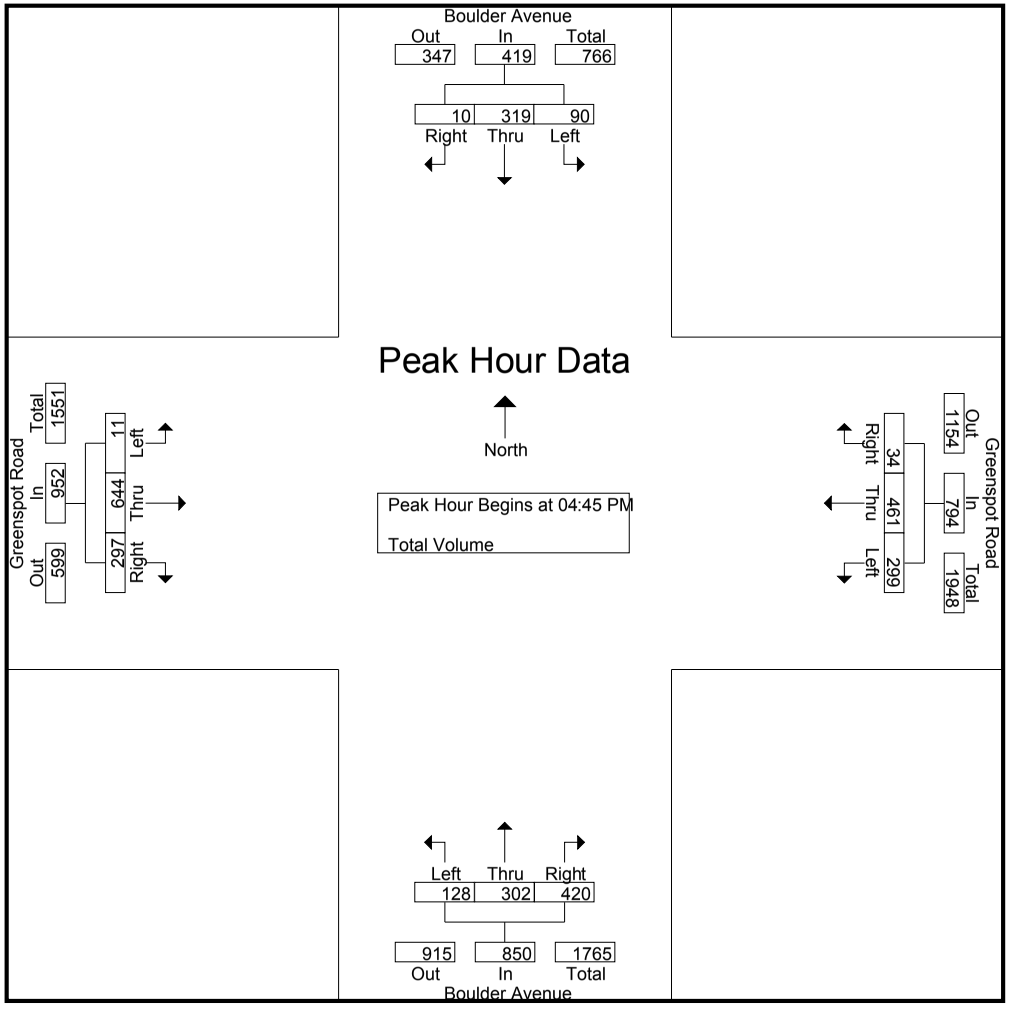
City of Highland
N/S: Boulder Avenue
E/W: Greenspot Road
Weather: Clear

File Name : HLDBOGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: Boulder Avenue
E/W: Greenspot Road
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File Name : HLDBOGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	Boulder Avenue Southbound				Greenspot Road Westbound				Boulder Avenue Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:30 PM				04:45 PM				
+0 mins.	22	67	3	92	79	**128**	**12**	**219**	32	75	105	212	**3**	155	62	220	
+15 mins.	19	82	2	103	**81**	121	5	207	31	75	89	195	3	145	65	213	
+30 mins.	19	82	**4**	105	59	104	12	175	**36**	67	98	201	2	166	**96**	**264**	
+45 mins.	**30**	**88**	1	**119**	80	108	5	193	32	**97**	**129**	**258**	3	**178**	74	255	
Total Volume	90	319	10	419	299	461	34	794	131	314	421	866	11	644	297	952	
% App. Total	21.5	76.1	2.4		37.7	58.1	4.3		15.1	36.3	48.6		1.2	67.6	31.2		
PHF	.750	.906	.625	.880	.923	.900	.708	.906	.910	.809	.816	.839	.917	.904	.773	.902	

Location: Highland
N/S: Boulder Avenue
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Pedestrians

	North Leg Boulder Avenue	East Leg Greenspot Road	South Leg Boulder Avenue	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Boulder Avenue	East Leg Greenspot Road	South Leg Boulder Avenue	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1
4:45 PM	0	2	0	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	0	3

Location: Highland
N/S: Boulder Avenue
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Bicycles

	North Leg Boulder Avenue	East Leg Greenspot Road	South Leg Boulder Avenue	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	1	0	1	2	4
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	2	1	2	6

	North Leg Boulder Avenue	East Leg Greenspot Road	South Leg Boulder Avenue	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIAM
Site Code : 05114177
Start Date : 4/30/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	31	83	93	207	29	13	18	60	6	28	5	39	63	15	14	92	398
07:15 AM	17	76	22	115	27	13	28	68	7	51	5	63	61	19	21	101	347
07:30 AM	26	96	18	140	23	12	41	76	5	46	3	54	13	19	12	44	314
07:45 AM	33	87	14	134	11	14	36	61	6	53	3	62	15	5	5	25	282
Total	107	342	147	596	90	52	123	265	24	178	16	218	152	58	52	262	1341
08:00 AM	17	67	7	91	17	7	22	46	9	48	4	61	4	4	7	15	213
08:15 AM	29	71	11	111	12	7	28	47	3	64	4	71	9	4	6	19	248
08:30 AM	16	48	12	76	16	11	23	50	6	43	4	53	5	3	15	23	202
08:45 AM	16	57	10	83	9	10	17	36	7	34	5	46	7	3	4	14	179
Total	78	243	40	361	54	35	90	179	25	189	17	231	25	14	32	71	842
Grand Total	185	585	187	957	144	87	213	444	49	367	33	449	177	72	84	333	2183
Apprch %	19.3	61.1	19.5		32.4	19.6	48		10.9	81.7	7.3		53.2	21.6	25.2		
Total %	8.5	26.8	8.6	43.8	6.6	4	9.8	20.3	2.2	16.8	1.5	20.6	8.1	3.3	3.8	15.3	
Passenger Vehicles	178	572	187	937	143	86	212	441	49	352	33	434	177	69	83	329	2141
% Passenger Vehicles	96.2	97.8	100	97.9	99.3	98.9	99.5	99.3	100	95.9	100	96.7	100	95.8	98.8	98.8	98.1
Large 2 Axle Vehicles	7	11	0	18	1	0	1	2	0	13	0	13	0	2	1	3	36
% Large 2 Axle Vehicles	3.8	1.9	0	1.9	0.7	0	0.5	0.5	0	3.5	0	2.9	0	2.8	1.2	0.9	1.6
3 Axle Vehicles	0	2	0	2	0	1	0	1	0	1	0	1	0	1	0	1	5
% 3 Axle Vehicles	0	0.3	0	0.2	0	1.1	0	0.2	0	0.3	0	0.2	0	1.4	0	0.3	0.2
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0.3	0	0.2	0	0	0	0	0

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	31	83	**93**	**207**	**29**	13	18	60	6	28	**5**	39	**63**	15	14	92	**398**
07:15 AM	17	76	22	115	27	13	28	68	**7**	51	5	**63**	61	**19**	**21**	**101**	347
07:30 AM	26	**96**	18	140	23	12	**41**	**76**	5	46	3	54	13	19	12	44	314
07:45 AM	**33**	87	14	134	11	**14**	36	61	6	**53**	3	62	15	5	5	25	282
Total Volume	107	342	147	596	90	52	123	265	24	178	16	218	152	58	52	262	1341
% App. Total	18	57.4	24.7		34	19.6	46.4		11	81.7	7.3		58	22.1	19.8		
PHF	.811	.891	.395	.720	.776	.929	.750	.872	.857	.840	.800	.865	.603	.763	.619	.649	.842

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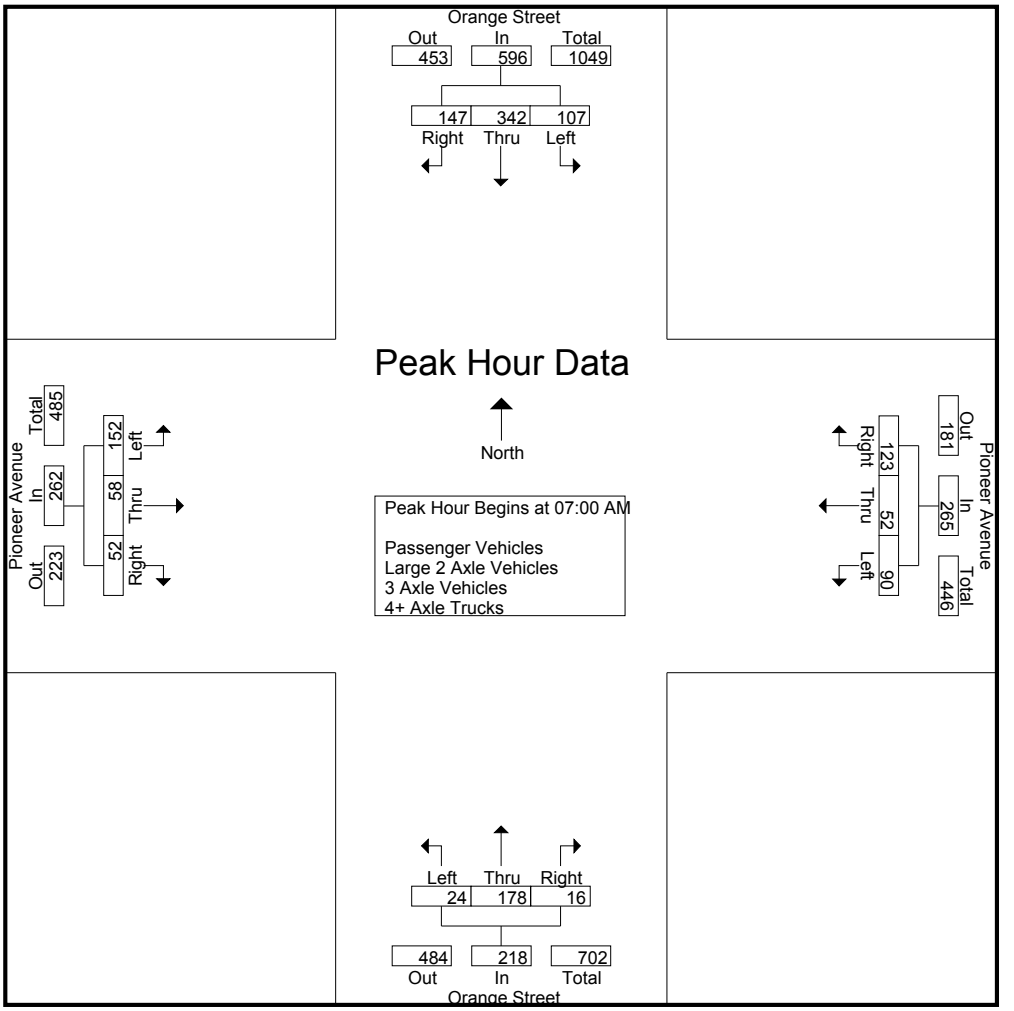
City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIAM
Site Code : 05114177
Start Date : 4/30/2014
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:30 AM				07:00 AM			
+0 mins.	31	83	**93**	**207**	**29**	13	18	60	5	46	3	54	**63**	15	14	92
+15 mins.	17	76	22	115	27	13	28	68	6	53	3	62	61	**19**	**21**	**101**
+30 mins.	26	**96**	18	140	23	12	**41**	**76**	**9**	48	**4**	61	13	19	12	44
+45 mins.	**33**	87	14	134	11	**14**	36	61	3	**64**	4	**71**	15	5	5	25
Total Volume	107	342	147	596	90	52	123	265	23	211	14	248	152	58	52	262
% App. Total	18	57.4	24.7		34	19.6	46.4		9.3	85.1	5.6		58	22.1	19.8	
PHF	.811	.891	.395	.720	.776	.929	.750	.872	.639	.824	.875	.873	.603	.763	.619	.649

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(951) 268-6268

City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIAM
Site Code : 05114177
Start Date : 4/30/2014
Page No : 1

Groups Printed- Passenger Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	30	80	93	203	28	13	18	59	6	26	5	37	63	14	14	91	390
07:15 AM	17	76	22	115	27	13	28	68	7	50	5	62	61	18	21	100	345
07:30 AM	25	95	18	138	23	12	41	76	5	46	3	54	13	18	11	42	310
07:45 AM	33	85	14	132	11	14	36	61	6	49	3	58	15	5	5	25	276
Total	105	336	147	588	89	52	123	264	24	171	16	211	152	55	51	258	1321
08:00 AM	17	66	7	90	17	7	22	46	9	44	4	57	4	4	7	15	208
08:15 AM	28	68	11	107	12	7	27	46	3	60	4	67	9	4	6	19	239
08:30 AM	15	46	12	73	16	11	23	50	6	43	4	53	5	3	15	23	199
08:45 AM	13	56	10	79	9	9	17	35	7	34	5	46	7	3	4	14	174
Total	73	236	40	349	54	34	89	177	25	181	17	223	25	14	32	71	820
Grand Total	178	572	187	937	143	86	212	441	49	352	33	434	177	69	83	329	2141
Apprch %	19	61	20		32.4	19.5	48.1		11.3	81.1	7.6		53.8	21	25.2		
Total %	8.3	26.7	8.7	43.8	6.7	4	9.9	20.6	2.3	16.4	1.5	20.3	8.3	3.2	3.9	15.4	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	30	80	**93**	**203**	**28**	13	18	59	6	26	**5**	37	**63**	14	14	91	**390**
07:15 AM	17	76	22	115	27	13	28	68	**7**	**50**	5	**62**	61	**18**	**21**	**100**	345
07:30 AM	25	**95**	18	138	23	12	**41**	**76**	5	46	3	54	13	18	11	42	310
07:45 AM	**33**	85	14	132	11	**14**	36	61	6	49	3	58	15	5	5	25	276
Total Volume	105	336	147	588	89	52	123	264	24	171	16	211	152	55	51	258	1321
% App. Total	17.9	57.1	25		33.7	19.7	46.6		11.4	81	7.6		58.9	21.3	19.8		
PHF	.795	.884	.395	.724	.795	.929	.750	.868	.857	.855	.800	.851	.603	.764	.607	.645	.847

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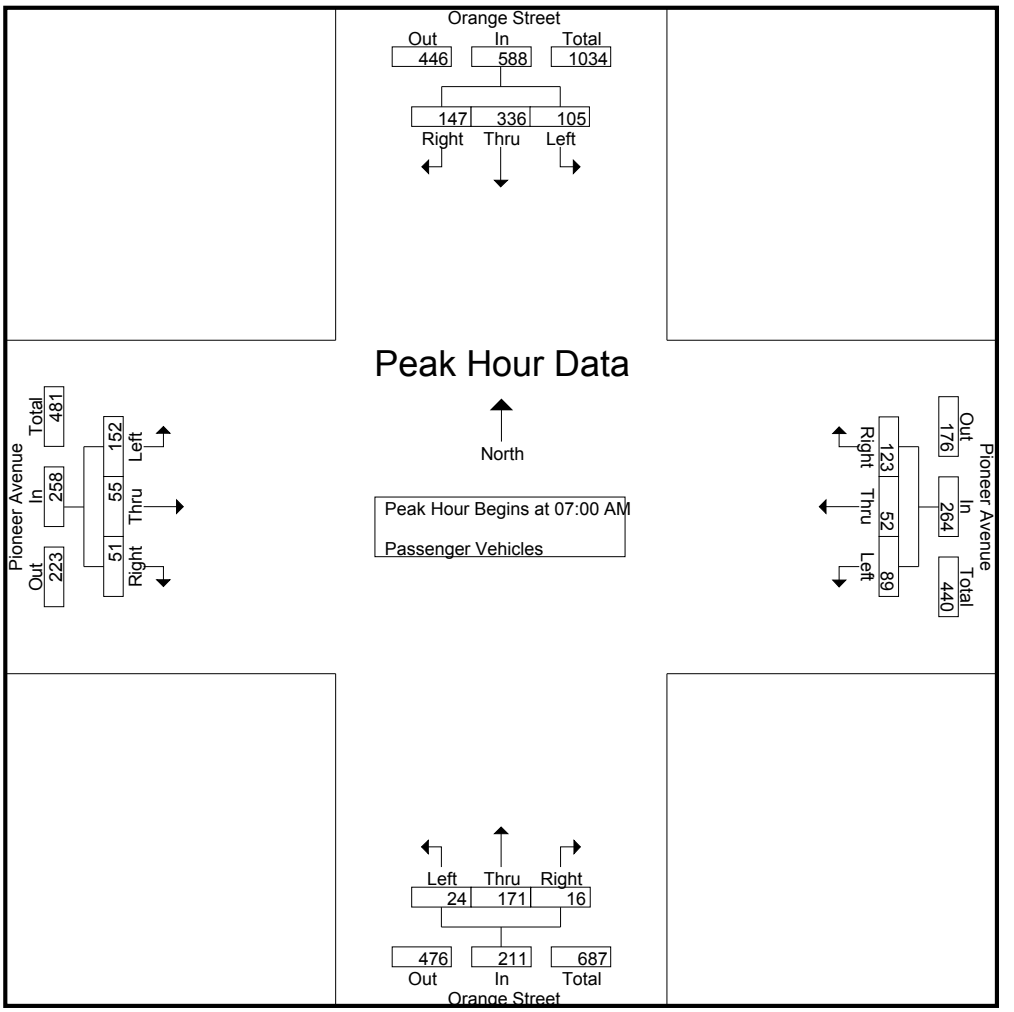

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	30	80	**93**	**203**	**28**	13	18	59	6	26	**5**	37	**63**	14	14	91
+15 mins.	17	76	22	115	27	13	28	68	**7**	**50**	5	**62**	61	**18**	**21**	**100**
+30 mins.	25	**95**	18	138	23	12	**41**	**76**	5	46	3	54	13	18	11	42
+45 mins.	**33**	85	14	132	11	**14**	36	61	6	49	3	58	15	5	5	25
Total Volume	105	336	147	588	89	52	123	264	24	171	16	211	152	55	51	258
% App. Total	17.9	57.1	25		33.7	19.7	46.6		11.4	81	7.6		58.9	21.3	19.8	
PHF	.795	.884	.395	.724	.795	.929	.750	.868	.857	.855	.800	.851	.603	.764	.607	.645

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Groups Printed- Large 2 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
07:30 AM	1	1	0	2	0	0	0	0	0	0	0	0	0	1	1	2	4
07:45 AM	0	2	0	2	0	0	0	0	0	4	0	4	0	0	0	0	6
Total	2	4	0	6	1	0	0	1	0	5	0	5	0	2	1	3	15
08:00 AM	0	1	0	1	0	0	0	0	0	4	0	4	0	0	0	0	5
08:15 AM	1	3	0	4	0	0	1	1	0	4	0	4	0	0	0	0	9
08:30 AM	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	5	7	0	12	0	0	1	1	0	8	0	8	0	0	0	0	21
Grand Total	7	11	0	18	1	0	1	2	0	13	0	13	0	2	1	3	36
Apprch %	38.9	61.1	0		50	0	50		0	100	0		0	66.7	33.3		
Total %	19.4	30.6	0	50	2.8	0	2.8	5.6	0	36.1	0	36.1	0	5.6	2.8	8.3	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	1	0	**2**	**1**	0	0	**1**	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	**1**	0	1	2
07:30 AM	1	1	0	2	0	0	0	0	0	0	0	0	0	1	**1**	**2**	4
07:45 AM	0	**2**	0	2	0	0	0	0	0	**4**	0	**4**	0	0	0	0	**6**
Total Volume	2	4	0	6	1	0	0	1	0	5	0	5	0	2	1	3	15
% App. Total	33.3	66.7	0		100	0	0		0	100	0		0	66.7	33.3		
PHF	.500	.500	.000	.750	.250	.000	.000	.250	.000	.313	.000	.313	.000	.500	.250	.375	.625

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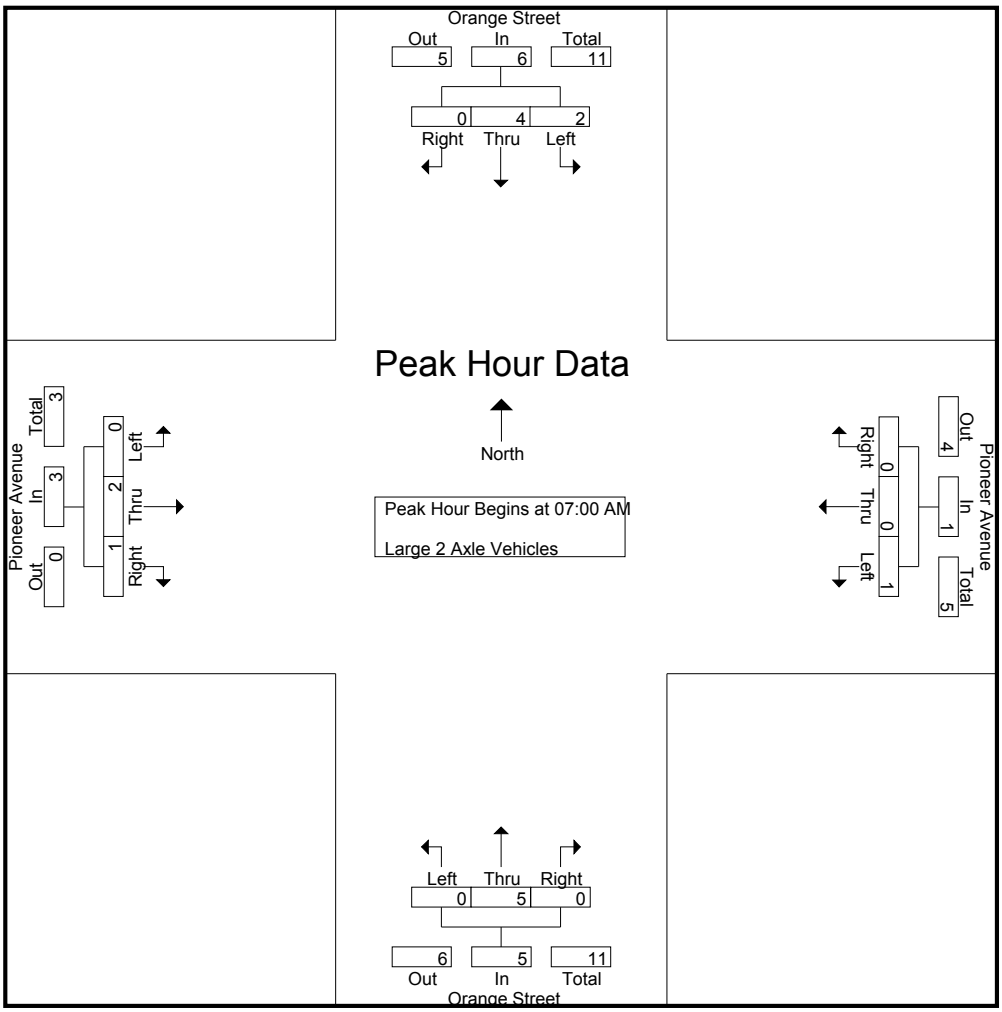

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	**1**	1	0	**2**	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	**1**	0	1
+30 mins.	1	1	0	2	0	0	0	0	0	0	0	0	0	1	**1**	**2**
+45 mins.	0	**2**	0	2	0	0	0	0	0	**4**	0	**4**	0	0	0	0
Total Volume	2	4	0	6	1	0	0	1	0	5	0	5	0	2	1	3
% App. Total	33.3	66.7	0		100	0	0		0	100	0		0	66.7	33.3	
PHF	.500	.500	.000	.750	.250	.000	.000	.250	.000	.313	.000	.313	.000	.500	.250	.375

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Groups Printed- 3 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	0	2	0	0	0	0	0	1	0	1	0	1	0	1	4
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	0	0	0	0	1	0	1	0	1	0	1	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	2	0	2	0	1	0	1	0	1	0	1	0	1	0	1	5
Apprch %	0	100	0		0	100	0		0	100	0		0	100	0		
Total %	0	40	0	40	0	20	0	20	0	20	0	20	0	20	0	20	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	**1**	0	**1**	**4**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	1	0	1	4
% App. Total	0	100	0		0	0	0		0	100	0		0	100	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.250	.000	.250	.250

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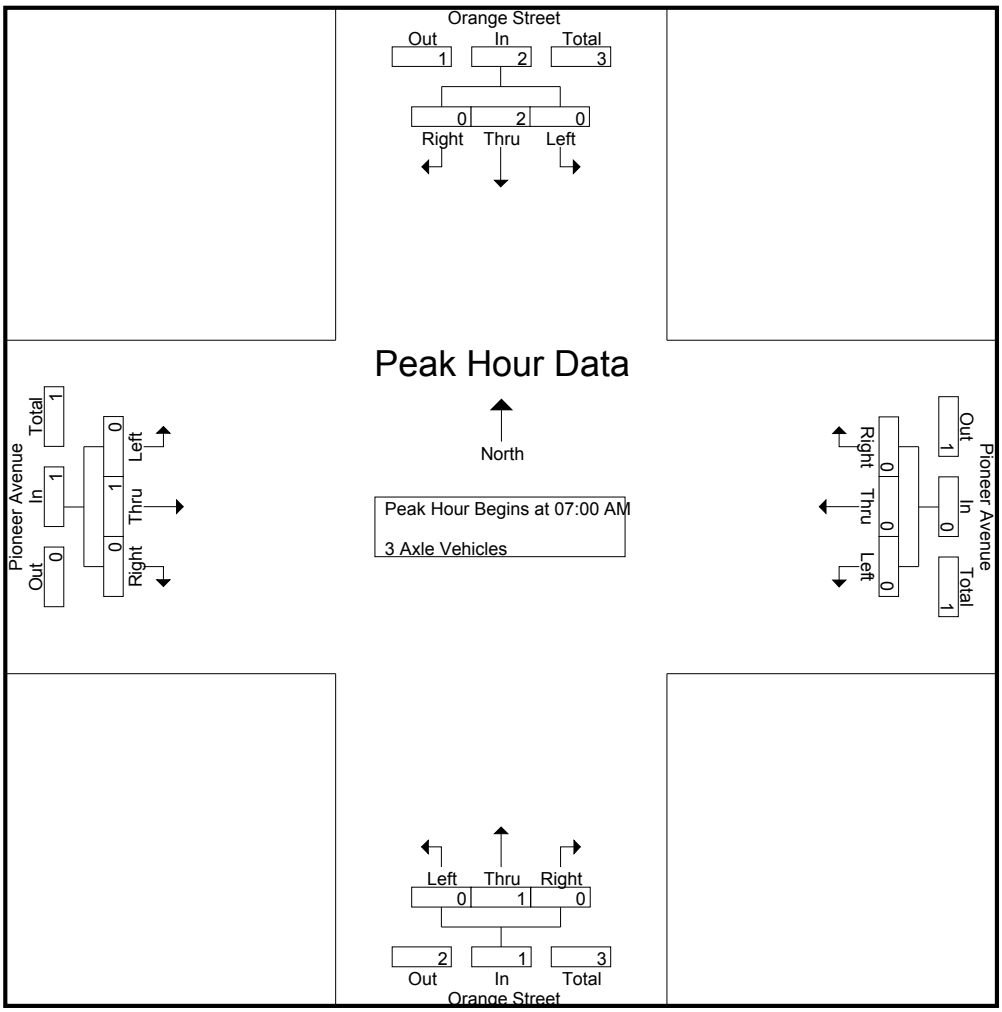

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	1	0	1
% App. Total	0	100	0		0	0	0		0	100	0		0	100	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.250	.000	.250

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Groups Printed- 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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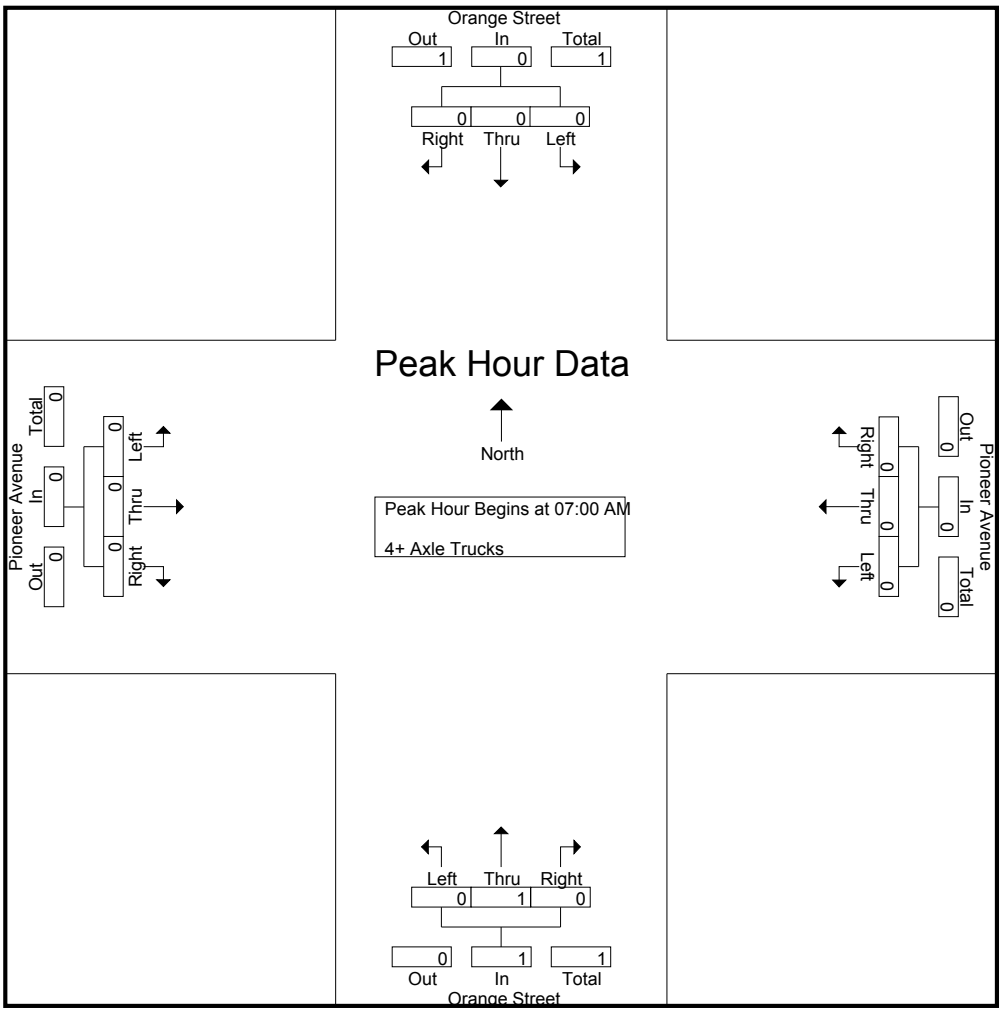

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	13	67	52	132	12	21	21	54	8	77	13	98	40	15	8	63	347
02:15 PM	21	48	62	131	13	11	37	61	17	73	9	99	37	11	5	53	344
02:30 PM	20	62	43	125	11	17	33	61	16	103	12	131	76	10	7	93	410
02:45 PM	24	59	36	119	16	14	27	57	10	112	12	134	75	7	4	86	396
Total	78	236	193	507	52	63	118	233	51	365	46	462	228	43	24	295	1497
03:00 PM	29	59	19	107	11	10	27	48	7	101	13	121	50	13	12	75	351
03:15 PM	28	71	25	124	13	11	30	54	7	101	14	122	35	12	14	61	361
03:30 PM	36	47	29	112	13	17	22	52	11	102	11	124	43	19	12	74	362
03:45 PM	32	76	21	129	9	11	19	39	6	84	20	110	30	12	11	53	331
Total	125	253	94	472	46	49	98	193	31	388	58	477	158	56	49	263	1405
Grand Total	203	489	287	979	98	112	216	426	82	753	104	939	386	99	73	558	2902
Apprch %	20.7	49.9	29.3		23	26.3	50.7		8.7	80.2	11.1		69.2	17.7	13.1		
Total %	7	16.9	9.9	33.7	3.4	3.9	7.4	14.7	2.8	25.9	3.6	32.4	13.3	3.4	2.5	19.2	
Passenger Vehicles	198	473	287	958	97	109	209	415	77	742	103	922	382	97	72	551	2846
% Passenger Vehicles	97.5	96.7	100	97.9	99	97.3	96.8	97.4	93.9	98.5	99	98.2	99	98	98.6	98.7	98.1
Large 2 Axle Vehicles	5	12	0	17	1	3	6	10	5	9	1	15	4	2	1	7	49
% Large 2 Axle Vehicles	2.5	2.5	0	1.7	1	2.7	2.8	2.3	6.1	1.2	1	1.6	1	2	1.4	1.3	1.7
3 Axle Vehicles	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
% 3 Axle Vehicles	0	0.6	0	0.3	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1
4+ Axle Trucks	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
% 4+ Axle Trucks	0	0.2	0	0.1	0	0	0.5	0.2	0	0.1	0	0.1	0	0	0	0	0.1

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	20	62	**43**	**125**	11	**17**	**33**	**61**	**16**	103	12	131	**76**	10	7	**93**	**410**
02:45 PM	24	59	36	119	**16**	14	27	57	10	**112**	12	**134**	75	7	4	86	396
03:00 PM	**29**	59	19	107	11	10	27	48	7	101	13	121	50	**13**	12	75	351
03:15 PM	28	**71**	25	124	13	11	30	54	7	101	**14**	122	35	12	**14**	61	361
Total Volume	101	251	123	475	51	52	117	220	40	417	51	508	236	42	37	315	1518
% App. Total	21.3	52.8	25.9		23.2	23.6	53.2		7.9	82.1	10		74.9	13.3	11.7		
PHF	.871	.884	.715	.950	.797	.765	.886	.902	.625	.931	.911	.948	.776	.808	.661	.847	.926

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City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIMD
Site Code : 05114177
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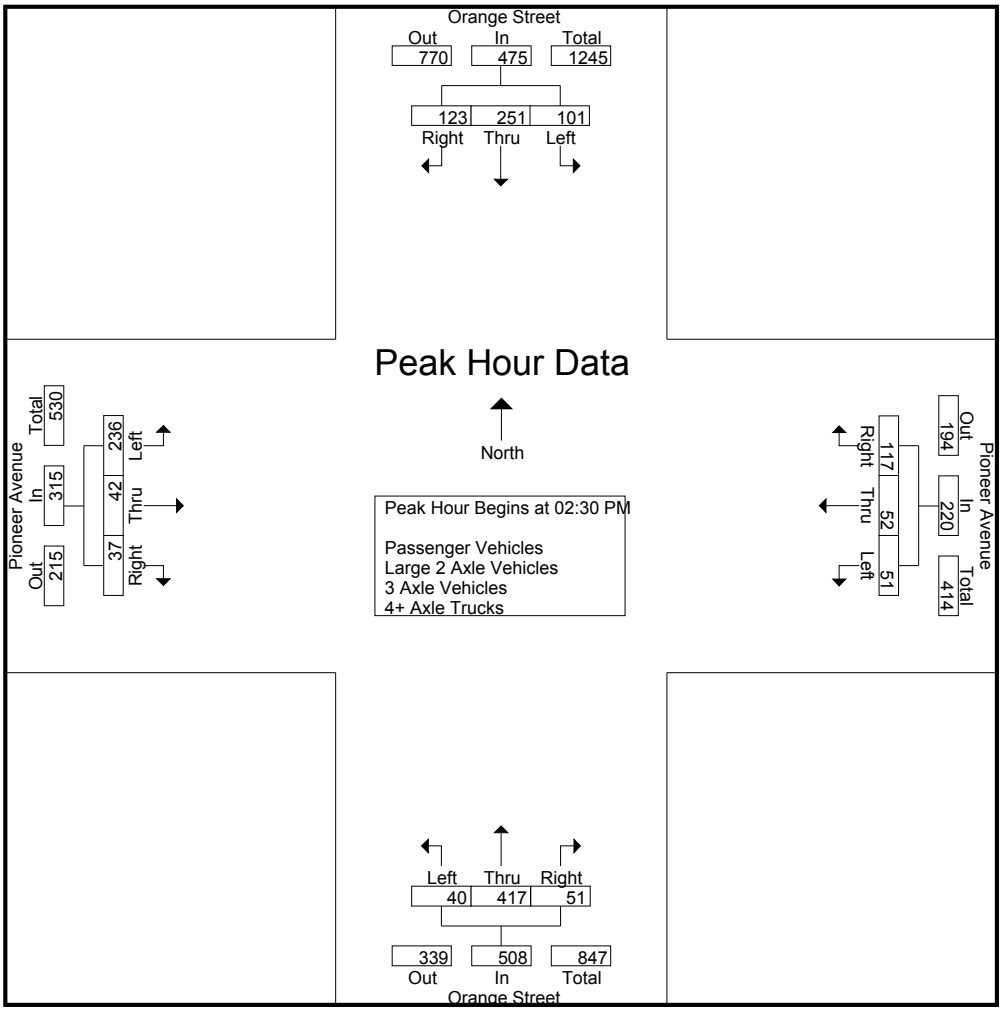

Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:00 PM				02:00 PM				02:30 PM				02:30 PM			
+0 mins.	13	**67**	52	**132**	12	**21**	21	54	**16**	103	12	131	**76**	10	7	**93**
+15 mins.	21	48	**62**	131	13	11	**37**	**61**	10	**112**	12	**134**	75	7	4	86
+30 mins.	20	62	43	125	11	17	33	61	7	101	13	121	50	**13**	12	75
+45 mins.	**24**	59	36	119	**16**	14	27	57	7	101	**14**	122	35	12	**14**	61
Total Volume	78	236	193	507	52	63	118	233	40	417	51	508	236	42	37	315
% App. Total	15.4	46.5	38.1		22.3	27	50.6		7.9	82.1	10		74.9	13.3	11.7	
PHF	.813	.881	.778	.960	.813	.750	.797	.955	.625	.931	.911	.948	.776	.808	.661	.847

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Groups Printed- Passenger Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	13	65	52	130	12	18	20	50	8	77	13	98	40	15	8	63	341
02:15 PM	21	48	62	131	13	11	36	60	15	70	9	94	36	10	5	51	336
02:30 PM	20	61	43	124	11	17	32	60	16	102	12	130	76	10	7	93	407
02:45 PM	24	58	36	118	16	14	27	57	10	110	12	132	74	7	4	85	392
Total	78	232	193	503	52	60	115	227	49	359	46	454	226	42	24	292	1476
03:00 PM	28	54	19	101	11	10	23	44	6	99	13	118	49	13	12	74	337
03:15 PM	28	69	25	122	13	11	30	54	6	100	13	119	35	12	14	61	356
03:30 PM	33	45	29	107	12	17	22	51	11	101	11	123	43	19	12	74	355
03:45 PM	31	73	21	125	9	11	19	39	5	83	20	108	29	11	10	50	322
Total	120	241	94	455	45	49	94	188	28	383	57	468	156	55	48	259	1370
Grand Total	198	473	287	958	97	109	209	415	77	742	103	922	382	97	72	551	2846
Apprch %	20.7	49.4	30		23.4	26.3	50.4		8.4	80.5	11.2		69.3	17.6	13.1		
Total %	7	16.6	10.1	33.7	3.4	3.8	7.3	14.6	2.7	26.1	3.6	32.4	13.4	3.4	2.5	19.4	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	20	61	**43**	**124**	11	**17**	**32**	**60**	**16**	102	12	130	**76**	10	7	**93**	**407**
02:45 PM	24	58	36	118	**16**	14	27	57	10	**110**	12	**132**	74	7	4	85	392
03:00 PM	**28**	54	19	101	11	10	23	44	6	99	**13**	118	49	**13**	12	74	337
03:15 PM	28	**69**	25	122	13	11	30	54	6	100	13	119	35	12	**14**	61	356
Total Volume	100	242	123	465	51	52	112	215	38	411	50	499	234	42	37	313	1492
% App. Total	21.5	52	26.5		23.7	24.2	52.1		7.6	82.4	10		74.8	13.4	11.8		
PHF	.893	.877	.715	.938	.797	.765	.875	.896	.594	.934	.962	.945	.770	.808	.661	.841	.916

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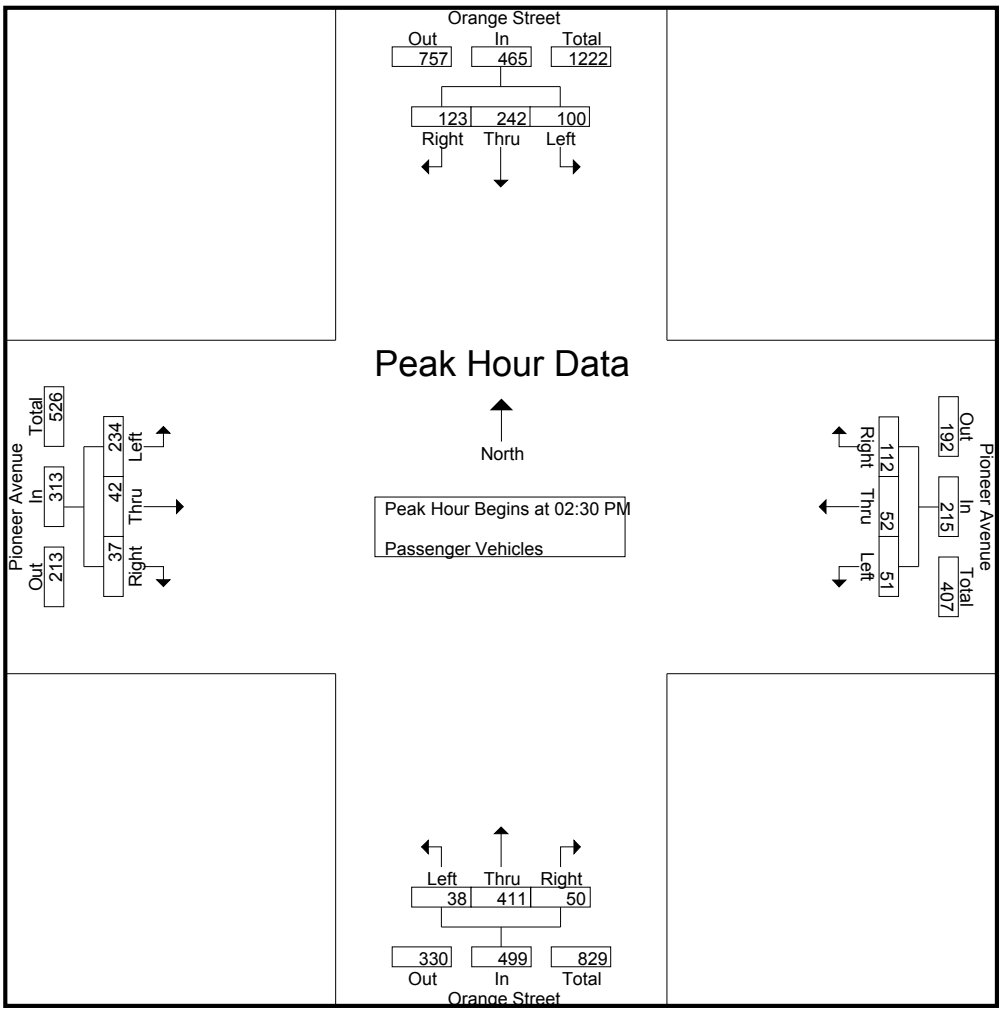

Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:30 PM				02:30 PM				02:30 PM				02:30 PM			
+0 mins.	20	61	**43**	**124**	11	**17**	**32**	**60**	**16**	102	12	130	**76**	10	7	**93**
+15 mins.	24	58	36	118	**16**	14	27	57	10	**110**	12	**132**	74	7	4	85
+30 mins.	**28**	54	19	101	11	10	23	44	6	99	**13**	118	49	**13**	12	74
+45 mins.	28	**69**	25	122	13	11	30	54	6	100	13	119	35	12	**14**	61
Total Volume	100	242	123	465	51	52	112	215	38	411	50	499	234	42	37	313
% App. Total	21.5	52	26.5		23.7	24.2	52.1		7.6	82.4	10		74.8	13.4	11.8	
PHF	.893	.877	.715	.938	.797	.765	.875	.896	.594	.934	.962	.945	.770	.808	.661	.841

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Groups Printed- Large 2 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	1	0	1	0	3	1	4	0	0	0	0	0	0	0	0	5
02:15 PM	0	0	0	0	0	0	1	1	2	3	0	5	1	1	0	2	8
02:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	0	1	0	1	0	3	3	6	2	4	0	6	2	1	0	3	16
03:00 PM	1	4	0	5	0	0	3	3	1	2	0	3	1	0	0	1	12
03:15 PM	0	2	0	2	0	0	0	0	1	1	1	3	0	0	0	0	5
03:30 PM	3	2	0	5	1	0	0	1	0	1	0	1	0	0	0	0	7
03:45 PM	1	3	0	4	0	0	0	0	1	1	0	2	1	1	1	3	9
Total	5	11	0	16	1	0	3	4	3	5	1	9	2	1	1	4	33
Grand Total	5	12	0	17	1	3	6	10	5	9	1	15	4	2	1	7	49
Apprch %	29.4	70.6	0		10	30	60		33.3	60	6.7		57.1	28.6	14.3		
Total %	10.2	24.5	0	34.7	2	6.1	12.2	20.4	10.2	18.4	2	30.6	8.2	4.1	2	14.3	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	**1**	0	0	**1**	2
03:00 PM	**1**	**4**	0	**5**	0	0	**3**	**3**	**1**	**2**	0	**3**	1	0	0	1	**12**
03:15 PM	0	2	0	2	0	0	0	0	1	1	**1**	3	0	0	0	0	5
Total Volume	1	6	0	7	0	0	4	4	2	4	1	7	2	0	0	2	20
% App. Total	14.3	85.7	0		0	0	100		28.6	57.1	14.3		100	0	0		
PHF	.250	.375	.000	.350	.000	.000	.333	.333	.500	.500	.250	.583	.500	.000	.000	.500	.417

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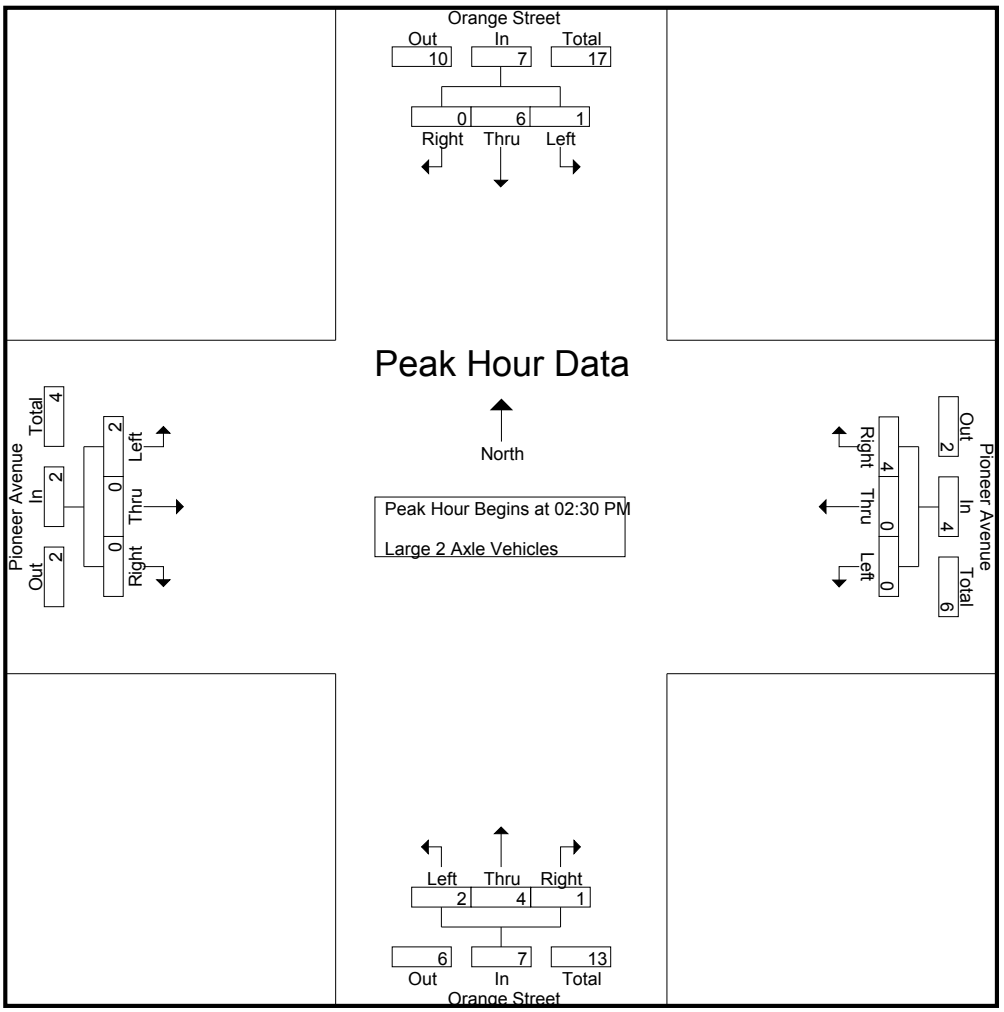

Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:30 PM				02:30 PM				02:30 PM				02:30 PM			
+0 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	**1**	0	0	**1**
+30 mins.	**1**	**4**	0	**5**	0	0	**3**	**3**	**1**	**2**	0	**3**	1	0	0	1
+45 mins.	0	2	0	2	0	0	0	0	1	1	**1**	3	0	0	0	0
Total Volume	1	6	0	7	0	0	4	4	2	4	1	7	2	0	0	2
% App. Total	14.3	85.7	0		0	0	100		28.6	57.1	14.3		100	0	0	
PHF	.250	.375	.000	.350	.000	.000	.333	.333	.500	.500	.250	.583	.500	.000	.000	.500

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Groups Printed- 3 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	75	0	75	0	0	0	0	0	25	0	25	0	0	0	0	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	1	0	1	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375

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City of Redlands
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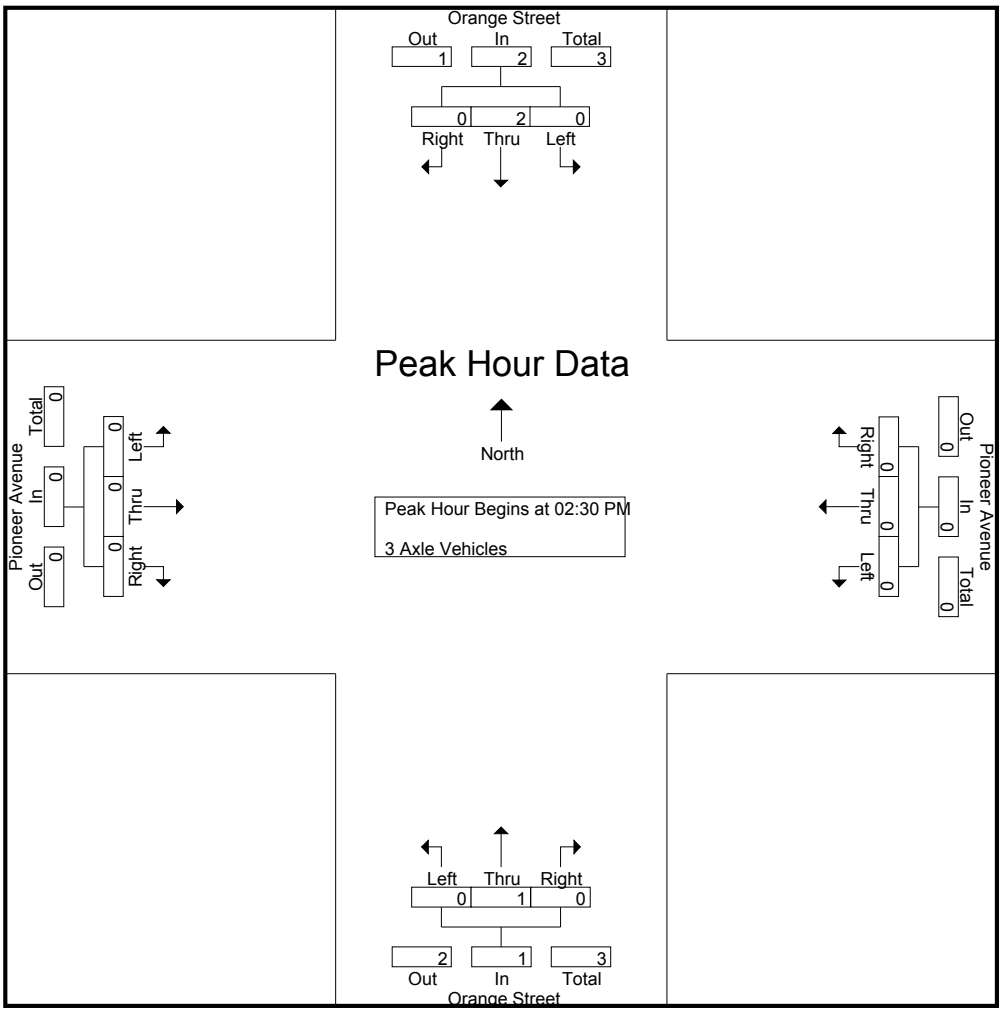

Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:30 PM				02:30 PM				02:30 PM				02:30 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
03:00 PM	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
Grand Total	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
Apprch %	0	100	0		0	0	100		0	100	0		0	0	0		
Total %	0	33.3	0	33.3	0	0	33.3	33.3	0	33.3	0	33.3	0	0	0	0	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	**1**	0	**1**	0	0	**1**	**1**	0	0	0	0	0	0	0	0	**2**
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0	3
% App. Total	0	100	0		0	0	100		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.000	.000	.375

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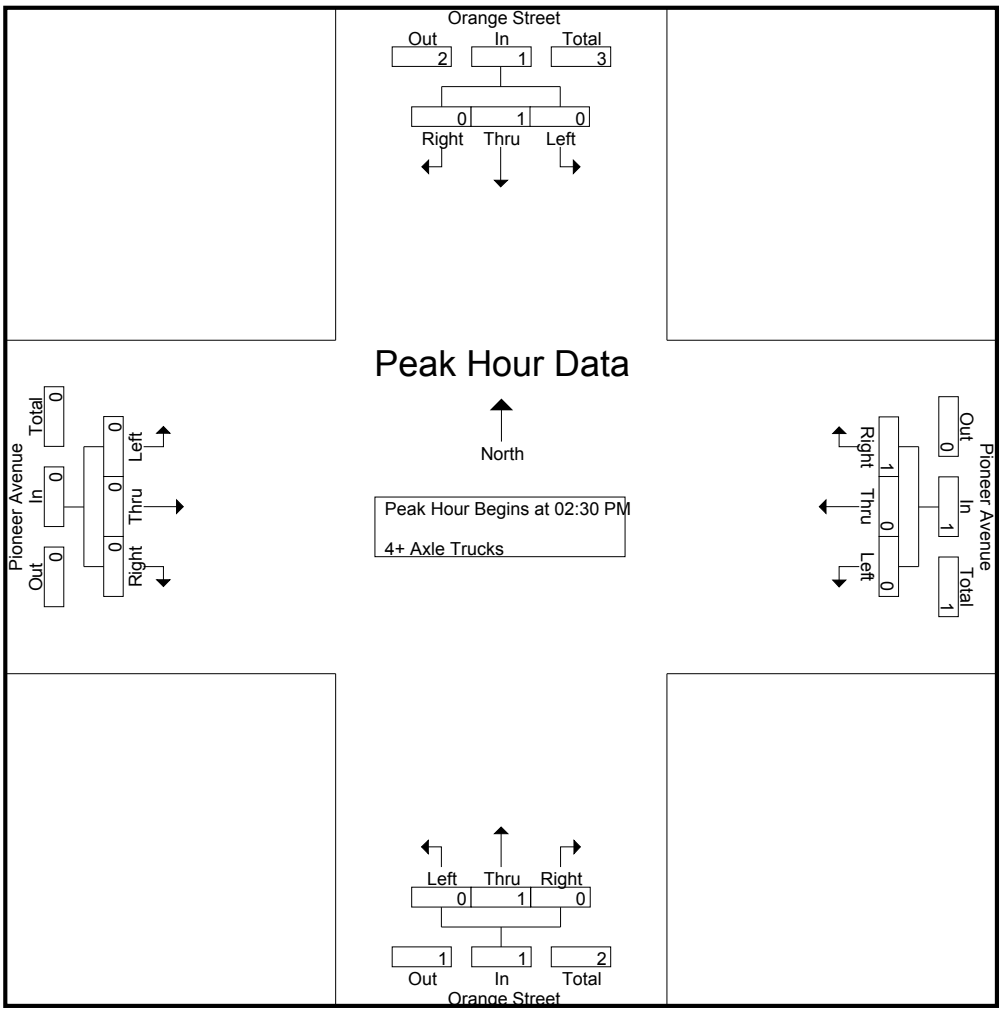

Peak Hour Analysis From 02:30 PM to 03:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:30 PM				02:30 PM				02:30 PM				02:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	**1**	0	0	**1**	**1**	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	1	1	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	100		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.000	.000

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City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIPM
Site Code : 05114177
Start Date : 4/30/2014
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	43	71	25	139	11	9	29	49	6	76	12	94	38	15	5	58	340
04:15 PM	34	66	18	118	6	5	24	35	4	136	7	147	50	15	11	76	376
04:30 PM	30	84	16	130	4	11	22	37	11	125	17	153	58	17	12	87	407
04:45 PM	39	91	23	153	18	11	25	54	8	107	19	134	59	16	8	83	424
Total	146	312	82	540	39	36	100	175	29	444	55	528	205	63	36	304	1547
05:00 PM	29	74	19	122	8	18	44	70	16	125	15	156	49	13	5	67	415
05:15 PM	40	70	17	127	9	12	32	53	7	153	15	175	77	21	14	112	467
05:30 PM	41	87	20	148	12	21	37	70	5	148	12	165	58	18	9	85	468
05:45 PM	43	76	32	151	10	19	29	58	7	95	15	117	46	16	9	71	397
Total	153	307	88	548	39	70	142	251	35	521	57	613	230	68	37	335	1747
Grand Total	299	619	170	1088	78	106	242	426	64	965	112	1141	435	131	73	639	3294
Apprch %	27.5	56.9	15.6		18.3	24.9	56.8		5.6	84.6	9.8		68.1	20.5	11.4		
Total %	9.1	18.8	5.2	33	2.4	3.2	7.3	12.9	1.9	29.3	3.4	34.6	13.2	4	2.2	19.4	
Passenger Vehicles	294	608	170	1072	78	103	242	423	62	958	111	1131	434	130	72	636	3262
% Passenger Vehicles	98.3	98.2	100	98.5	100	97.2	100	99.3	96.9	99.3	99.1	99.1	99.8	99.2	98.6	99.5	99
Large 2 Axle Vehicles	5	10	0	15	0	3	0	3	2	6	1	9	1	1	1	3	30
% Large 2 Axle Vehicles	1.7	1.6	0	1.4	0	2.8	0	0.7	3.1	0.6	0.9	0.8	0.2	0.8	1.4	0.5	0.9
3 Axle Vehicles	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% 3 Axle Vehicles	0	0.2	0	0.1	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	39	**91**	**23**	**153**	**18**	11	25	54	8	107	**19**	134	59	16	8	83	424
05:00 PM	29	74	19	122	8	18	**44**	**70**	**16**	125	15	156	49	13	5	67	415
05:15 PM	40	70	17	127	9	12	32	53	7	**153**	15	**175**	**77**	**21**	**14**	**112**	467
05:30 PM	**41**	87	20	148	12	**21**	37	70	5	148	12	165	58	18	9	85	**468**
Total Volume	149	322	79	550	47	62	138	247	36	533	61	630	243	68	36	347	1774
% App. Total	27.1	58.5	14.4		19	25.1	55.9		5.7	84.6	9.7		70	19.6	10.4		
PHF	.909	.885	.859	.899	.653	.738	.784	.882	.563	.871	.803	.900	.789	.810	.643	.775	.948

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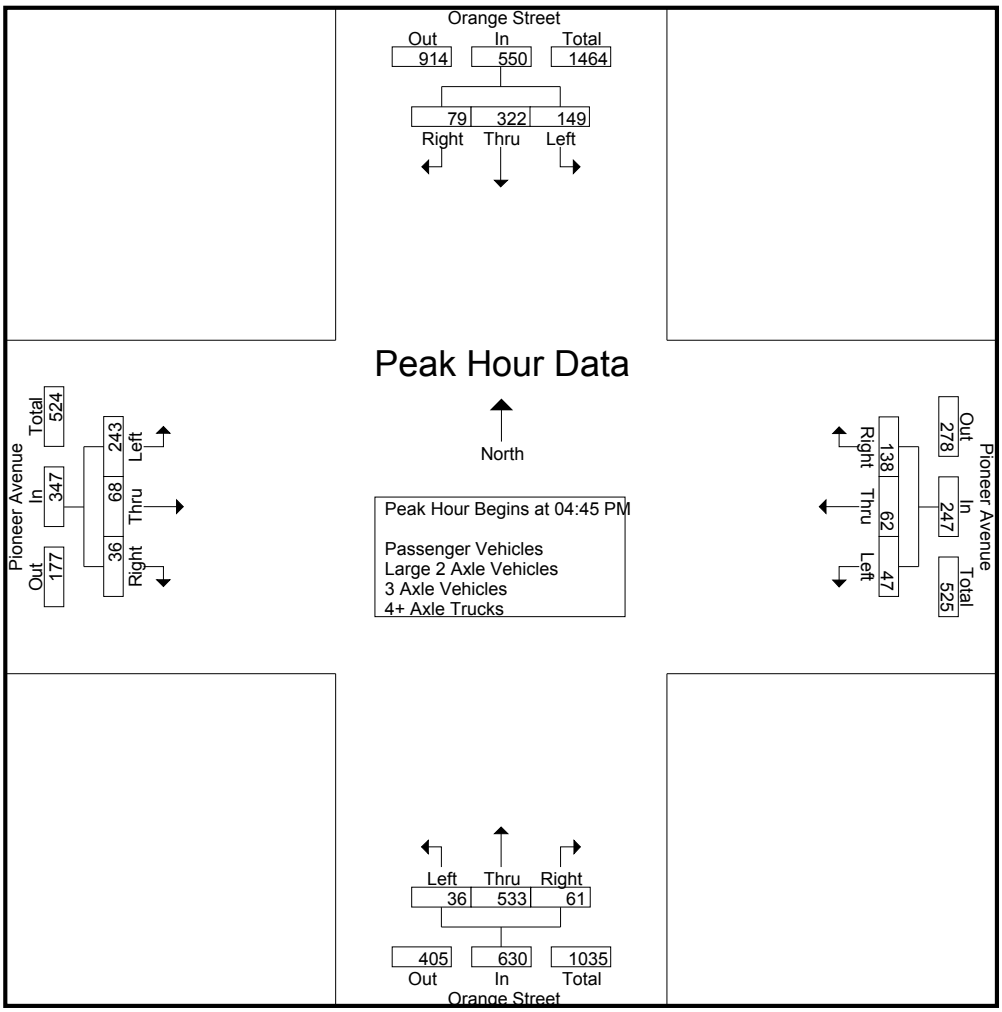

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				05:00 PM				04:45 PM				04:30 PM			
+0 mins.	39	**91**	**23**	**153**	8	18	**44**	**70**	8	107	**19**	134	58	17	12	87
+15 mins.	29	74	19	122	9	12	32	53	**16**	125	15	156	59	16	8	83
+30 mins.	40	70	17	127	**12**	**21**	37	70	7	**153**	15	**175**	49	13	5	67
+45 mins.	**41**	87	20	148	10	19	29	58	5	148	12	165	**77**	**21**	**14**	**112**
Total Volume	149	322	79	550	39	70	142	251	36	533	61	630	243	67	39	349
% App. Total	27.1	58.5	14.4		15.5	27.9	56.6		5.7	84.6	9.7		69.6	19.2	11.2	
PHF	.909	.885	.859	.899	.813	.833	.807	.896	.563	.871	.803	.900	.789	.798	.696	.779

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Groups Printed- Passenger Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	39	68	25	132	11	9	29	49	6	76	12	94	38	14	5	57	332
04:15 PM	33	63	18	114	6	5	24	35	4	135	7	146	50	15	11	76	371
04:30 PM	30	82	16	128	4	10	22	36	11	124	16	151	58	17	12	87	402
04:45 PM	39	91	23	153	18	10	25	53	7	106	19	132	59	16	8	83	421
Total	141	304	82	527	39	34	100	173	28	441	54	523	205	62	36	303	1526
05:00 PM	29	73	19	121	8	17	44	69	15	125	15	155	49	13	4	66	411
05:15 PM	40	70	17	127	9	12	32	53	7	152	15	174	76	21	14	111	465
05:30 PM	41	85	20	146	12	21	37	70	5	146	12	163	58	18	9	85	464
05:45 PM	43	76	32	151	10	19	29	58	7	94	15	116	46	16	9	71	396
Total	153	304	88	545	39	69	142	250	34	517	57	608	229	68	36	333	1736
Grand Total	294	608	170	1072	78	103	242	423	62	958	111	1131	434	130	72	636	3262
Apprch %	27.4	56.7	15.9		18.4	24.3	57.2		5.5	84.7	9.8		68.2	20.4	11.3		
Total %	9	18.6	5.2	32.9	2.4	3.2	7.4	13	1.9	29.4	3.4	34.7	13.3	4	2.2	19.5	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	39	**91**	**23**	**153**	**18**	10	25	53	7	106	**19**	132	59	16	8	83	421
05:00 PM	29	73	19	121	8	17	**44**	69	**15**	125	15	155	49	13	4	66	411
05:15 PM	40	70	17	127	9	12	32	53	7	**152**	15	**174**	**76**	**21**	**14**	**111**	**465**
05:30 PM	**41**	85	20	146	12	**21**	37	**70**	5	146	12	163	58	18	9	85	464
Total Volume	149	319	79	547	47	60	138	245	34	529	61	624	242	68	35	345	1761
% App. Total	27.2	58.3	14.4		19.2	24.5	56.3		5.4	84.8	9.8		70.1	19.7	10.1		
PHF	.909	.876	.859	.894	.653	.714	.784	.875	.567	.870	.803	.897	.796	.810	.625	.777	.947

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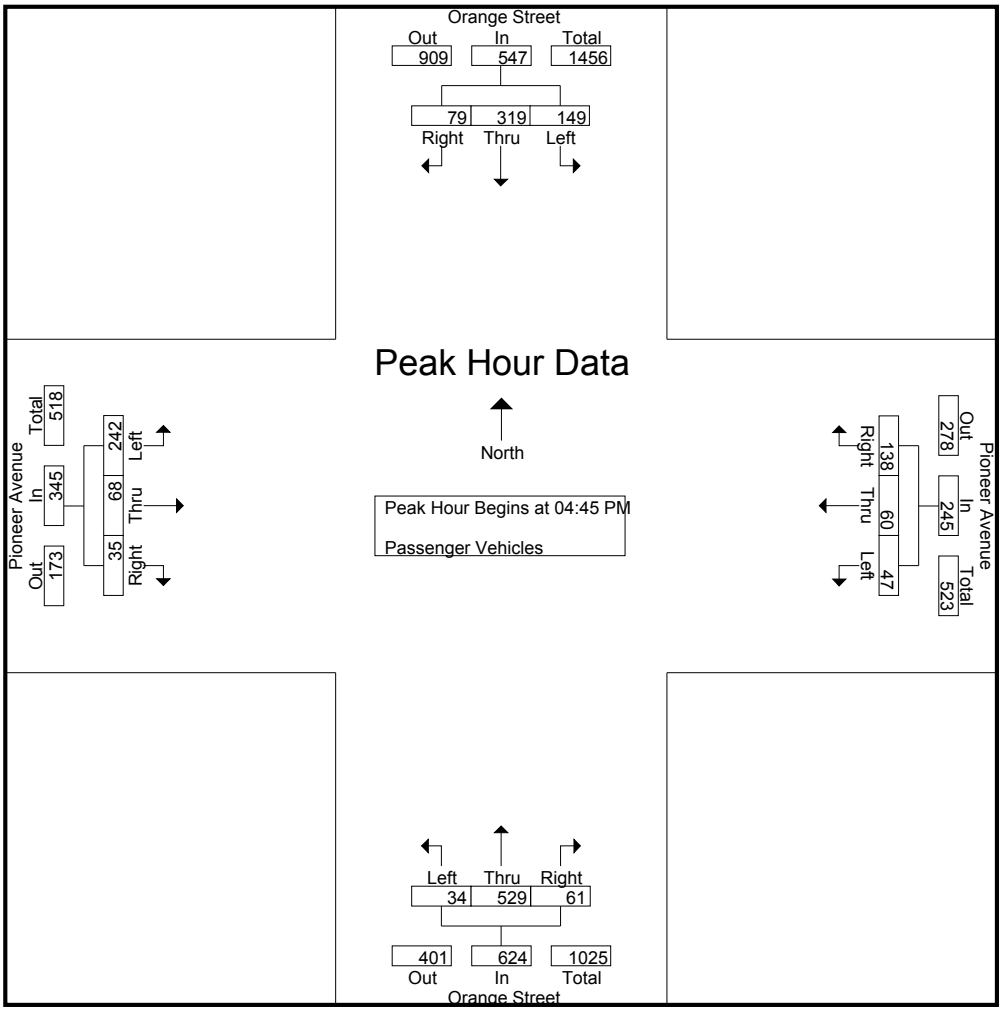

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	39	**91**	**23**	**153**	**18**	10	25	53	7	106	**19**	132	59	16	8	83
+15 mins.	29	73	19	121	8	17	**44**	69	**15**	125	15	155	49	13	4	66
+30 mins.	40	70	17	127	9	12	32	53	7	**152**	15	**174**	**76**	**21**	**14**	**111**
+45 mins.	**41**	85	20	146	12	**21**	37	**70**	5	146	12	163	58	18	9	85
Total Volume	149	319	79	547	47	60	138	245	34	529	61	624	242	68	35	345
% App. Total	27.2	58.3	14.4		19.2	24.5	56.3		5.4	84.8	9.8		70.1	19.7	10.1	
PHF	.909	.876	.859	.894	.653	.714	.784	.875	.567	.870	.803	.897	.796	.810	.625	.777

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Groups Printed- Large 2 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	3	0	7	0	0	0	0	0	0	0	0	0	1	0	1	8
04:15 PM	1	2	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
04:30 PM	0	2	0	2	0	1	0	1	0	1	1	2	0	0	0	0	5
04:45 PM	0	0	0	0	0	1	0	1	1	1	0	2	0	0	0	0	3
Total	5	7	0	12	0	2	0	2	1	3	1	5	0	1	0	1	20
05:00 PM	0	1	0	1	0	1	0	1	1	0	0	1	0	0	1	1	4
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	2
05:30 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	3	0	3	0	1	0	1	1	3	0	4	1	0	1	2	10
Grand Total	5	10	0	15	0	3	0	3	2	6	1	9	1	1	1	3	30
Apprch %	33.3	66.7	0		0	100	0		22.2	66.7	11.1		33.3	33.3	33.3		
Total %	16.7	33.3	0	50	0	10	0	10	6.7	20	3.3	30	3.3	3.3	3.3	10	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**1**	0	**1**	**1**	**1**	0	**2**	0	0	0	0	3
05:00 PM	0	1	0	1	0	1	0	1	1	0	0	1	0	0	**1**	**1**	**4**
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	**1**	0	0	1	2
05:30 PM	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0	3
Total Volume	0	3	0	3	0	2	0	2	2	3	0	5	1	0	1	2	12
% App. Total	0	100	0		0	100	0		40	60	0		50	0	50		
PHF	.000	.375	.000	.375	.000	.500	.000	.500	.500	.750	.000	.625	.250	.000	.250	.500	.750

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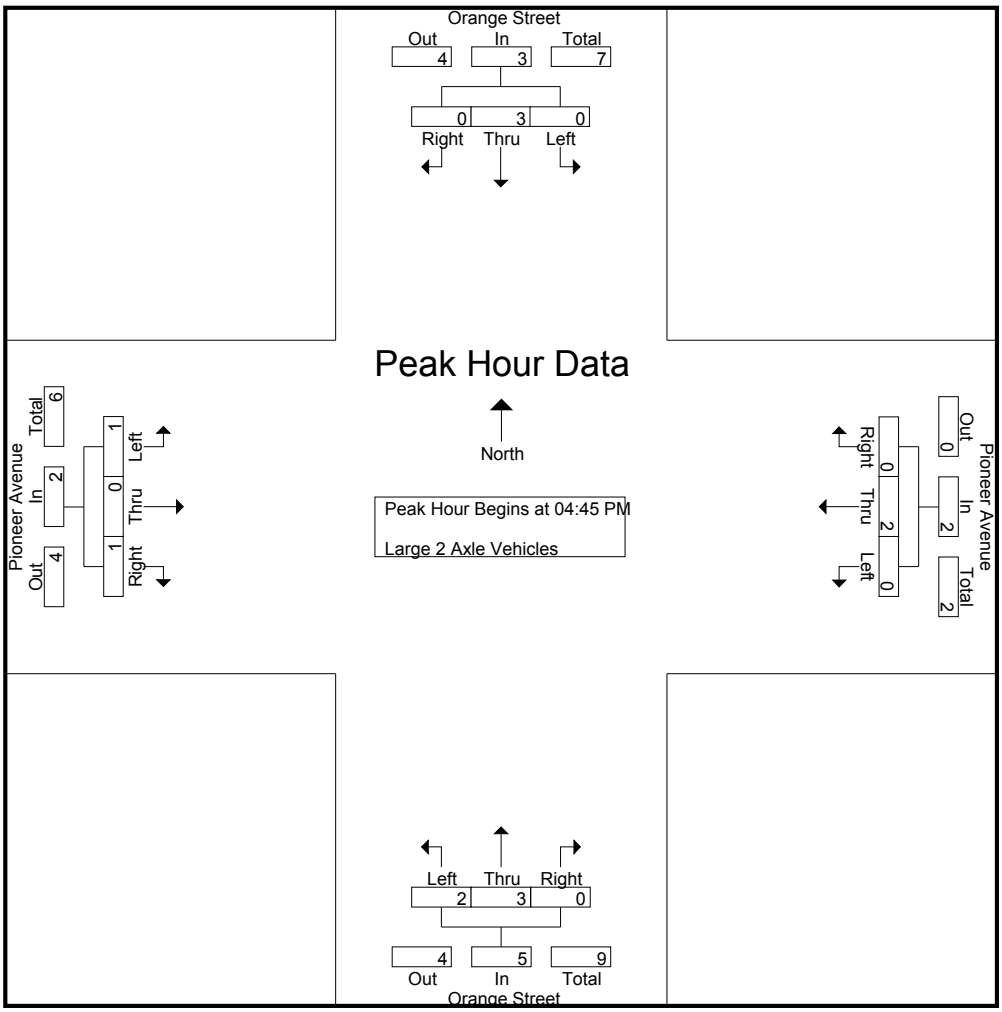

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	**1**	**1**	0	**2**	0	0	0	0
+15 mins.	0	1	0	1	0	1	0	1	1	0	0	1	0	0	**1**	**1**
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	**1**	0	0	1
+45 mins.	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	3	0	3	0	2	0	2	2	3	0	5	1	0	1	2
% App. Total	0	100	0		0	100	0		40	60	0		50	0	50	
PHF	.000	.375	.000	.375	.000	.500	.000	.500	.500	.750	.000	.625	.250	.000	.250	.500

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Groups Printed- 3 Axle Vehicles

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	50	0	50	0	0	0	0	0	50	0	50	0	0	0	0	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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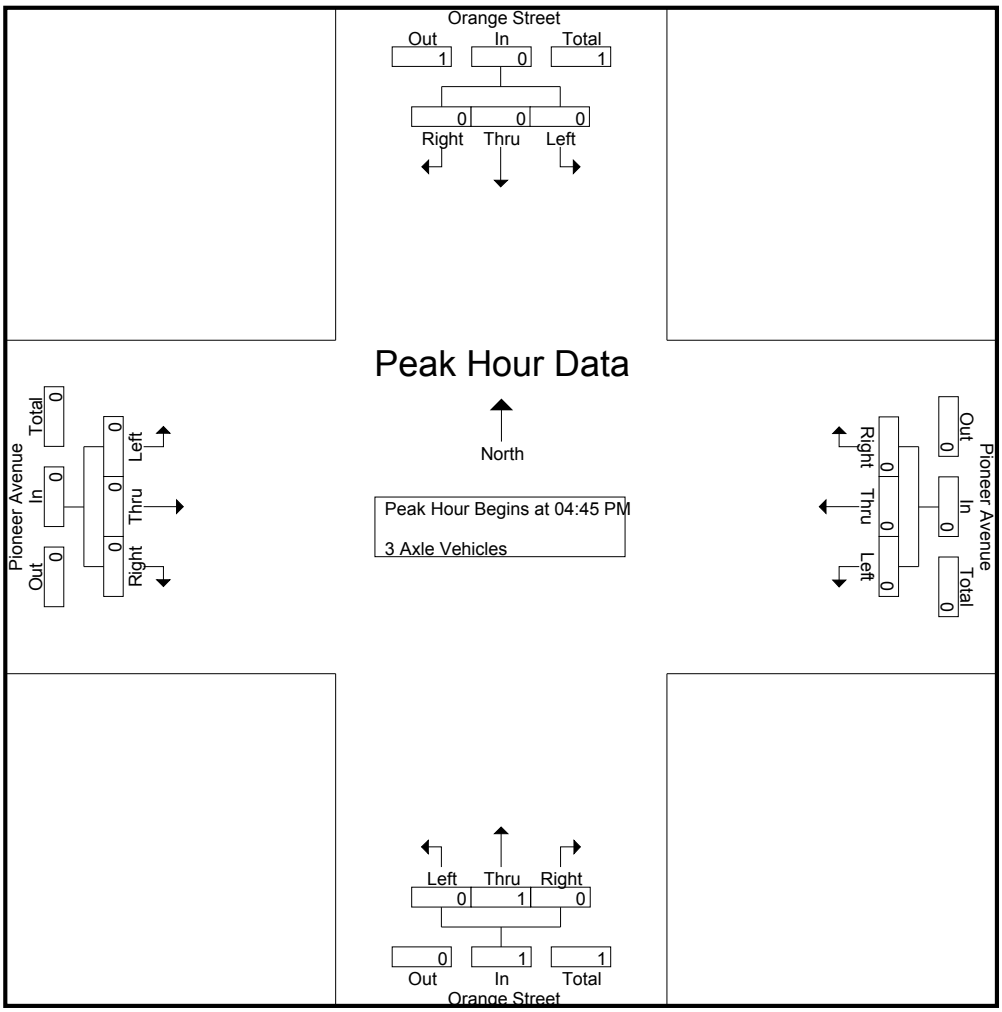

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

	Orange Street Southbound				Pioneer Avenue Westbound				Orange Street Northbound				Pioneer Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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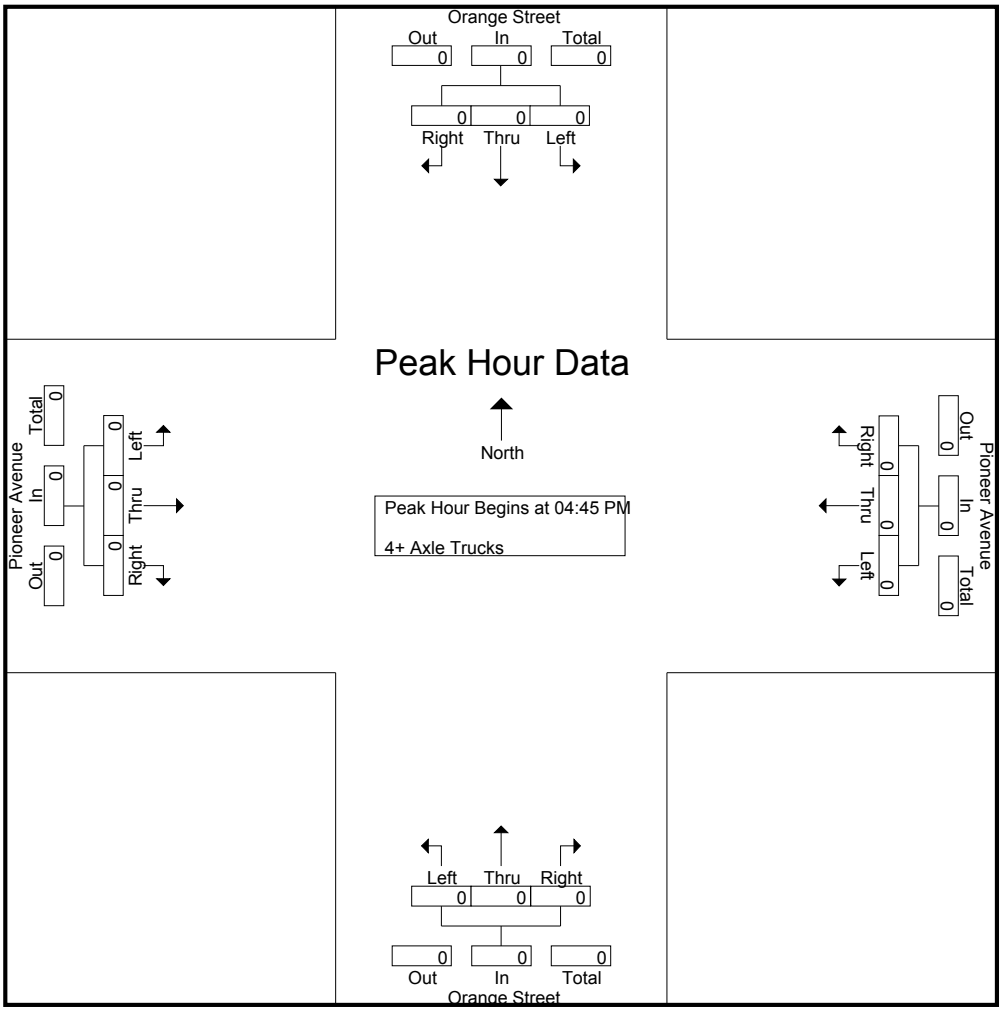
City of Redlands
N/S: Orange Street
E/W: Pioneer Avenue
Weather: Clear

File Name : REDORPIPM
Site Code : 05114177
Start Date : 4/30/2014
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Location: Redlands
N/S: Orange Street
E/W: Pioneer Avenue

Date: 4/30/2014
File : REDORPI

WEEKDAY

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	1	1	0	0	2
7:15 AM	4	1	2	1	8
7:30 AM	1	0	0	0	1
7:45 AM	1	0	1	0	2
8:00 AM	2	4	0	0	6
8:15 AM	0	1	0	0	1
8:30 AM	2	0	0	0	2
8:45 AM	1	0	0	1	2
TOTAL VOLUMES:	12	7	3	2	24

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
2:00 PM	0	1	0	0	1
2:15 PM	1	0	0	0	1
2:30 PM	5	0	0	0	5
2:45 PM	20	0	5	0	25
3:00 PM	8	0	0	0	8
3:15 PM	0	0	0	0	0
3:30 PM	2	0	2	1	5
3:45 PM	2	0	0	2	4
TOTAL VOLUMES:	38	1	7	3	49

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	1	0	1
4:15 PM	0	0	0	1	1
4:30 PM	0	0	0	3	3
4:45 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1
5:15 PM	1	0	0	0	1
5:30 PM	1	2	0	0	3
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	2	1	4	10

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Location: Redlands
N/S: Orange Street
E/W: Pioneer Avenue

Date: 4/30/2014
File : REDORPI

WEEKDAY

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	1	1	0	1	3
TOTAL VOLUMES:	1	2	1	1	5

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	4	0	0	0	4
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	3	1	1	5
3:45 PM	0	0	0	0	0
TOTAL VOLUMES:	4	3	1	1	9

	North Leg Orange Street	East Leg Pioneer Avenue	South Leg Orange Street	West Leg Pioneer Avenue	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	0	0	1	0	1
4:15 PM	0	0	0	0	0
4:30 PM	1	1	0	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	2	0	2
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	1	3	1	6

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City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Church Street Southbound					Greenspot Road Westbound					Church Street Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	3	126	55	133	0	205	8	0	213	6	4	0	0	10	23	77	1	0	101	55	457	512
07:15 AM	5	1	81	30	87	0	184	14	0	198	7	7	1	0	15	55	101	2	0	158	30	458	488
07:30 AM	9	1	53	30	63	0	177	23	4	200	3	4	0	0	7	46	95	3	0	144	34	414	448
07:45 AM	23	0	68	38	91	0	145	34	3	179	0	6	0	0	6	39	73	4	0	116	41	392	433
Total	41	5	328	153	374	0	711	79	7	790	16	21	1	0	38	163	346	10	0	519	160	1721	1881
08:00 AM	7	3	52	33	62	0	154	12	3	166	5	3	0	0	8	29	72	1	0	102	36	338	374
08:15 AM	7	1	35	26	43	0	154	15	4	169	4	2	0	0	6	46	77	3	1	126	31	344	375
08:30 AM	5	2	33	30	40	1	120	11	3	132	3	1	1	1	5	45	86	4	1	135	35	312	347
08:45 AM	2	1	27	24	30	0	108	6	1	114	3	1	0	0	4	36	70	0	0	106	25	254	279
Total	21	7	147	113	175	1	536	44	11	581	15	7	1	1	23	156	305	8	2	469	127	1248	1375
Grand Total	62	12	475	266	549	1	1247	123	18	1371	31	28	2	1	61	319	651	18	2	988	287	2969	3256
Apprch %	11.3	2.2	86.5			0.1	91	9			50.8	45.9	3.3			32.3	65.9	1.8					
Total %	2.1	0.4	16		18.5	0	42	4.1		46.2	1	0.9	0.1		2.1	10.7	21.9	0.6		33.3	8.8	91.2	

	Church Street Southbound				Greenspot Road Westbound				Church Street Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	**3**	**126**	**133**	0	**205**	8	**213**	6	4	0	10	23	77	1	101	457
07:15 AM	5	1	81	87	0	184	14	198	**7**	**7**	**1**	**15**	**55**	**101**	2	**158**	**458**
07:30 AM	9	1	53	63	0	177	23	200	3	4	0	7	46	95	3	144	414
07:45 AM	**23**	0	68	91	0	145	**34**	179	0	6	0	6	39	73	**4**	116	392
Total Volume	41	5	328	374	0	711	79	790	16	21	1	38	163	346	10	519	1721
% App. Total	11	1.3	87.7		0	90	10		42.1	55.3	2.6		31.4	66.7	1.9		
PHF	.446	.417	.651	.703	.000	.867	.581	.927	.571	.750	.250	.633	.741	.856	.625	.821	.939

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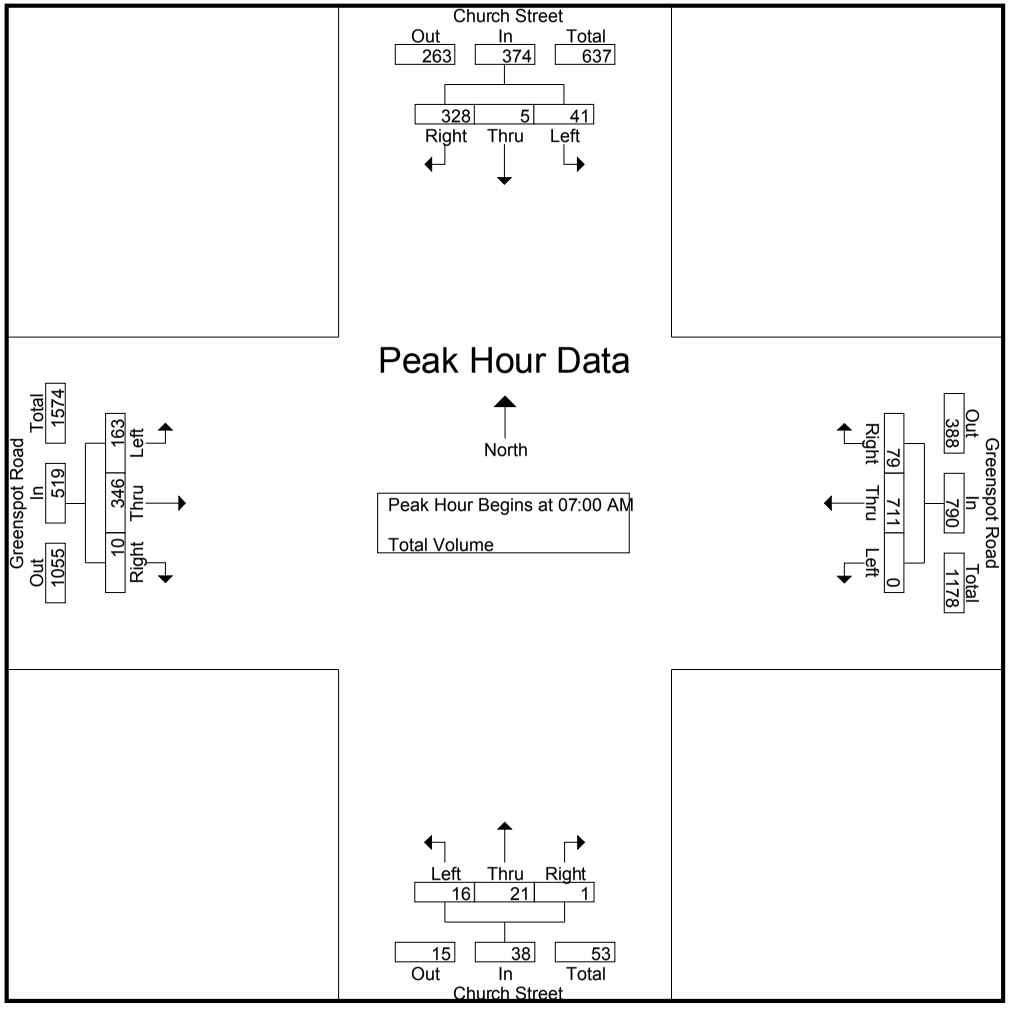
City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	Church Street Southbound				Greenspot Road Westbound				Church Street Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	4	**3**	**126**	**133**	0	**205**	8	**213**	6	4	0	10	**55**	**101**	2	**158**	
+15 mins.	5	1	81	87	0	184	14	198	**7**	**7**	**1**	**15**	46	95	3	144	
+30 mins.	9	1	53	63	0	177	23	200	3	4	0	7	39	73	**4**	116	
+45 mins.	**23**	0	68	91	0	145	**34**	179	0	6	0	6	29	72	1	102	
Total Volume	41	5	328	374	0	711	79	790	16	21	1	38	169	341	10	520	
% App. Total	11	1.3	87.7		0	90	10		42.1	55.3	2.6		32.5	65.6	1.9		
PHF	.446	.417	.651	.703	.000	.867	.581	.927	.571	.750	.250	.633	.768	.844	.625	.823	

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City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Church Street Southbound					Greenspot Road Westbound					Church Street Northbound					Greenspot Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	11	3	40	26	54	1	106	11	1	118	2	1	0	0	3	51	115	6	0	172	27	347	374
04:15 PM	13	2	37	27	52	0	103	13	2	116	7	2	0	0	9	59	142	2	0	203	29	380	409
04:30 PM	14	4	42	27	60	0	101	9	3	110	4	1	2	0	7	44	143	7	1	194	31	371	402
04:45 PM	11	4	32	24	47	1	115	22	1	138	8	3	0	0	11	53	171	7	2	231	27	427	454
Total	49	13	151	104	213	2	425	55	7	482	21	7	2	0	30	207	571	22	3	800	114	1525	1639
05:00 PM	19	2	41	27	62	1	120	13	0	134	6	3	0	0	9	67	140	7	2	214	29	419	448
05:15 PM	16	2	38	31	56	1	126	19	3	146	3	1	1	1	5	89	174	4	2	267	37	474	511
05:30 PM	30	1	57	40	88	2	140	15	1	157	2	0	0	0	2	73	196	2	0	271	41	518	559
05:45 PM	17	2	39	19	58	2	138	7	1	147	4	1	0	0	5	47	165	0	0	212	20	422	442
Total	82	7	175	117	264	6	524	54	5	584	15	5	1	1	21	276	675	13	4	964	127	1833	1960
Grand Total	131	20	326	221	477	8	949	109	12	1066	36	12	3	1	51	483	1246	35	7	1764	241	3358	3599
Apprch %	27.5	4.2	68.3			0.8	89	10.2			70.6	23.5	5.9			27.4	70.6	2					
Total %	3.9	0.6	9.7		14.2	0.2	28.3	3.2		31.7	1.1	0.4	0.1		1.5	14.4	37.1	1		52.5	6.7	93.3	

	Church Street Southbound				Greenspot Road Westbound				Church Street Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	**4**	32	47	1	115	**22**	138	**8**	**3**	0	**11**	53	171	**7**	231	427
05:00 PM	19	2	41	62	1	120	13	134	6	3	0	9	67	140	7	214	419
05:15 PM	16	2	38	56	1	126	19	146	3	1	**1**	5	**89**	174	4	267	474
05:30 PM	**30**	1	**57**	**88**	**2**	**140**	15	**157**	2	0	0	2	73	**196**	2	**271**	**518**
Total Volume	76	9	168	253	5	501	69	575	19	7	1	27	282	681	20	983	1838
% App. Total	30	3.6	66.4		0.9	87.1	12		70.4	25.9	3.7		28.7	69.3	2		
PHF	.633	.563	.737	.719	.625	.895	.784	.916	.594	.583	.250	.614	.792	.869	.714	.907	.887

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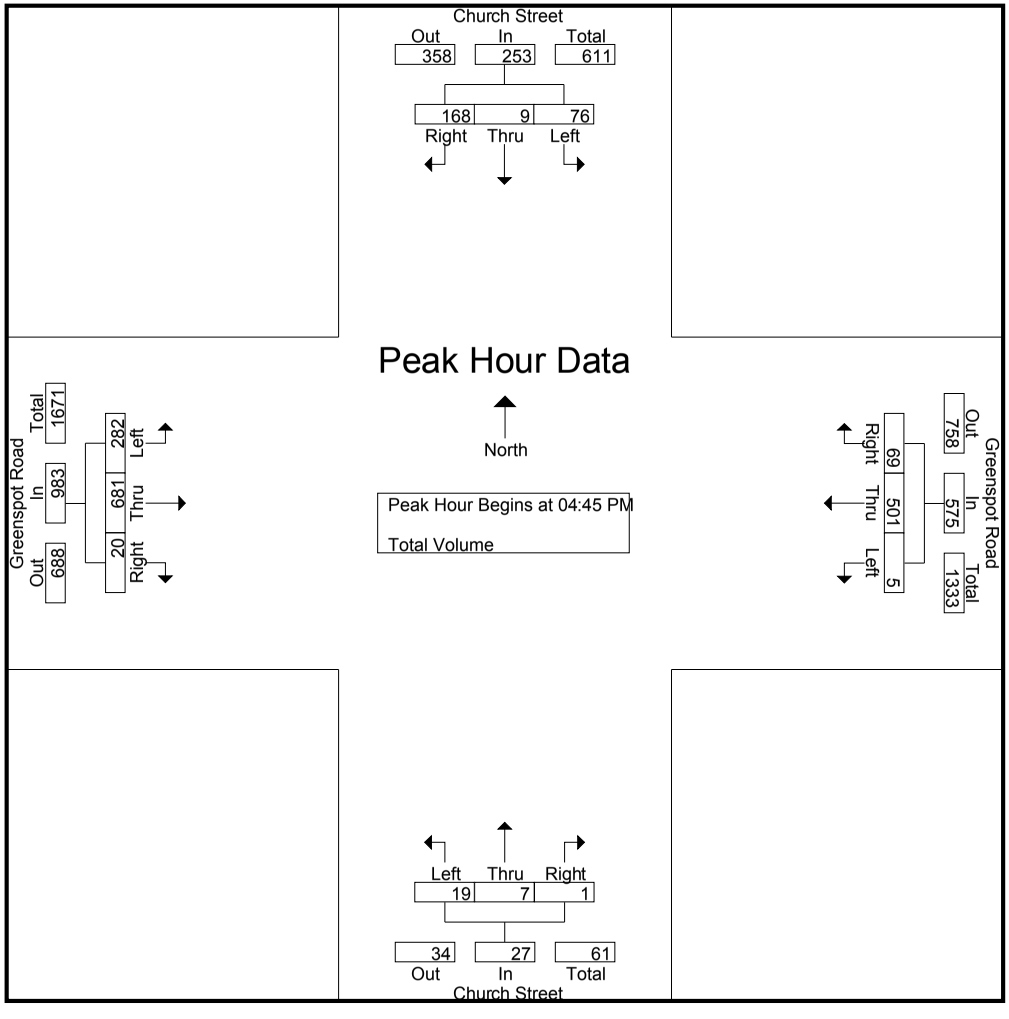
City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: Church Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDCHGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	Church Street Southbound				Greenspot Road Westbound				Church Street Northbound				Greenspot Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				04:15 PM				04:45 PM				
+0 mins.	19	**2**	41	62	1	120	13	134	7	2	0	9	53	171	**7**	231	
+15 mins.	16	2	38	56	1	126	**19**	146	4	1	**2**	7	67	140	7	214	
+30 mins.	**30**	1	**57**	**88**	**2**	**140**	15	**157**	**8**	**3**	0	**11**	**89**	174	4	267	
+45 mins.	17	2	39	58	2	138	7	147	6	3	0	9	73	**196**	2	**271**	
Total Volume	82	7	175	264	6	524	54	584	25	9	2	36	282	681	20	983	
% App. Total	31.1	2.7	66.3		1	89.7	9.2		69.4	25	5.6		28.7	69.3	2		
PHF	.683	.875	.768	.750	.750	.936	.711	.930	.781	.750	.250	.818	.792	.869	.714	.907	

Location: Highland
N/S: Church Street
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Pedestrians

	North Leg Church Street	East Leg Greenspot Road	South Leg Church Street	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	1	3	0	0	4
7:30 AM	0	2	0	0	2
7:45 AM	4	3	0	0	7
8:00 AM	4	3	0	0	7
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	9	11	0	0	20

	North Leg Church Street	East Leg Greenspot Road	South Leg Church Street	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	0	1
4:30 PM	1	1	0	0	2
4:45 PM	2	0	0	0	2
5:00 PM	1	0	0	0	1
5:15 PM	0	2	0	0	2
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	5	4	0	0	9

Location: Highland
N/S: Church Street
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Bicycles

	North Leg Church Street	East Leg Greenspot Road	South Leg Church Street	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	2	0	2
7:30 AM	0	0	1	0	1
7:45 AM	4	0	1	0	5
8:00 AM	0	0	0	0	0
8:15 AM	1	0	0	0	1
8:30 AM	0	0	1	0	1
8:45 AM	1	0	1	0	2
TOTAL VOLUMES:	6	0	6	0	12

	North Leg Church Street	East Leg Greenspot Road	South Leg Church Street	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1

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City of Highland
N/S: Weaver Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDWEGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	3	53	56	102	0	102	25	26	51	209
07:15 AM	3	48	51	92	3	95	49	36	85	231
07:30 AM	0	57	57	95	11	106	46	45	91	254
07:45 AM	10	60	70	70	2	72	21	50	71	213
Total	16	218	234	359	16	375	141	157	298	907
08:00 AM	1	29	30	77	5	82	21	49	70	182
08:15 AM	3	50	53	87	1	88	22	45	67	208
08:30 AM	2	23	25	56	1	57	20	54	74	156
08:45 AM	6	18	24	68	2	70	14	36	50	144
Total	12	120	132	288	9	297	77	184	261	690
Grand Total	28	338	366	647	25	672	218	341	559	1597
Apprch %	7.7	92.3		96.3	3.7		39	61		
Total %	1.8	21.2	22.9	40.5	1.6	42.1	13.7	21.4	35	

	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	3	53	56	**102**	0	102	25	26	51	209
07:15 AM	3	48	51	92	3	95	**49**	36	85	231
07:30 AM	0	57	57	95	**11**	**106**	46	45	**91**	**254**
07:45 AM	**10**	**60**	**70**	70	2	72	21	**50**	71	213
Total Volume	16	218	234	359	16	375	141	157	298	907
% App. Total	6.8	93.2		95.7	4.3		47.3	52.7		
PHF	.400	.908	.836	.880	.364	.884	.719	.785	.819	.893

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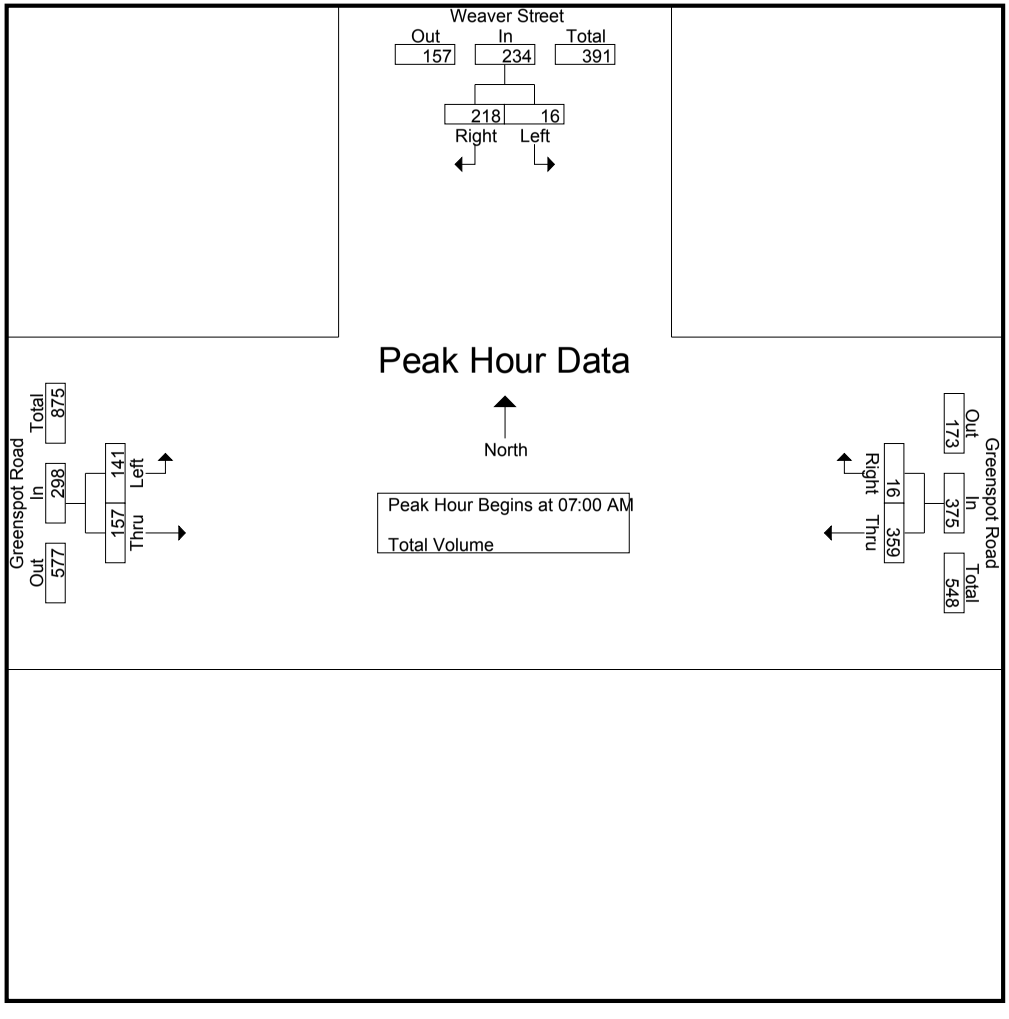
City of Highland
N/S: Weaver Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDWEGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 2



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City of Highland
N/S: Weaver Street
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Weather: Clear

File Name : HLDWEGSAM
Site Code : 051
Start Date : 6/5/2014
Page No : 3

	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Each Approach Begins at:										
	07:00 AM			07:00 AM			07:15 AM			
+0 mins.	3	53	56	**102**	0	102	**49**	36	85	
+15 mins.	3	48	51	92	3	95	46	45	**91**	
+30 mins.	0	57	57	95	**11**	**106**	21	**50**	71	
+45 mins.	**10**	**60**	**70**	70	2	72	21	49	70	
Total Volume	16	218	234	359	16	375	137	180	317	
% App. Total	6.8	93.2		95.7	4.3		43.2	56.8		
PHF	.400	.908	.836	.880	.364	.884	.699	.900	.871	

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City of Highland
N/S: Weaver Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDWEGSPM
Site Code : 051
Start Date : 6/5/2014
Page No : 1

Groups Printed- Total Volume

	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	6	16	22	75	2	77	36	57	93	192
04:15 PM	8	31	39	63	2	65	41	76	117	221
04:30 PM	13	22	35	53	3	56	36	83	119	210
04:45 PM	8	22	30	65	7	72	49	84	133	235
Total	35	91	126	256	14	270	162	300	462	858
05:00 PM	8	38	46	95	3	98	44	103	147	291
05:15 PM	2	17	19	59	1	60	47	73	120	199
05:30 PM	8	28	36	70	2	72	63	103	166	274
05:45 PM	4	19	23	84	6	90	58	81	139	252
Total	22	102	124	308	12	320	212	360	572	1016
Grand Total	57	193	250	564	26	590	374	660	1034	1874
Apprch %	22.8	77.2		95.6	4.4		36.2	63.8		
Total %	3	10.3	13.3	30.1	1.4	31.5	20	35.2	55.2	

	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**8**	**38**	**46**	**95**	3	**98**	44	**103**	147	**291**
05:15 PM	2	17	19	59	1	60	47	73	120	199
05:30 PM	8	28	36	70	2	72	**63**	103	**166**	274
05:45 PM	4	19	23	84	**6**	90	58	81	139	252
Total Volume	22	102	124	308	12	320	212	360	572	1016
% App. Total	17.7	82.3		96.2	3.8		37.1	62.9		
PHF	.688	.671	.674	.811	.500	.816	.841	.874	.861	.873

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Start Date : 6/5/2014
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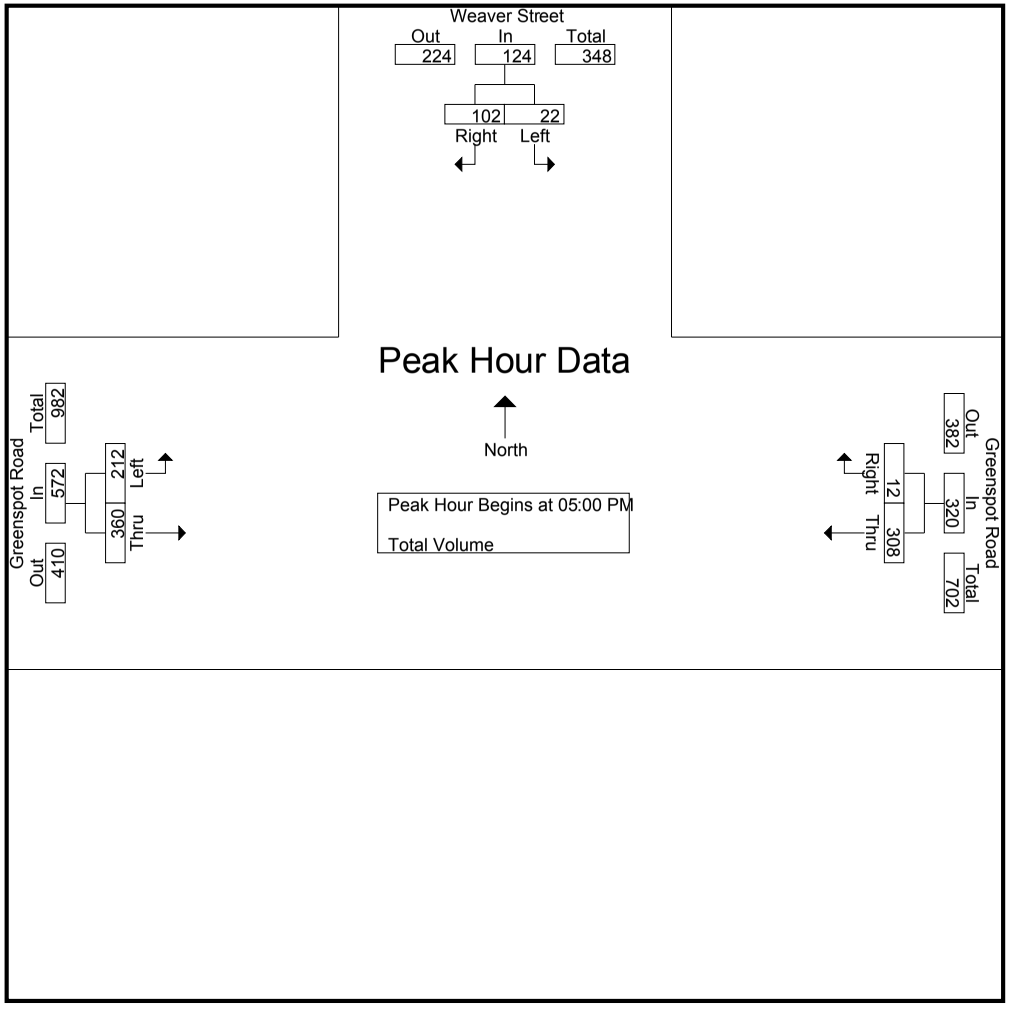

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City of Highland
N/S: Weaver Street
E/W: Greenspot Road
Weather: Clear

File Name : HLDWEGSPM
Site Code : 051
Start Date : 6/5/2014
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	Weaver Street Southbound			Greenspot Road Westbound			Greenspot Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Each Approach Begins at:										
	04:15 PM			05:00 PM			05:00 PM			
+0 mins.	8	31	39	**95**	3	**98**	44	**103**	147	
+15 mins.	**13**	22	35	59	1	60	47	73	120	
+30 mins.	8	22	30	70	2	72	**63**	103	**166**	
+45 mins.	8	**38**	**46**	84	**6**	90	58	81	139	
Total Volume	37	113	150	308	12	320	212	360	572	
% App. Total	24.7	75.3		96.2	3.8		37.1	62.9		
PHF	.712	.743	.815	.811	.500	.816	.841	.874	.861	

Location: Highland
N/S: Weaver Street
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Pedestrians

	North Leg Weaver Street	East Leg Greenspot Road	South Leg Weaver Street	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	1	0	0	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	3	0	0	0	3
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	2	0	0	0	2
TOTAL VOLUMES:	7	0	0	0	7

	North Leg Weaver Street	East Leg Greenspot Road	South Leg Weaver Street	West Leg Greenspot Road	
	Pedestrians	**Pedestrians**	**Pedestrians**	**Pedestrians**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Highland
N/S: Weaver Street
E/W: Greenspot Road

Date: 6/5/2014
Weather: Clear

Bicycles

	North Leg Weaver Street	East Leg Greenspot Road	South Leg Weaver Street	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	4	0	0	0	4
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	1	0	0	0	1
TOTAL VOLUMES:	5	0	0	0	5

	North Leg Weaver Street	East Leg Greenspot Road	South Leg Weaver Street	West Leg Greenspot Road	
	Bicycles	**Bicycles**	**Bicycles**	**Bicycles**	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1
5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	2

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City of Highland
Greenspot Road
E/ State Route 210
24 Hour Directional Volume Count

HLDGRE210
Site Code: 051-14244

Start Time	05-Jun-14 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		34	76			27	178				
12:15		36	88			13	156				
12:30		38	229			12	168				
12:45		34	203	142	596	11	211	63	713	205	1309
01:00		23	204			7	143				
01:15		12	205			7	198				
01:30		20	196			6	176				
01:45		13	224	68	829	7	162	27	679	95	1508
02:00		10	196			10	202				
02:15		25	201			5	223				
02:30		21	205			9	220				
02:45		14	250	70	852	16	183	40	828	110	1680
03:00		15	224			16	165				
03:15		30	239			13	**207**				
03:30		27	234			23	**249**				
03:45		27	215	99	912	25	**211**	77	832	176	1744
04:00		18	250			8	**201**				
04:15		27	217			29	193				
04:30		35	225			37	182				
04:45		45	**294**	125	986	34	173	108	749	233	1735
05:00		40	**302**			30	212				
05:15		52	**321**			88	180				
05:30		47	**303**			86	162				
05:45		50	281	189	1207	76	197	280	751	469	1958
06:00		57	225			95	203				
06:15		61	208			143	166				
06:30		77	186			180	151				
06:45		**110**	200	305	819	225	168	643	688	948	1507
07:00		**106**	180			**280**	164				
07:15		**141**	169			**279**	136				
07:30		**157**	199			**279**	122				
07:45		76	208	480	756	**312**	128	1150	550	1630	1306
08:00		18	189			190	121				
08:15		42	164			228	137				
08:30		15	162			246	124				
08:45		30	156	105	671	221	105	885	487	990	1158
09:00		49	149			170	101				
09:15		39	135			182	100				
09:30		29	111			171	89				
09:45		43	104	160	499	206	69	729	359	889	858
10:00		49	86			174	60				
10:15		21	73			202	49				
10:30		30	66			159	36				
10:45		40	60	140	285	172	52	707	197	847	482
11:00		21	62			178	52				
11:15		28	62			166	28				
11:30		40	43			177	27				
11:45		68	49	157	216	175	16	696	123	853	339
Total		2040	8628	2040	8628	5405	6956	5405	6956	7445	15584
Combined Total		10668		10668		12361		12361		23029	
AM Peak	-	06:45	-	-	-	07:00	-	-	-	-	-
Vol.	-	514	-	-	-	1150	-	-	-	-	-
P.H.F.		0.818				0.921					
PM Peak	-	-	04:45	-	-	-	03:15	-	-	-	-
Vol.	-	-	1220	-	-	-	868	-	-	-	-
P.H.F.			0.950				0.871				
Percentage		19.1%	80.9%			43.7%	56.3%				
ADT/AADT		ADT 23,029		AADT 23,029							

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City of Highland
Greenspot Road
W/ Church Street
24 Hour Directional Volume Count

HLDGRWCH
Site Code: 051-14244

Start Time	05-Jun-14 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		17	129			29	122				
12:15		17	140			25	95				
12:30		16	138			19	118				
12:45		20	138	70	545	23	117	96	452	166	997
01:00		15	137			24	120				
01:15		14	128			22	120				
01:30		20	146			24	118				
01:45		16	124	65	535	21	118	91	476	156	1011
02:00		10	148			19	136				
02:15		12	155			14	120				
02:30		19	135			10	112				
02:45		15	175	56	613	16	123	59	491	115	1104
03:00		13	162			14	107				
03:15		20	183			11	117				
03:30		18	172			20	123				
03:45		31	158	82	675	22	**134**	67	481	149	1156
04:00		24	183			14	**150**				
04:15		23	151			21	**133**				
04:30		42	199			34	**137**				
04:45		58	**234**	147	767	29	133	98	553	245	1320
05:00		50	**258**			24	131				
05:15		52	**280**			39	127				
05:30		67	**232**			58	122				
05:45		80	207	249	977	76	141	197	521	446	1498
06:00		55	175			69	121				
06:15		79	134			85	106				
06:30		91	131			120	83				
06:45		97	134	322	574	171	99	445	409	767	983
07:00		128	124			**150**	116				
07:15		127	110			**168**	87				
07:30		115	104			**191**	104				
07:45		130	99	500	437	**218**	77	727	384	1227	821
08:00		90	123			134	71				
08:15		112	81			141	91				
08:30		102	80			99	68				
08:45		122	69	426	353	132	80	506	310	932	663
09:00		127	70			110	67				
09:15		121	80			117	87				
09:30		104	66			126	83				
09:45		102	49	454	265	109	68	462	305	916	570
10:00		115	28			102	57				
10:15		86	46			118	63				
10:30		120	39			99	38				
10:45		110	28	431	141	112	47	431	205	862	346
11:00		**117**	29			101	48				
11:15		**124**	31			103	44				
11:30		**168**	22			114	38				
11:45		**130**	30	539	112	132	29	450	159	989	271
Total		3341	5994	3341	5994	3629	4746	3629	4746	6970	10740
Combined Total		9335		9335		8375		8375		17710	
AM Peak	-	11:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	539	-	-	-	727	-	-	-	-	-
P.H.F.		0.802				0.834					
PM Peak	-	-	04:45	-	-	-	03:45	-	-	-	-
Vol.	-	-	1004	-	-	-	554	-	-	-	-
P.H.F.			0.896				0.923				
Percentage		35.8%	64.2%			43.3%	56.7%				
ADT/AADT		ADT 17,710		AADT 17,710							

APPENDIX 3.2:

EXISTING (2014) CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	175	513	673	757	0	0	0	0	135	1	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	195	546	737	846	0	0	0	0	144	1	85
RTOR Reduction (vph)	0	0	241	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	195	305	737	846	0	0	0	0	0	145	11
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		27.0	27.0	19.4	50.4						9.1	9.1
Effective Green, g (s)		27.0	27.0	19.4	50.4						9.1	9.1
Actuated g/C Ratio		0.39	0.39	0.28	0.72						0.13	0.13
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1388	682	887	2592						234	234
v/s Ratio Prot		0.05		c0.23	0.23							
v/s Ratio Perm			c0.17								0.08	0.01
v/c Ratio		0.14	0.45	0.83	0.33						0.62	0.05
Uniform Delay, d1		14.0	16.0	23.8	3.6						28.8	26.7
Progression Factor		1.00	1.00	0.71	0.63						1.00	1.00
Incremental Delay, d2		0.2	2.1	4.9	0.3						3.4	0.0
Delay (s)		14.2	18.1	21.9	2.5						32.2	26.7
Level of Service		B	B	C	A						C	C
Approach Delay (s)		17.0			11.5			0.0			30.2	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	267	0	0	1012	182	418	0	297	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5379			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5379			1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	47	308	0	0	1223	200	459	0	326	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	237	0	0	0
Lane Group Flow (vph)	47	308	0	0	1391	0	0	459	89	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	4.5	40.3			31.8			19.2	19.2			
Effective Green, g (s)	4.5	40.3			31.8			19.2	19.2			
Actuated g/C Ratio	0.06	0.58			0.45			0.27	0.27			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	108	2072			2443			493	493			
v/s Ratio Prot	c0.03	0.09			c0.26							
v/s Ratio Perm								0.26	0.05			
v/c Ratio	0.44	0.15			0.57			0.93	0.18			
Uniform Delay, d1	31.5	6.9			14.1			24.8	19.4			
Progression Factor	0.53	1.71			1.00			1.00	1.00			
Incremental Delay, d2	1.0	0.1			1.0			24.2	0.1			
Delay (s)	17.7	11.9			15.0			49.0	19.5			
Level of Service	B	B			B			D	B			
Approach Delay (s)		12.7			15.0			36.7			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 85 Critical Vol./Cap.(X): 0.600
Loss Time (sec): 16 Average Delay (sec/veh): 33.2
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T	- R		L - T	- R		L - T	- R		L - T	- R	
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	94	177	318	43	268	10	7	311	80	363	902	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	94	177	318	43	268	10	7	311	80	363	902	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	188	338	46	285	11	7	331	85	386	960	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	188	338	46	285	11	7	331	85	386	960	34
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.00
FinalVolume:	100	198	338	47	299	11	7	347	89	386	1008	34
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.93	0.07	1.00	1.59	0.41	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3471	129	1700	2863	737	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.06	0.05	0.19	0.01	0.09	0.09	0.00	0.12	0.12	0.23	0.28	0.02
Crit Moves:			****	****			****				****	
Green/Cycle:	0.17	0.23	0.23	0.12	0.17	0.17	0.12	0.16	0.16	0.30	0.34	0.34
Volume/Cap:	0.34	0.24	0.81	0.13	0.49	0.49	0.04	0.75	0.75	0.75	0.81	0.05
Delay/Veh:	31.4	26.7	42.3	33.7	32.3	32.3	33.3	39.6	39.6	33.1	29.5	18.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.4	26.7	42.3	33.7	32.3	32.3	33.3	39.6	39.6	33.1	29.5	18.6
LOS by Move:	C	C	D	C	C	C	C	D	D	C	C	B
HCM2kAvgQ:	3	2	11	1	4	4	0	7	7	11	14	1

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	85	Critical Vol./Cap.(X):	0.600
Loss Time (sec):	16	Average Delay (sec/veh):	32.3
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	94	177	318	43	268	10	7	311	80	363	902	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	94	177	318	43	268	10	7	311	80	363	902	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	188	338	46	285	11	7	331	85	386	960	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	188	338	46	285	11	7	331	85	386	960	34
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	100	198	338	47	299	11	7	347	85	386	1008	34
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.93	0.07	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3471	129	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.06	0.05	0.19	0.01	0.09	0.09	0.00	0.10	0.05	0.23	0.28	0.02
Crit Moves:			****	****			****				****	
Green/Cycle:	0.17	0.23	0.23	0.12	0.17	0.17	0.12	0.16	0.16	0.30	0.34	0.34
Volume/Cap:	0.34	0.24	0.81	0.13	0.49	0.49	0.04	0.61	0.30	0.75	0.81	0.05
Delay/Veh:	31.4	26.7	42.3	33.7	32.3	32.3	33.3	35.3	32.2	32.4	29.5	18.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	31.4	26.7	42.3	33.7	32.3	32.3	33.3	35.3	32.2	32.4	29.5	18.6
LOS by Move:	C	C	D	C	C	C	C	D	C	C	C	B
HCM2kAvgQ:	3	2	11	1	4	4	0	5	2	11	14	1

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	0	Critical Vol./Cap.(X):	0.635
Loss Time (sec):	0	Average Delay (sec/veh):	17.5
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1	0 1	1	0	1	0 1	1	0	0	0 1!	0	0	0	0 1!	0	0
Volume Module:																
Base Vol:	24	184	16		108	346	147		152	60	53		91	52	123	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	24	184	16		108	346	147		152	60	53		91	52	123	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.84	0.84	0.84		0.84	0.84	0.84		0.84	0.84	0.84		0.84	0.84	0.84	
PHF Volume:	29	219	19		128	411	175		181	71	63		108	62	146	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	29	219	19		128	411	175		181	71	63		108	62	146	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	29	219	19		128	411	175		181	71	63		108	62	146	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.84	0.16		1.00	1.40	0.60		0.57	0.23	0.20		0.34	0.20	0.46	
Final Sat.:	410	806	71		465	712	315		284	112	99		174	99	235	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.27	0.27		0.28	0.58	0.55		0.64	0.64	0.64		0.62	0.62	0.62	
Crit Moves:		****				****			****					****		
Delay/Veh:	11.5	13.0	12.9		13.1	18.4	17.0		20.4	20.4	20.4		19.4	19.4	19.4	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	11.5	13.0	12.9		13.1	18.4	17.0		20.4	20.4	20.4		19.4	19.4	19.4	
LOS by Move:	B	B	B		B	C	C		C	C	C		C	C	C	
ApproachDel:		12.8				17.1				20.4				19.4		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		12.8				17.1				20.4				19.4		
LOS by Appr:		B				C				C				C		
AllWayAvgQ:	0.1	0.3	0.3		0.4	1.3	1.1		1.4	1.4	1.4		1.4	1.4	1.4	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.460
Loss Time (sec):	12	Average Delay (sec/veh):	18.2
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	24	184	16	108	346	147	152	60	53	91	52	123
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	184	16	108	346	147	152	60	53	91	52	123
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	29	219	19	128	411	175	181	71	63	108	62	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	219	19	128	411	175	181	71	63	108	62	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	29	229	20	128	431	183	181	71	63	108	62	146
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.84	0.16	1.00	1.40	0.60	0.59	0.22	0.19	0.36	0.19	0.45
Final Sat.:	1700	3312	288	1700	2527	1073	999	394	348	604	345	816
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.08	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18
Crit Moves:	****				****			****				
Green/Cycle:	0.17	0.24	0.24	0.24	0.31	0.31	0.33	0.33	0.33	0.33	0.33	0.33
Volume/Cap:	0.10	0.29	0.29	0.32	0.56	0.56	0.56	0.56	0.56	0.55	0.55	0.55
Delay/Veh:	21.3	18.9	18.9	19.3	18.0	18.0	17.9	17.9	17.9	17.8	17.8	17.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.3	18.9	18.9	19.3	18.0	18.0	17.9	17.9	17.9	17.8	17.8	17.8
LOS by Move:	C	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	1	2	2	2	5	5	6	6	6	6	6	6

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.635
Loss Time (sec): 12 Average Delay (sec/veh): 17.5
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	16	21	1	41	5	328	163	372	10	0	753	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	21	1	41	5	328	163	372	10	0	753	79
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	17	22	1	44	5	349	174	396	11	0	802	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	22	1	44	5	349	174	396	11	0	802	84
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	17	22	1	44	5	349	179	416	11	0	842	88
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.95	0.05	1.00	1.00	1.00	2.00	1.95	0.05	1.00	1.81	0.19
Final Sat.:	1700	1718	82	1700	1800	1800	3200	3506	94	1700	3258	342
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.03	0.00	0.19	0.06	0.12	0.12	0.00	0.26	0.26
Crit Moves:						****	****				****	
Green/Cycle:	0.27	0.27	0.27	0.27	0.27	0.27	0.17	0.53	0.53	0.00	0.36	0.36
Volume/Cap:	0.04	0.05	0.05	0.09	0.01	0.71	0.34	0.22	0.22	0.00	0.71	0.71
Delay/Veh:	16.1	16.2	16.2	16.4	16.0	24.7	22.4	7.6	7.6	0.0	18.4	18.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	16.1	16.2	16.2	16.4	16.0	24.7	22.4	7.6	7.6	0.0	18.4	18.4
LOS by Move:	B	B	B	B	B	C	C	A	A	A	B	B
HCM2kAvgQ:	0	0	0	1	0	7	2	2	2	0	9	9

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: B[12.3]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0			16	0			218	141	183		0		0	401			16
Growth Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00	1.00		1.00		1.00	1.00			1.00
Initial Bse:	0	0	0			16	0			218	141	183		0		0	401			16
User Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00	1.00		1.00		1.00	1.00			1.00
PHF Adj:	0.89	0.89	0.89			0.89	0.89			0.89	0.89	0.89		0.89		0.89	0.89			0.89
PHF Volume:	0	0	0			18	0			244	158	205		0		0	449			18
Reduct Vol:	0	0	0			0	0			0	0	0		0		0	0			0
FinalVolume:	0	0	0			18	0			244	158	205		0		0	449			18
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.8	xxxx			6.9	4.1	xxxx		xxxxx		xxxxx	xxxx			xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	xxxx			3.3	2.2	xxxx		xxxxx		xxxxx	xxxx			xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			876	xxxx			233	467	xxxx		xxxxx		xxxx	xxxx			xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx			292	xxxx			775	1105	xxxx		xxxxx		xxxx	xxxx			xxxxx
Move Cap.:	xxxx	xxxx	xxxxx			260	xxxx			775	1105	xxxx		xxxxx		xxxx	xxxx			xxxxx
Volume/Cap:	xxxx	xxxx	xxxx			0.07	xxxx			0.32	0.14	xxxx		xxxx		xxxx	xxxx			xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			0.2	xxxx			1.4	0.5	xxxx		xxxxx		xxxx	xxxx			xxxxx
Control Del:	xxxxx	xxxx	xxxxx			19.9	xxxx			11.8	8.8	xxxx		xxxxx		xxxxx	xxxx			xxxxx
LOS by Move:	*	*	*			C	*			B	A	*		*		*	*			*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx			xxxxx	xxxx	xxxx		xxxxx		xxxx	xxxx			xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx		xxxxx		xxxxx	xxxx			xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx		xxxxx		xxxxx	xxxx			xxxxx
Shared LOS:	*	*	*			*	*			*	*	*		*		*	*			*
ApproachDel:	xxxxxx					12.3					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 75 Critical Vol./Cap.(X): 0.434
Loss Time (sec): 12 Average Delay (sec/veh): 19.3
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		16	0	218		141	183	0		0	401	16	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		16	0	218		141	183	0		0	401	16	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		18	0	244		158	205	0		0	449	18	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		18	0	244		158	205	0		0	449	18	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		18	0	244		158	215	0		0	472	19	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.92	0.08	
Final Sat.:	0	0	0		1700	0	1800		1700	3600	0		0	3462	138	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.01	0.00	0.14		0.09	0.06	0.00		0.00	0.14	0.14	
Crit Moves:							****		****					****		
Green/Cycle:	0.00	0.00	0.00		0.31	0.00	0.31		0.21	0.53	0.00		0.00	0.31	0.31	
Volume/Cap:	0.00	0.00	0.00		0.03	0.00	0.43		0.43	0.11	0.00		0.00	0.43	0.43	
Delay/Veh:	0.0	0.0	0.0		17.9	0.0	21.1		26.4	8.9	0.0		0.0	20.7	20.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		17.9	0.0	21.1		26.4	8.9	0.0		0.0	20.7	20.7	
LOS by Move:	A	A	A		B	A	C		C	A	A		A	C	C	
HCM2kAvgQ:	0	0	0		0	0	5		4	1	0		0	5	5	

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	496	581	369	579	0	0	0	0	302	8	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	554	618	404	647	0	0	0	0	321	9	73
RTOR Reduction (vph)	0	0	381	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	554	237	404	647	0	0	0	0	0	330	17
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		26.8	26.8	12.5	43.3						16.2	16.2
Effective Green, g (s)		26.8	26.8	12.5	43.3						16.2	16.2
Actuated g/C Ratio		0.38	0.38	0.18	0.62						0.23	0.23
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1378	677	572	2226						416	416
v/s Ratio Prot		c0.15		c0.13	0.18							
v/s Ratio Perm			0.13								0.18	0.01
v/c Ratio		0.40	0.35	0.71	0.29						0.79	0.04
Uniform Delay, d1		15.8	15.4	27.0	6.2						25.3	20.9
Progression Factor		1.00	1.00	0.79	0.56						1.00	1.00
Incremental Delay, d2		0.9	1.4	2.9	0.3						9.4	0.0
Delay (s)		16.6	16.8	24.3	3.8						34.7	20.9
Level of Service		B	B	C	A						C	C
Approach Delay (s)		16.7			11.7			0.0			32.2	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	706	0	0	579	231	369	1	533	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5361			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5361			1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	95	764	0	0	657	238	380	1	549	0	0	0
RTOR Reduction (vph)	0	0	0	0	87	0	0	0	158	0	0	0
Lane Group Flow (vph)	95	764	0	0	808	0	0	381	391	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	7.4	39.2			27.8			20.3	20.3			
Effective Green, g (s)	7.4	39.2			27.8			20.3	20.3			
Actuated g/C Ratio	0.11	0.56			0.40			0.29	0.29			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	178	2016			2129			522	522			
v/s Ratio Prot	c0.06	c0.21			0.15							
v/s Ratio Perm								0.21	c0.22			
v/c Ratio	0.53	0.38			0.38			0.73	0.75			
Uniform Delay, d1	29.7	8.6			15.0			22.4	22.5			
Progression Factor	1.39	0.66			1.00			1.00	1.00			
Incremental Delay, d2	1.4	0.5			0.5			4.3	5.1			
Delay (s)	42.5	6.1			15.5			26.7	27.7			
Level of Service	D	A			B			C	C			
Approach Delay (s)		10.1			15.5			27.3			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 115 Critical Vol./Cap.(X): 0.886
Loss Time (sec): 16 Average Delay (sec/veh): 51.2
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	128	305	420	90	321	10	11	659	297	299	466	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	128	305	420	90	321	10	11	659	297	299	466	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	136	324	447	96	341	11	12	701	316	318	496	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	136	324	447	96	341	11	12	701	316	318	496	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.00
FinalVolume:	136	341	447	99	359	11	12	736	332	318	521	36
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	1.38	0.62	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3491	109	1700	2482	1118	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.08	0.09	0.25	0.03	0.10	0.10	0.01	0.30	0.30	0.19	0.14	0.02
Crit Moves:			****	****				****		****		
Green/Cycle:	0.16	0.26	0.26	0.09	0.19	0.19	0.19	0.31	0.31	0.20	0.32	0.32
Volume/Cap:	0.50	0.36	0.95	0.35	0.54	0.54	0.04	0.95	0.95	0.95	0.45	0.06
Delay/Veh:	45.5	34.8	69.8	50.2	43.0	43.0	37.8	54.0	54.0	80.5	31.4	27.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.5	34.8	69.8	50.2	43.0	43.0	37.8	54.0	54.0	80.5	31.4	27.2
LOS by Move:	D	C	E	D	D	D	D	D	D	F	C	C
HCM2kAvgQ:	5	5	20	2	6	6	0	23	23	16	7	1

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.816
Loss Time (sec):	16	Average Delay (sec/veh):	40.8
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	128	305	420	90	321	10	11	659	297	299	466	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	128	305	420	90	321	10	11	659	297	299	466	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	136	324	447	96	341	11	12	701	316	318	496	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	136	324	447	96	341	11	12	701	316	318	496	36
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	136	341	447	99	359	11	12	736	316	318	521	36
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3491	109	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.08	0.09	0.25	0.03	0.10	0.10	0.01	0.20	0.18	0.19	0.14	0.02
Crit Moves:			****	****				****		****		
Green/Cycle:	0.19	0.28	0.28	0.11	0.19	0.19	0.19	0.23	0.23	0.21	0.25	0.25
Volume/Cap:	0.41	0.34	0.90	0.28	0.53	0.53	0.04	0.90	0.77	0.90	0.59	0.08
Delay/Veh:	32.7	26.3	50.6	37.1	33.4	33.4	29.8	46.7	41.4	59.5	30.9	26.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.7	26.3	50.6	37.1	33.4	33.4	29.8	46.7	41.4	59.5	30.9	26.2
LOS by Move:	C	C	D	D	C	C	C	D	D	E	C	C
HCM2kAvgQ:	4	4	16	2	5	5	0	14	10	13	7	1

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	0	Critical Vol./Cap.(X):	0.807
Loss Time (sec):	0	Average Delay (sec/veh):	23.9
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	-	R	L	- T	-	R	L	- T	-	R	L	- T	-	R
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1 0	1	1	0	1 0	1	1	0	0 0	1!	0	0	0 0	1!	0	0
Volume Module:																
Base Vol:	37	536	61		149	324	79		244	68	37		47	63	138	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	37	536	61		149	324	79		244	68	37		47	63	138	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	39	565	64		157	342	83		257	72	39		50	66	146	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	39	565	64		157	342	83		257	72	39		50	66	146	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	39	565	64		157	342	83		257	72	39		50	66	146	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.80	0.20		1.00	1.61	0.39		0.70	0.19	0.11		0.19	0.25	0.56	
Final Sat.:	420	811	93		411	711	177		319	89	48		83	111	244	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.70	0.69		0.38	0.48	0.47		0.81	0.81	0.81		0.60	0.60	0.60	
Crit Moves:		****				****				****			****			
Delay/Veh:	12.0	26.3	25.6		16.3	17.5	16.9		34.3	34.3	34.3		20.6	20.6	20.6	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.0	26.3	25.6		16.3	17.5	16.9		34.3	34.3	34.3		20.6	20.6	20.6	
LOS by Move:	B	D	D		C	C	C		D	D	D		C	C	C	
ApproachDel:		25.4				17.1				34.3				20.6		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		25.4				17.1				34.3				20.6		
LOS by Appr:		D				C				D				C		
AllWayAvgQ:	0.1	2.0	1.9		0.6	0.9	0.8		3.0	3.0	3.0		1.2	1.2	1.2	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.611
Loss Time (sec):	12	Average Delay (sec/veh):	19.7
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	37	536	61	149	324	79	244	68	37	47	63	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	536	61	149	324	79	244	68	37	47	63	138
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	39	565	64	157	342	83	257	72	39	50	66	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	565	64	157	342	83	257	72	39	50	66	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	39	594	68	157	359	88	257	72	39	50	66	146
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.80	0.20	1.00	1.61	0.39	0.71	0.19	0.10	0.20	0.25	0.55
Final Sat.:	1700	3232	368	1700	2894	706	1209	337	183	337	452	991
Capacity Analysis Module:												
Vol/Sat:	0.02	0.18	0.18	0.09	0.12	0.12	0.21	0.21	0.21	0.15	0.15	0.15
Crit Moves:		****		****				****				
Green/Cycle:	0.23	0.29	0.29	0.17	0.23	0.23	0.34	0.34	0.34	0.34	0.34	0.34
Volume/Cap:	0.10	0.63	0.63	0.55	0.54	0.54	0.63	0.63	0.63	0.43	0.43	0.43
Delay/Veh:	18.3	19.6	19.6	25.4	21.0	21.0	18.7	18.7	18.7	15.8	15.8	15.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.3	19.6	19.6	25.4	21.0	21.0	18.7	18.7	18.7	15.8	15.8	15.8
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
HCM2kAvgQ:	1	6	6	4	4	4	7	7	7	4	4	4

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.430
Loss Time (sec): 12 Average Delay (sec/veh): 16.4
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	19	7	1	76	9	168	282	696	20	5	506	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	7	1	76	9	168	282	696	20	5	506	69
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	21	8	1	86	10	189	318	785	23	6	570	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	8	1	86	10	189	318	785	23	6	570	78
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	21	8	1	86	10	189	327	824	24	6	599	82
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.87	0.13	1.00	1.00	1.00	2.00	1.94	0.06	1.00	1.76	0.24
Final Sat.:	1700	1575	225	1700	1800	1800	3200	3499	101	1700	3168	432
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.05	0.01	0.11	0.10	0.24	0.24	0.00	0.19	0.19
Crit Moves:						****		****		****		
Green/Cycle:	0.20	0.20	0.20	0.20	0.20	0.20	0.28	0.44	0.44	0.17	0.32	0.32
Volume/Cap:	0.06	0.03	0.03	0.26	0.03	0.54	0.36	0.54	0.54	0.02	0.59	0.59
Delay/Veh:	19.7	19.5	19.5	20.9	19.6	23.3	17.4	12.8	12.8	20.9	17.8	17.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.7	19.5	19.5	20.9	19.6	23.3	17.4	12.8	12.8	20.9	17.8	17.8
LOS by Move:	B	B	B	C	B	C	B	B	B	C	B	B
HCM2kAvgQ:	0	0	0	2	0	4	3	6	6	0	6	6

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[13.1]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0			22	0			102	212		375		0	0		313		12
Growth Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	0	0			22	0			102	212		375		0	0		313		12
User Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.87	0.87	0.87			0.87	0.87			0.87	0.87		0.87		0.87	0.87		0.87		0.87
PHF Volume:	0	0	0			25	0			117	243		430		0	0		359		14
Reduct Vol:	0	0	0			0	0			0	0		0		0	0		0		0
FinalVolume:	0	0	0			25	0			117	243		430		0	0		359		14
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.8	xxxx			6.9	4.1	xxxx	xxxxx		xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	xxxx			3.3	2.2	xxxx	xxxxx		xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			1066	xxxx			186	372	xxxx	xxxxx		xxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx			221	xxxx			831	1197	xxxx	xxxxx		xxxx	xxxx	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx			186	xxxx			831	1197	xxxx	xxxxx		xxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx			0.14	xxxx			0.14	0.20	xxxx	xxxx		xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			0.5	xxxx			0.5	0.8	xxxx	xxxxx		xxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx			27.3	xxxx			10.0	8.8	xxxx	xxxxx		xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*			D	*			B	A	*	*		*	*	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*			*	*	*			*	*	*			*
ApproachDel:	xxxxxx					13.1					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing (2014) Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 60 Critical Vol./Cap.(X): 0.333
Loss Time (sec): 12 Average Delay (sec/veh): 13.5
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	22	0	102	212	375	0	0	313	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	22	0	102	212	375	0	0	313	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	0	0	0	25	0	117	243	430	0	0	359	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	25	0	117	243	430	0	0	359	14
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	25	0	117	243	451	0	0	376	14
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.93	0.07
Final Sat.:	0	0	0	1700	0	1800	1700	3600	0	0	3467	133
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.06	0.14	0.13	0.00	0.00	0.11	0.11
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.20	0.00	0.20	0.34	0.60	0.00	0.00	0.26	0.26
Volume/Cap:	0.00	0.00	0.00	0.08	0.00	0.33	0.42	0.21	0.00	0.00	0.42	0.42
Delay/Veh:	0.0	0.0	0.0	19.8	0.0	21.4	15.6	5.4	0.0	0.0	18.7	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	19.8	0.0	21.4	15.6	5.4	0.0	0.0	18.7	18.7
LOS by Move:	A	A	A	B	A	C	B	A	A	A	B	B
HCM2kAvgQ:	0	0	0	0	0	2	4	2	0	0	3	3

Note: Queue reported is the number of cars per lane.

APPENDIX 3.3:

EXISTING (2014) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

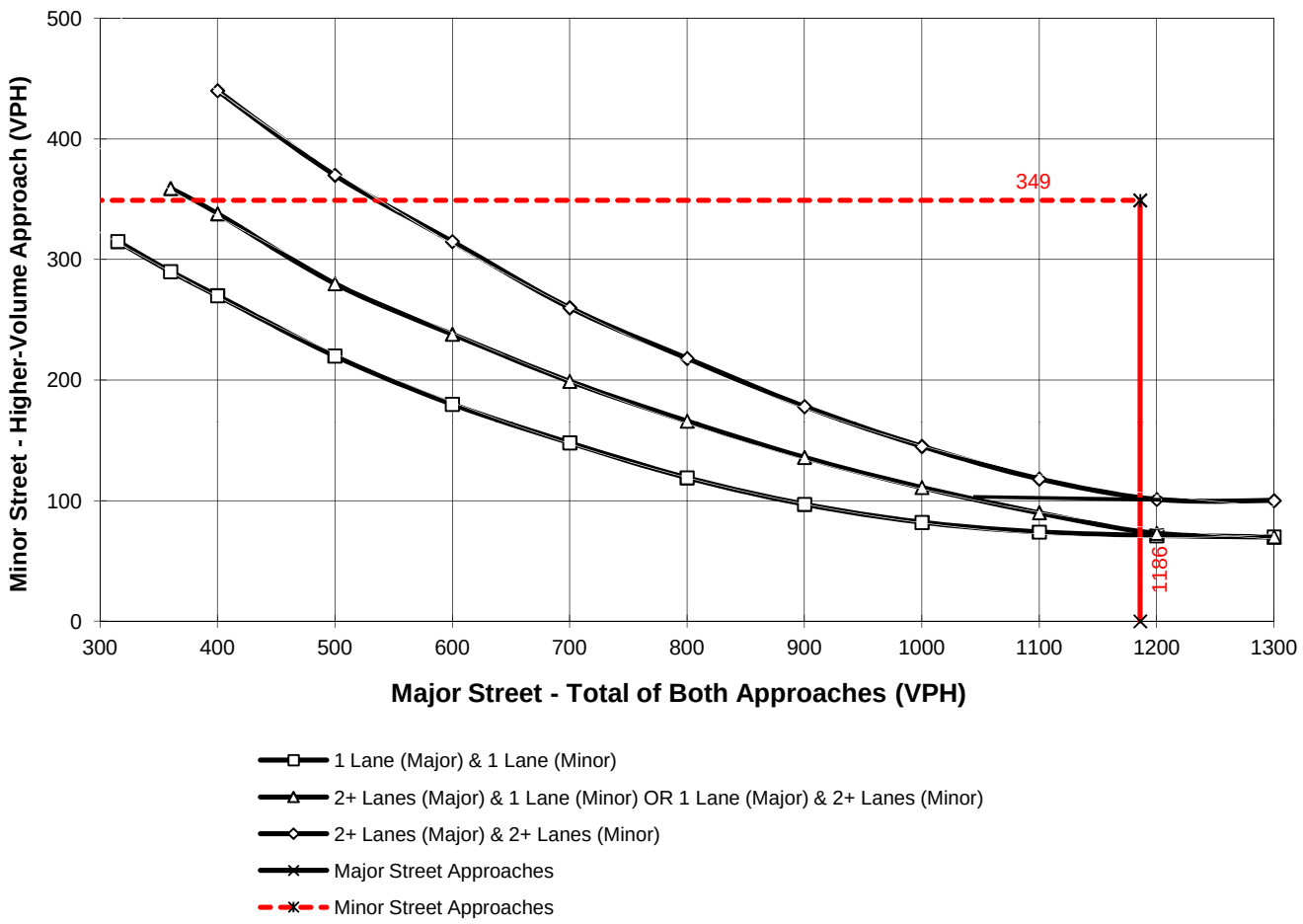
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2014) Conditions - Weekday PM Peak Hour**

Major Street Name = **Orange Street**
Total of Both Approaches (VPH) = **1186**
Number of Approach Lanes Major Street = **3**

Minor Street Name = **Pioneer Avenue**
High Volume Approach (VPH) = **349**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

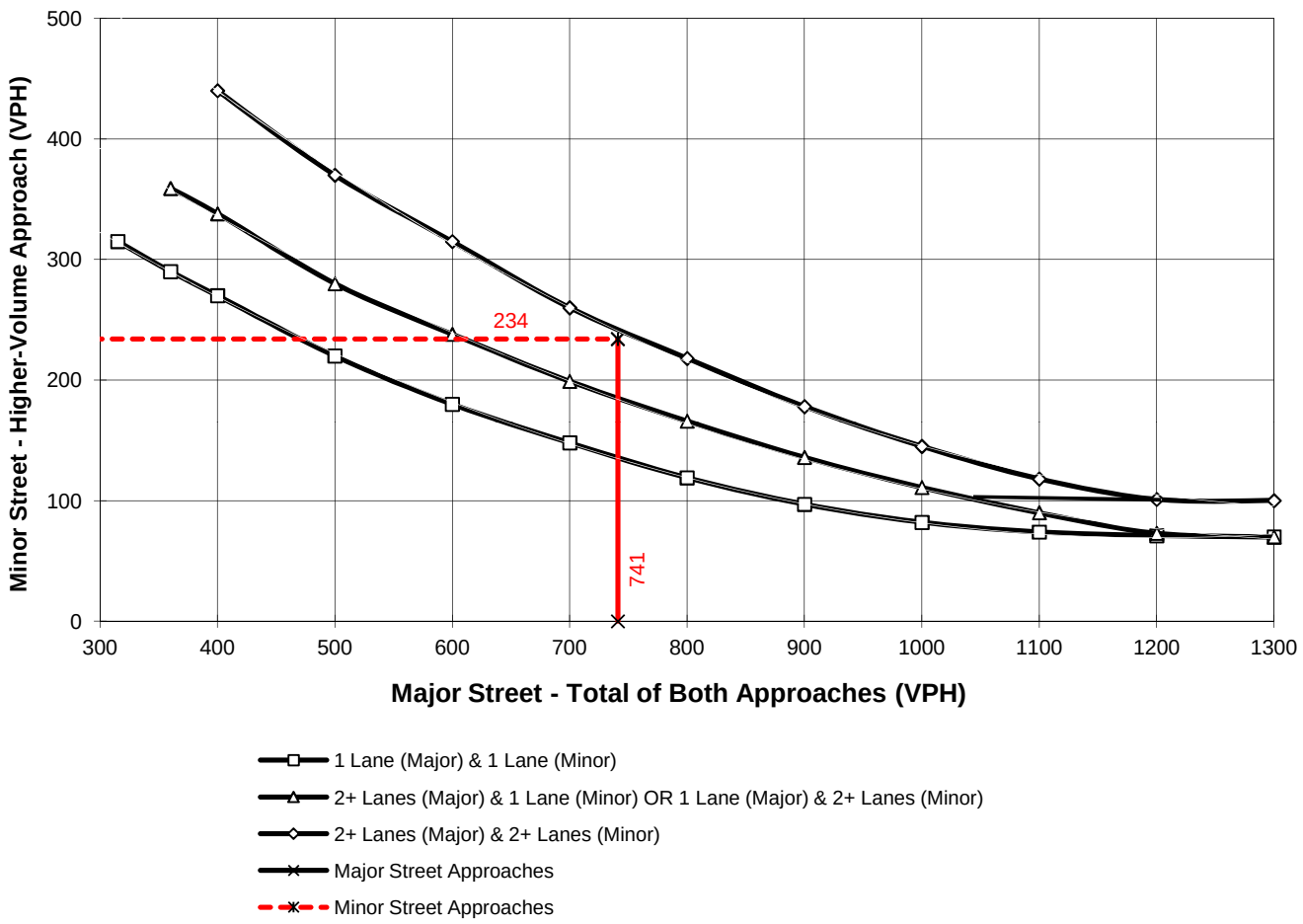
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2014) Conditions - Weekday AM Peak Hour**

Major Street Name = **Greenspot Road**
Total of Both Approaches (VPH) = **741**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Weaver Street**
High Volume Approach (VPH) = **234**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 3.4:

EXISTING (2014) CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	195	546	737	846	145	85
v/c Ratio	0.14	0.59	0.83	0.33	0.62	0.25
Control Delay	15.7	8.5	23.7	2.7	40.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	8.5	23.7	2.7	40.6	4.5
Queue Length 50th (ft)	28	45	89	36	59	0
Queue Length 95th (ft)	49	137	m219	m48	#114	19
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1420	936	976	2609	265	372
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.58	0.76	0.32	0.55	0.23

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	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	47	308	1423	459	326
v/c Ratio	0.30	0.15	0.55	0.93	0.45
Control Delay	20.0	11.1	13.7	56.7	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	11.1	13.7	56.7	5.4
Queue Length 50th (ft)	22	63	139	198	0
Queue Length 95th (ft)	m25	34	176	#411	59
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2592	494	731
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	0.12	0.13	0.55	0.93	0.45

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	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	554	618	404	647	330	73
v/c Ratio	0.40	0.58	0.71	0.29	0.80	0.14
Control Delay	18.0	4.4	27.6	4.0	40.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	4.4	27.6	4.0	40.3	2.0
Queue Length 50th (ft)	88	0	74	21	131	0
Queue Length 95th (ft)	134	65	m111	32	#237	10
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1428	1075	622	2246	471	563
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.57	0.65	0.29	0.70	0.13

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	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	95	764	895	381	549
v/c Ratio	0.47	0.38	0.39	0.73	0.81
Control Delay	45.5	6.2	13.5	34.2	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	6.2	13.5	34.2	25.9
Queue Length 50th (ft)	42	25	80	138	121
Queue Length 95th (ft)	m86	47	100	#322	#340
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2312	520	678
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	0.33	0.39	0.73	0.81

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.

APPENDIX 4.1:

VOLUME DEVELOPMENT WORKSHEETS AND CITY OF HIGHLAND CUMULATIVE PROJECT LIST

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Volume Development - AM Peak Hour

1. SR-210 EB Ramps / Greenspot Road

PHF: 0.943 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	0	0	0	127	1	74	0	167	503	657	711	0	2240
2014 PCE:	0	0	0	135	1	80	0	175	513	673	757	0	2334
Project	0	0	0	8	0	0	0	8	0	23	23	0	62
E+P:	0	0	0	143	1	80	0	183	513	696	780	0	2396
2018 AG	0	0	0	146	1	87	0	189	555	728	819	0	2526
Harmony 2019	0	0	0	60	0	0	0	37	0	186	106	0	389
Cum AM	0	0	0	239	0	55	0	261	10	523	333	0	1421
2018 NP	0	0	0	370	1	142	0	451	565	1,175	1,153	0	3856
2018 WP	0	0	0	378	1	142	0	459	565	1,198	1,176	0	3918
2018 WP Growth	######	######	######	1.29	1.02	1.15	######	1.27	1.02	1.16	1.12	######	1.14
Harmony 2035	0	0	0	587	1	180	0	495	320	1,534	1,307	0	4424
2035 NP	0	0	0	587	1	180	0	495	513	1,598	1,307	0	4681
2035 WP	0	0	0	595	1	180	0	503	513	1,621	1,330	0	4743
2035 WP Growth	######	######	######	1.07	1.01	1.04	######	1.05	1.00	1.04	1.03	######	1.03

2. SR-210 WB Ramps / Greenspot Road

PHF: 0.906 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	***383***	0	280	0	0	0	36	***258***	0	0	***985***	167	2109
2014 PCE:	418	0	297	0	0	0	43	267	0	0	1,012	182	2218
Project	0	0	13	0	0	0	0	16	0	0	47	23	99
E+P:	418	0	310	0	0	0	43	283	0	0	1,059	205	2317
2018 AG	452	0	321	0	0	0	46	289	0	0	1,095	197	2401
Harmony 2019	0	0	65	0	0	0	0	97	0	0	292	172	626
Cum AM	8	0	316	0	0	0	4	482	0	0	772	338	1919
2018 NP	461	0	636	0	0	0	50	771	0	0	1,867	535	4320
2018 WP	461	0	649	0	0	0	50	787	0	0	1,914	558	4419
2018 WP Growth	1.02	######	1.22	######	######	######	1.04	1.31	######	######	1.17	1.32	1.19
Harmony 2035	354	2	747	0	0	0	61	1,021	0	0	2,487	791	5463
2035 NP	418	2	747	0	0	0	61	1,021	0	0	2,487	791	5527
2035 WP	418	2	760	0	0	0	61	1,037	0	0	2,534	814	5626
2035 WP Growth	1.00	######	1.05	######	######	######	1.02	1.07	######	######	1.04	1.07	1.05

3. Boulder Avenue / Greenspot Road

PHF: 0.940 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	94	171	318	43	263	0	7	285	80	363	860	32	2516
2014 PCE:	94	177	318	43	268	10	7	311	80	363	902	32	2604
Project	0	0	8	8	0	0	0	29	0	39	70	23	177
E+P:	94	177	326	51	268	10	7	340	80	402	972	55	2781
2018 AG	102	191	344	47	290	11	8	336	87	393	976	35	2819
Harmony 2019	0	0	5	42	0	0	0	176	0	13	504	119	859
Cum AM	106	55	11	74	119	12	125	266	56	65	625	160	1672
2018 NP	207	246	355	121	409	23	133	602	142	458	1,601	194	4491
2018 WP	207	246	363	129	409	23	133	631	142	497	1,671	217	4668
2018 WP Growth	1.22	1.09	1.03	1.32	1.11	1.23	2.09	1.19	1.15	1.08	1.17	1.61	1.16
Harmony 2035	150	507	432	134	355	10	18	751	165	462	2,477	443	5904
2035 NP	150	507	432	134	355	12	18	751	165	462	2,477	443	5906
2035 WP	150	507	440	142	355	12	18	780	165	501	2,547	466	6083
2035 WP Growth	1.02	1.05	1.02	1.06	1.01	1.01	1.05	1.04	1.04	1.02	1.05	1.14	1.04

Volume Development - AM Peak Hour

4. Orange Street / Pioneer Avenue

PHF: 0.842 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	24	178	16	107	342	147	152	58	52	90	52	123	1341
2014 PCE:	24	184	16	108	346	147	152	60	53	91	52	123	1355
Project	0	8	0	0	23	16	0	0	0	0	0	0	47
E+P:	24	192	16	108	369	163	152	60	53	91	52	123	1402
2018 AG	26	199	17	117	375	159	165	65	57	98	56	133	1466
Cumulative	6	84	0	12	85	23	13	7	6	0	11	8	253
2018 NP	32	282	17	129	459	182	177	72	63	98	67	141	1720
2018 WP	32	290	17	129	482	198	177	72	63	98	67	141	1767
2018 WP Growth	1.08	1.12	1.02	1.05	1.09	1.08	1.04	1.05	1.04	1.02	1.07	1.03	1.07
2035 NP	82	290	20	190	590	450	340	132	85	120	181	160	2640
2035 WP	82	298	20	190	613	466	340	132	85	120	181	160	2687
2035 WP Growth	1.06	1.02	1.01	1.03	1.03	1.06	1.04	1.04	1.02	1.01	1.06	1.01	1.03

5.Church Street /Greenspot Road

PHF: 0.939 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	16	21	1	41	5	328	163	346	10	0	711	79	1721
2014 PCE:	16	21	1	41	5	328	163	372	10	0	753	79	1789
Project	0	0	0	3	0	0	0	45	0	0	132	8	188
E+P:	16	21	1	44	5	328	163	417	10	0	885	87	1977
2018 AG	17	23	1	44	5	355	176	402	11	0	815	86	1936
Harmony 2019	0	0	0	9	0	0	0	222	0	0	636	27	894
Cum AM	2	0	0	23	0	23	20	300	2	0	731	48	1148
2018 NP	19	23	1	68	5	378	197	702	12	0	1,546	133	3084
2018 WP	19	23	1	71	5	378	197	747	12	0	1,678	141	3272
2018 WP Growth	1.04	1.02	1.02	1.15	1.02	1.04	1.05	1.19	1.05	######	1.22	1.16	1.16
Harmony 2035	58	16	0	78	5	449	251	941	20	5	2,460	146	4429
2035 NP	58	25	1	78	6	449	251	941	20	5	2,460	146	4440
2035 WP	58	25	1	81	6	449	251	986	20	5	2,592	154	4628
2035 WP Growth	1.06	1.01	1.01	1.03	1.01	1.02	1.02	1.05	1.03	######	1.06	1.03	1.05

6.Weaver Street /Greenspot Road

PHF: 0.893 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	0	0	0	16	0	218	141	157	0	0	359	16	907
2014 PCE:	0	0	0	16	0	218	141	183	0	0	401	16	975
Project	0	0	0	3	0	0	0	48	0	0	140	8	199
E+P:	0	0	0	19	0	218	141	231	0	0	541	24	1174
2018 AG	0	0	0	17	0	236	153	198	0	0	434	17	1055
Harmony 2019	0	0	0	14	0	0	0	231	0	0	663	40	948
Cum AM	0	0	0	14	0	26	22	301	0	0	753	40	1156
2018 NP	0	0	0	31	0	262	175	499	0	0	1,187	57	2211
2018 WP	0	0	0	34	0	262	175	547	0	0	1,327	65	2410
2018 WP Growth	######	######	######	1.21	######	1.05	1.06	1.32	######	######	1.35	1.42	1.25
Harmony 2035	0	0	0	98	0	329	143	779	0	0	1,956	130	3435
2035 NP	0	0	0	98	0	329	168	779	0	0	1,956	130	3460
2035 WP	0	0	0	101	0	329	168	827	0	0	2,096	138	3659
2035 WP Growth	######	######	######	1.09	######	1.02	1.01	1.07	######	######	1.08	1.11	1.07

Volume Development - AM Peak Hour

7. Driveway 1 /Greenspot Road

PHF: 0.920 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:								173			375		548
2014 PCE:	0	0	0	0	0	0	0	199	0	0	417	0	616
Project	0	0	0	4	0	74	25	25	0	0	74	1	203
E+P:	0	0	0	4	0	74	25	224	0	0	491	1	819
2018 AG	0	0	0	0	0	0	0	215	0	0	451	0	666
Harmony 2019	0	0	0	0	0	0	0	245	0	0	703	0	948
Cum AM	0	0	0	0	0	0	0	315	0	0	793	0	1108
2018 NP	0	0	0	0	0	0	0	530	0	0	1,244	0	1774
2018 WP	0	0	0	4	0	74	25	555	0	0	1,318	1	1977
2018 WP Growth	######	######	######	######	######	######	######	1.29	######	######	1.33	######	1.34
Harmony 2035	0	0	0	0	0	0	0	877	0	0	2,086	0	2963
2035 NP	0	0	0	0	0	0	0	877	0	0	2,086	0	2963
2035 WP	0	0	0	4	0	74	25	902	0	0	2,160	1	3166
2035 WP Growth	######	######	######	######	######	######	######	1.07	######	######	1.08	######	1.08

8. Driveway 2 /Greenspot Road

PHF: 0.920 Count Date: 6/5/14

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:								173			375		548
2014 PCE:	0	0	0	0	0	0	0	199	0	0	417	0	616
Project	0	0	0	4	0	74	25	4	0	0	1	2	110
E+P:	0	0	0	4	0	74	25	203	0	0	418	2	726
2018 AG	0	0	0	0	0	0	0	215	0	0	451	0	666
Harmony 2019	0	0	0	0	0	0	0	245	0	0	703	0	948
Cum AM	0	0	0	0	0	0	0	315	0	0	793	0	1108
2018 NP	0	0	0	0	0	0	0	530	0	0	1,244	0	1774
2018 WP	0	0	0	4	0	74	25	534	0	0	1,245	2	1884
2018 WP Growth	######	######	######	######	######	######	######	1.28	######	######	1.31	######	1.32
Harmony 2035	0	0	0	0	0	0	0	877	0	0	2,086	0	2963
2035 NP	0	0	0	0	0	0	0	877	0	0	2,086	0	2963
2035 WP	0	0	0	4	0	74	25	881	0	0	2,087	2	3073
2035 WP Growth	######	######	######	######	######	######	######	1.07	######	######	1.08	######	1.08

Volume Development - PM Peak Hour

1. SR-210 EB Ramps / Greenspot Road

PHF: 0.936

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	0	0	0	288	8	67	0	494	566	***362***	***562***	0	2347
2014 PCE:	0	0	0	302	8	69	0	496	581	369	579	0	2403
Project	0	0	0	26	0	0	0	26	0	26	15	0	93
E+P:	0	0	0	328	8	69	0	522	581	395	594	0	2496
2018 AG	0	0	0	327	9	75	0	537	628	399	627	0	2601
Harmony 2019	0	0	0	217	0	0	0	134	0	141	81	0	573
Cumulative	0	0	0	550	0	72	0	569	2	577	553	0	2322
2018 NP	0	0	0	877	9	147	0	1,106	630	914	1,179	0	4861
2018 WP	0	0	0	903	9	147	0	1,132	630	940	1,194	0	4954
2018 WP Growth	######	######	######	1.31	1.02	1.21	######	1.23	1.02	1.26	1.20	######	1.20
Harmony 2035	0	0	0	1,284	1	145	0	1,443	518	1,186	841	0	5418
2035 NP	0	0	0	1,284	10	145	0	1,443	691	1,186	1,053	0	5812
2035 WP	0	0	0	1,310	10	145	0	1,469	691	1,212	1,068	0	5905
2035 WP Growth	######	######	######	1.07	1.01	1.04	######	1.05	1.01	1.06	1.03	######	1.04

2. SR-210 WB Ramps / Greenspot Road

PHF: 0.965

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	348	1	530	0	0	0	***88***	***694***	0	0	576	229	2466
2014 PCE:	369	1	533	0	0	0	92	706	0	0	579	231	2511
Project	0	0	44	0	0	0	0	53	0	0	41	15	153
E+P:	369	1	577	0	0	0	92	759	0	0	620	246	2664
2018 AG	399	1	577	0	0	0	100	764	0	0	627	250	2717
Harmony 2019	0	0	234	0	0	0	0	351	0	0	221	131	937
Cumulative	3	0	714	0	0	0	1	1,118	0	0	1,064	451	3351
2018 NP	402	1	1,291	0	0	0	100	1,882	0	0	1,691	701	6069
2018 WP	402	1	1,335	0	0	0	100	1,935	0	0	1,732	716	6222
2018 WP Growth	1.02	1.02	1.26	######	######	######	1.02	1.29	######	######	1.32	1.33	1.25
Harmony 2035	226	2	273	0	0	0	148	2,579	0	0	1,800	974	6002
2035 NP	439	2	635	0	0	0	148	2,579	0	0	1,800	974	6576
2035 WP	439	2	679	0	0	0	148	2,632	0	0	1,841	989	6729
2035 WP Growth	1.01	1.03	1.01	######	######	######	1.02	1.06	######	######	1.06	1.07	1.05

3. Boulder Avenue / Greenspot Road

PHF: 0.940

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	128	302	420	90	319	10	11	644	297	299	461	34	3015
2014 PCE:	128	305	420	90	321	10	11	659	297	299	466	34	3040
Project	0	0	26	26	0	0	0	96	0	15	56	15	234
E+P:	128	305	446	116	321	10	11	755	297	314	522	49	3274
2018 AG	139	330	455	97	347	11	12	713	321	324	504	37	3290
Harmony 2019	0	0	17	150	0	0	0	635	0	10	382	91	1285
Cumulative	178	69	37	200	112	41	159	847	131	45	528	171	2518
2018 NP	316	399	491	298	459	52	171	1,561	453	369	1,033	207	5808
2018 WP	316	399	517	324	459	52	171	1,657	453	384	1,089	222	6042
2018 WP Growth	1.25	1.07	1.05	1.38	1.09	1.51	1.99	1.26	1.11	1.06	1.24	1.60	1.19
Harmony 2035	203	470	528	451	471	13	63	2,251	335	375	1,340	295	6795
2035 NP	203	470	528	451	471	13	63	2,251	354	375	1,340	295	6814
2035 WP	203	470	554	477	471	13	63	2,347	354	390	1,396	310	7048
2035 WP Growth	1.02	1.02	1.01	1.08	1.02	1.01	1.09	1.06	1.01	1.01	1.05	1.11	1.04

Volume Development - PM Peak Hour

4. Orange Street / Pioneer Avenue

PHF: 0.948

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	36	533	61	149	322	79	243	68	36	47	62	138	1774
2014 PCE:	37	536	61	149	324	79	244	68	37	47	63	138	1781
Project	0	26	0	0	15	0	0	0	0	0	0	0	41
E+P:	37	562	61	149	339	79	244	68	37	47	63	138	1822
2018 AG	40	580	66	161	350	86	264	74	40	51	68	149	1928
Cumulative	8	107	0	23	125	6	0	14	6	0	4	11	305
2018 NP	48	687	66	184	475	91	264	88	46	51	72	160	2233
2018 WP	48	713	66	184	490	91	264	88	46	51	72	160	2274
2018 WP Growth	1.07	1.07	1.02	1.05	1.11	1.04	1.02	1.07	1.06	1.02	1.03	1.04	1.06
2035 NP	85	890	90	350	790	170	370	232	83	56	103	176	3395
2035 WP	85	916	90	350	805	170	370	232	83	56	103	176	3436
2035 WP Growth	1.04	1.03	1.02	1.04	1.04	1.04	1.02	1.06	1.04	1.01	1.02	1.01	1.03

5.Church Street /Greenspot Road

PHF: 0.887

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	19	7	1	76	9	168	282	681	20	5	501	69	1838
2014 PCE:	19	7	1	76	9	168	282	696	20	5	506	69	1858
Project	0	0	0	9	0	0	0	149	0	0	87	5	250
E+P:	19	7	1	85	9	168	282	845	20	5	593	74	2108
2018 AG	21	8	1	82	10	182	305	753	22	5	548	75	2011
Harmony 2019	0	0	0	33	0	0	0	802	0	0	483	20	1338
Cumulative	4	0	0	52	0	50	48	924	4	0	634	37	1752
2018 NP	24	8	1	135	10	232	353	1,677	25	5	1,181	112	3763
2018 WP	24	8	1	144	10	232	353	1,826	25	5	1,268	117	4013
2018 WP Growth	1.06	1.02	1.02	1.17	1.02	1.08	1.06	1.27	1.06	1.02	1.26	1.14	1.21
Harmony 2035	24	16	7	165	15	318	418	2,581	59	7	1,523	138	5271
2035 NP	24	16	7	165	15	318	418	2,581	59	7	1,523	138	5271
2035 WP	24	16	7	174	15	318	418	2,730	59	7	1,610	143	5521
2035 WP Growth	1.01	1.04	1.10	1.04	1.02	1.03	1.02	1.07	1.05	1.02	1.06	1.04	1.05

6.Weaver Street /Greenspot Road

PHF: 0.873

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:	0	0	0	22	0	102	212	360	0	0	308	12	1016
2014 PCE:	0	0	0	22	0	102	212	375	0	0	313	12	1036
Project	0	0	0	9	0	0	0	158	0	0	92	5	264
E+P:	0	0	0	31	0	102	212	533	0	0	405	17	1300
2018 AG	0	0	0	24	0	110	229	406	0	0	339	13	1121
Harmony 2019	0	0	0	50	0	0	0	835	0	0	503	30	1418
Cumulative	0	0	0	50	0	38	37	939	0	0	633	30	1727
2018 NP	0	0	0	74	0	148	266	1,345	0	0	972	43	2848
2018 WP	0	0	0	83	0	148	266	1,503	0	0	1,064	48	3112
2018 WP Growth	######	######	######	1.39	######	1.10	1.06	1.41	######	######	1.36	1.41	1.32
Harmony 2035	0	0	0	153	0	155	247	2,261	0	0	1,272	97	4185
2035 NP	0	0	0	153	0	155	252	2,261	0	0	1,272	97	4190
2035 WP	0	0	0	162	0	155	252	2,419	0	0	1,364	102	4454
2035 WP Growth	######	######	######	1.10	######	1.02	1.01	1.09	######	######	1.07	1.11	1.07

Volume Development - PM Peak Hour

7. Driveway 1 /Greenspot Road

PHF: 0.920

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:								382			320		702
2014 PCE:	0	0	0	0	0	0	0	397	0	0	325	0	722
Project	0	0	0	2	0	48	83	84	0	0	49	4	270
E+P:	0	0	0	2	0	48	83	481	0	0	374	4	992
2018 AG	0	0	0	0	0	0	0	430	0	0	352	0	781
Harmony 2019	0	0	0	0	0	0	0	885	0	0	533	0	1418
Cumulative	0	0	0	0	0	0	0	989	0	0	663	0	1652
2018 NP	0	0	0	0	0	0	0	1,419	0	0	1,015	0	2434
2018 WP	0	0	0	2	0	48	83	1,503	0	0	1,064	4	2704
2018 WP Growth	######	######	######	######	######	######	######	1.39	######	######	1.35	######	1.39
Harmony 2035	0	0	0	0	0	0	0	2,414	0	0	1,369	0	3783
2035 NP	0	0	0	0	0	0	0	2,414	0	0	1,369	0	3783
2035 WP	0	0	0	2	0	48	83	2,498	0	0	1,418	4	4053
2035 WP Growth	######	######	######	######	######	######	######	1.09	######	######	1.07	######	1.09

8. Driveway 2 /Greenspot Road

PHF: 0.920

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2014 Total:								382			320		702
2014 PCE:	0	0	0	0	0	0	0	397	0	0	325	0	722
Project	0	0	0	3	0	49	84	2	0	0	4	5	147
E+P:	0	0	0	3	0	49	84	399	0	0	329	5	869
2018 AG	0	0	0	0	0	0	0	430	0	0	352	0	781
Harmony 2019	0	0	0	0	0	0	0	885	0	0	533	0	1418
Cumulative	0	0	0	0	0	0	0	989	0	0	663	0	1652
2018 NP	0	0	0	0	0	0	0	1,419	0	0	1,015	0	2434
2018 WP	0	0	0	3	0	49	84	1,421	0	0	1,019	5	2581
2018 WP Growth	######	######	######	######	######	######	######	1.38	######	######	1.33	######	1.37
Harmony 2035	0	0	0	0	0	0	0	2,414	0	0	1,369	0	3783
2035 NP	0	0	0	0	0	0	0	2,414	0	0	1,369	0	3783
2035 WP	0	0	0	3	0	49	84	2,416	0	0	1,373	5	3930
2035 WP Growth	######	######	######	######	######	######	######	1.09	######	######	1.07	######	1.08

Highlight = Cumulative volume manually added in addition to ambient growth

	Project Name	Land Use	No. of Units	Unit
1	Santa Ana River Wash	Cement Plant – See Attachment		
2	Blossom Trails	Single Family Residential Residential Condominium	14 306	DU DU
3	121 SFD Gated Community	Single Family Residential	121	DU
4	San Manuel Village- Partially built	Restaurant with Drive Through Restaurant Bank w/drive Through Restaurant with Drive Through	3.50 5.80 5.20 5.00	TSF TSF TSF TSF
5	Highland Crossroads (Formerly Regency Center) Partially Occupied	Retail Retail with Drive through	42.84 5.0	TSF TSF
6	30,000 SF Retail Center at Boulder Avenue / Greenspot Road	Fast Food Retail	14.38 16.33	TSF TSF
7	Centerstone -133 SFH	Residential	133	DU
8	Greenspot Village & Marketplace	Residential/Retail – See Attachment		
9	Industrial Center on Palm	Industrial	39.75	TSF
10	Greenspot Retail Office	Retail	5.00	TSF
11	Chong Homes	Residential	5	DU
12	Harmony Development	See Attachment		
13	Base Line Commercial	Fast Food w/Drive through High Turnover Restaurant	86 80	Seats Seats
14	Orange New Jersey Pro (0ffice/Professional/Ware house)	Industrial Park	126.9	TSF
15	Randal Brank (Medical Office Addition)	Medical-Dental Office Building	25.00	TSF
16	St Adelaide's Academy Expansion –New Ministry Offices	General Office Building	9.0	TSF
17	CT Reality Corporation (Business Park)	Business Park	85.00	TSF

	Project Name	Land Use	No. of Units	Unit
18	KZ Holdings (Mixed Use)	Residential General Office Building	54 12	DU TSF
19	Immanuel Baptist Church	Church	90.00	TSF
20	Gas Station and Motel Expansion	Convenience Store Motel	2.4 72	TSF Units
21	Village Commercial	Shopping Center	9.9	TSF
22	Commercial Retail	Shopping Center	6.00	TSF
23	Peter Le - (Residential)	Single Family-Detached	8	DU
24	Hispano Investors (Residential)	Single Family-Detached	17	DU
25	Golden Security Bank (Residential)	Single Family-Detached	11	DU
26	North American Residential	Single Family-Detached	8	DU
27	Ross Jones - (Residential)	Single Family-Detached	4	DU
28	South Terminus of Lillian Lane (Residential)	Single Family-Detached	13	DU
29	Wright - (Residential)	Single Family-Detached	39	DU
30	Alta Vista and Santa Ana	Single Family-Detached	56	DU
31	Southeast Corner of Base Line and Seine Avenue	Retail	23.5	TSF
32	Northwest Corner of Base Line and Boulder (Kevin Chong)	Bank	5.2	TSF
33	Pepito’s	Restaurant/Commercial	Remodel	

SANTA ANA RIVER WASH
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1						4		5	13		11		SR-210 EB Ramps / 5th Street
2	11						5						SR-210 WB Ramps / Greenspot Road
3													Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5													Chruch Street / Greenspot Road
6													Weaver Street / Greenspot Road
7													Driveway 1 / Greenspot Road
8													Driveway 2 / Greenspot Road

SANTA ANA RIVER WASH
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1						4		5	13		11		SR-210 EB Ramps / 5th Street
2	11						5						SR-210 WB Ramps / Greenspot Road
3													Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5													Chruch Street / Greenspot Road
6													Weaver Street / Greenspot Road
7													Driveway 1 / Greenspot Road
8													Driveway 2 / Greenspot Road

BLOSSOM TRAILS
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	18	0	0	0	22	0	17	21	0	SR-210 EB Ramps / 5th Street
2	0	0	18	0	0	0	0	40	0	0	38	17	SR-210 WB Ramps / Greenspot Road
3	9	0	0	0	0	9	9	9	9	0	0	9	Boulder Avenue / Greenspot Road
4	0	0	0	0	0	0	0	0	0	0	0	0	Orange Street / Pioneer Avenue
5	1	0	0	0	0	5	4	4	1	0	5	0	Chruch Street / Greenspot Road
6								4			5		Weaver Street / Greenspot Road
7								4			5		Driveway 1 / Greenspot Road
8								4			5		Driveway 2 / Greenspot Road

BLOSSOM TRAIL
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	61	0	0	0	74	0	62	74	0	SR-210 EB Ramps / 5th Street
2	0	0	61	0	0	0	0	135	0	0	137	62	SR-210 WB Ramps / Greenspot Road
3	31	0	0	0	0	31	34	31	31	0	0	31	Boulder Avenue / Greenspot Road
4	0	0	0	0	0	0	0	0	0	0	0	0	Orange Street / Pioneer Avenue
5	3	0	0	0	0	16	16	16	3	0	16	0	Chruch Street / Greenspot Road
6								16			16		Weaver Street / Greenspot Road
7								16			16		Driveway 1 / Greenspot Road
8								16			16		Driveway 2 / Greenspot Road

121 SFD GATED COMMUNITY
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				3	0	0	0	3	0	23	8	0	SR-210 EB Ramps / 5th Street
2			8					6			30	11	SR-210 WB Ramps / Greenspot Road
3	0	0	4	4	0	0	0	14	0	11	41	11	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								8			4		Chruch Street / Greenspot Road
6								8			4		Weaver Street / Greenspot Road
7								8			4		Driveway 1 / Greenspot Road
8								8			4		Driveway 2 / Greenspot Road

121 SFD GATED COMMUNITY
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				13	0	0	0	8	0	15	5	0	SR-210 EB Ramps / 5th Street
2			25					21			20	8	SR-210 WB Ramps / Greenspot Road
3	0	0	13	13	0	0	0	46	0	8	28	8	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								5			13		Chruch Street / Greenspot Road
6								5			13		Weaver Street / Greenspot Road
7								5			13		Driveway 1 / Greenspot Road
8								5			13		Driveway 2 / Greenspot Road

SAN MANUEL VILLAGE-PARTIALLY BUILT
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1						69				101			SR-210 EB Ramps / 5th Street
2													SR-210 WB Ramps / Greenspot Road
3		46			32								Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5				19								28	Chruch Street / Greenspot Road
6						14	9	9			14		Weaver Street / Greenspot Road
7								9			14		Driveway 1 / Greenspot Road
8								9			14		Driveway 2 / Greenspot Road

SAN MANUEL VILLAGE-PARTIALLY BUILT
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1						95					83		SR-210 EB Ramps / 5th Street
2													SR-210 WB Ramps / Greenspot Road
3		38			43								Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5				26								23	Chruch Street / Greenspot Road
6						11	13	13			11		Weaver Street / Greenspot Road
7								13			11		Driveway 1 / Greenspot Road
8								13			11		Driveway 2 / Greenspot Road

HIGHLAND CROSSROADS (FORMERLY REGENCY CENTER) PARTIALLY OCCUPIED
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				14				17		13	16		SR-210 EB Ramps / 5th Street
2			14					31			29	13	SR-210 WB Ramps / Greenspot Road
3	7					7	7	7	7	0	0	7	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5	1	0	0	0	0	4	3	3	1	0	4	0	Chruch Street / Greenspot Road
6								3			4		Weaver Street / Greenspot Road
7								3			4		Driveway 1 / Greenspot Road
8								3			4		Driveway 2 / Greenspot Road

HIGHLAND CROSSROADS (FORMERLY REGENCY CENTER) PARTIALLY OCCUPIED
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				47				57		48	57		SR-210 EB Ramps / 5th Street
2			47					104			105	48	SR-210 WB Ramps / Greenspot Road
3	24					24	26	24	24	0	0	24	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5	2	0	0	0	0	12	12	12	2	0	12	0	Chruch Street / Greenspot Road
6								12			12		Weaver Street / Greenspot Road
7								12			12		Driveway 1 / Greenspot Road
8								12			12		Driveway 2 / Greenspot Road

30,000 SF RETAIL CENTER AT BOULDER AVENUE / GREENSPOT ROAD
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	40	0	0	0	27	0	32	29	0	SR-210 EB Ramps / 5th Street
2			32					67			62	32	SR-210 WB Ramps / Greenspot Road
3	36				75		125	21		47			Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								21			47		Chruch Street / Greenspot Road
6								21			47		Weaver Street / Greenspot Road
7								21			47		Driveway 1 / Greenspot Road
8								21			47		Driveway 2 / Greenspot Road

30,000 SF RETAIL CENTER AT BOULDER AVENUE / GREENSPOT ROAD
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	22	0	0	0	27	0	14	27	0	SR-210 EB Ramps / 5th Street
2			19					49			41	25	SR-210 WB Ramps / Greenspot Road
3	24				31		106	17		31			Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								17			31		Chruch Street / Greenspot Road
6								17			31		Weaver Street / Greenspot Road
7								17			31		Driveway 1 / Greenspot Road
8								17			31		Driveway 2 / Greenspot Road

CENTERSTONE--133 SFH
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				3	0	0	0	3	0	23	8	0	SR-210 EB Ramps / 5th Street
2			8					6			30	11	SR-210 WB Ramps / Greenspot Road
3	0	0	4	4	0	0	0	14	0	11	41	11	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								8			4		Chruch Street / Greenspot Road
6								8			4		Weaver Street / Greenspot Road
7								8			4		Driveway 1 / Greenspot Road
8								8			4		Driveway 2 / Greenspot Road

CENTERSTONE-133 SFH
PMPEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1				13	0	0	0	8	0	15	5	0	SR-210 EB Ramps / 5th Street
2			25					21			20	8	SR-210 WB Ramps / Greenspot Road
3	0	0	13	13	0	0	0	46	0	8	28	8	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5								5			13		Chruch Street / Greenspot Road
6								5			13		Weaver Street / Greenspot Road
7								5			13		Driveway 1 / Greenspot Road
8								5			13		Driveway 2 / Greenspot Road

GREENSPOT VILLAGE & MARKETPLACE
AM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	161	0	0	0	222	0	240	210	0	SR-210 EB Ramps / 5th Street
2	0	0	254	0	0	0	0	363	0	0	451	137	SR-210 WB Ramps / Greenspot Road
3	89	27	0	35	52	0	26	55	58	0	79	16	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5	0	0	0	0	0	21	20	60	0	0	63	0	Chruch Street / Greenspot Road
6						21	20	40	0	0	42	0	Weaver Street / Greenspot Road
7								40			42		Driveway 1 / Greenspot Road
8								40			42		Driveway 2 / Greenspot Road

GREENSPOT VILLAGE & MARKETPLACE
PM PEAK HOUR

Int ID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
1	0	0	0	288	0	0	0	405	0	427	374	0	SR-210 EB Ramps / 5th Street
2	0	0	463	0	0	0	0	693	0	0	801	276	SR-210 WB Ramps / Greenspot Road
3	158	54	0	41	75	0	46	119	120	0	139	35	Boulder Avenue / Greenspot Road
4													Orange Street / Pioneer Avenue
5	0	0	0	0	0	39	36	107	0	0	116	0	Chruch Street / Greenspot Road
6						39	36	71	0	0	77	0	Weaver Street / Greenspot Road
7								71			77		Driveway 1 / Greenspot Road
8								71			77		Driveway 2 / Greenspot Road

CUMULATIVE PROJECT 1

TRAFFIC STUDY

UPPER SANTA ANA RIVER WASH

SAN BERNARDINO COUNTY, CALIFORNIA

This Traffic Study
has been prepared under the supervision of
Leslie E. Card, P.E.

Signed _____

REGISTERED PROFESSIONAL ENGINEER
LESLIE ERIC CARD
No. 34410
Exp. 9/30/07
CIVIL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
LESLIE ERIC CARD
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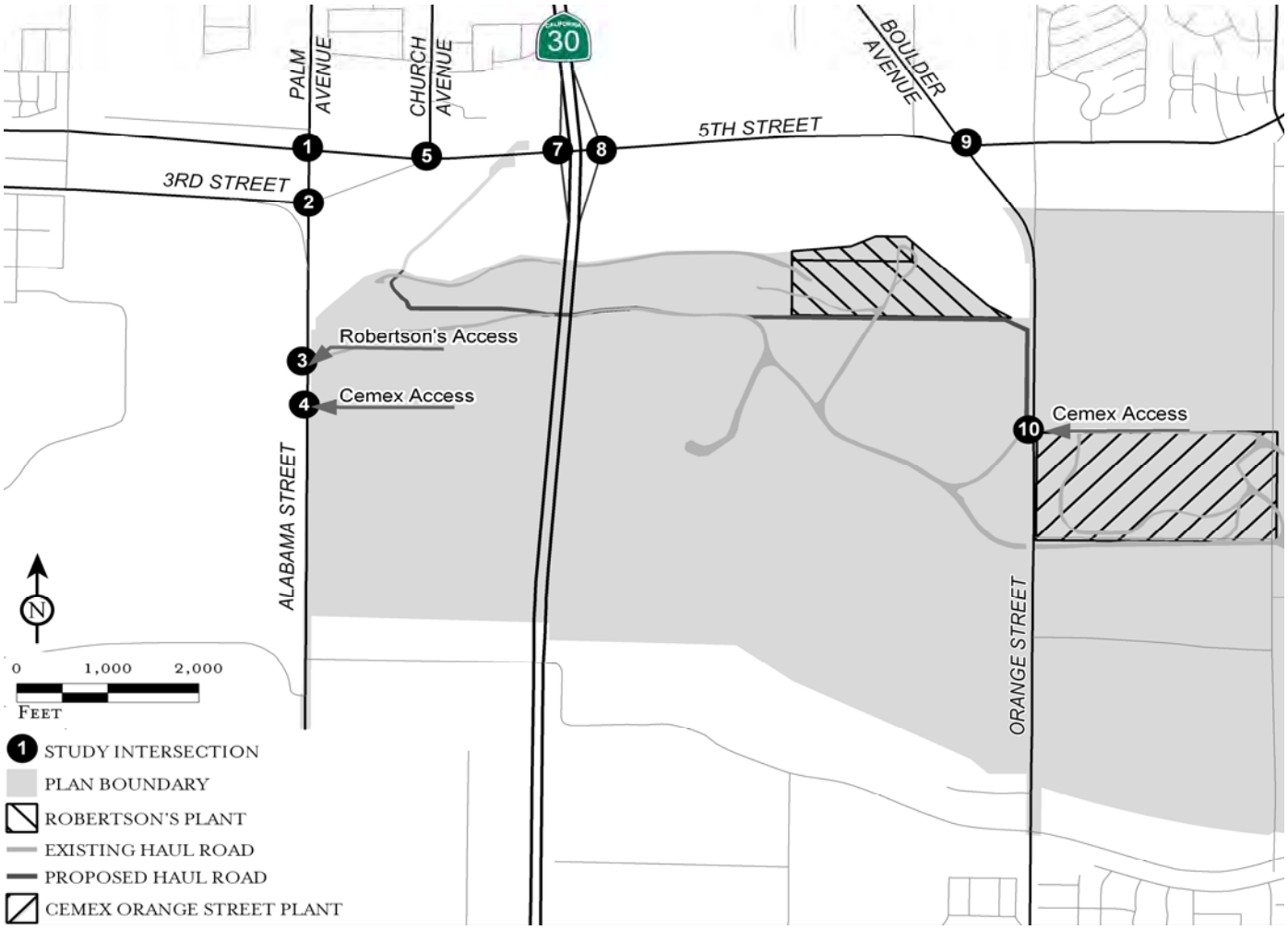
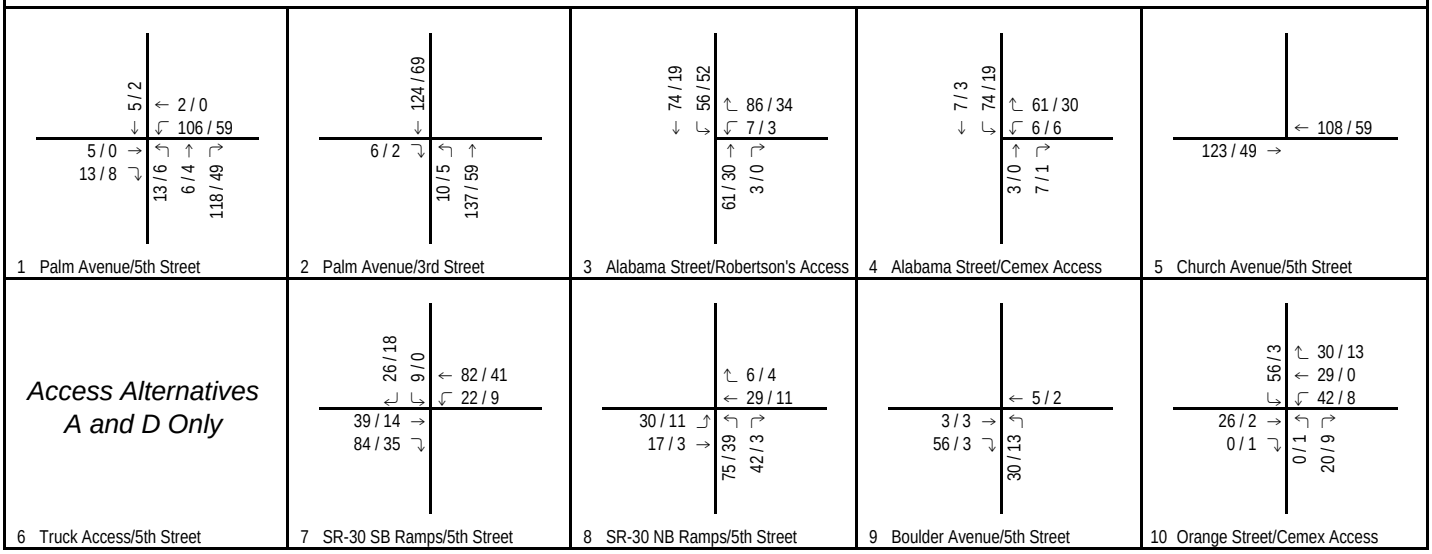
Exp. 3/31/07
TRAFFIC
STATE OF CALIFORNIA

LSA

January 26, 2007





LSA

FIGURE 5

123 / 456 AM / PM Volume

Upper Santa Ana River Wash

Total Plant Traffic (in PCEs)

R:\SBW330\Traffic\Formatted To EIR\January 2007\g30_05_Existing Plant Trips (1/25/2007)

Table E - Project New Trip Generation - Aggregate Trucks
Land Use Alternative 1

Land Use	A.M. Peak Hour			P.M. Peak Hour			Daily[5]
	In	Out	Total	In	Out	Total	
Robertson Plunge Creek [1]							
Existing Trucks At 1.81 MPTY Baseline	11	10	21	6	6	12	384
Proposed Trucks at 3.00 MTPY [2]	11	10	21	6	6	12	640
Net New Trucks	0	0	0	0	0	0	256
Net New PCE Trips [3]	0	0	0	0	0	0	768
Cemex Orange Street Plant [4]							
Existing Trucks At 2.53 MPTY Baseline	38	39	77	10	7	17	762
Proposed Trucks at 3.00 MTPY	44	46	90	12	8	20	910
Net New Trucks	6	7	13	2	1	3	148
Net New PCE Trips [3]	18	21	39	6	3	9	444
Total New PCE Trips	**18**	**21**	**39**	**6**	**3**	**9**	**1,212**

Note:

These are ship numbers that reflect waste and stock piling

MTPY=Million Tons Per Year.

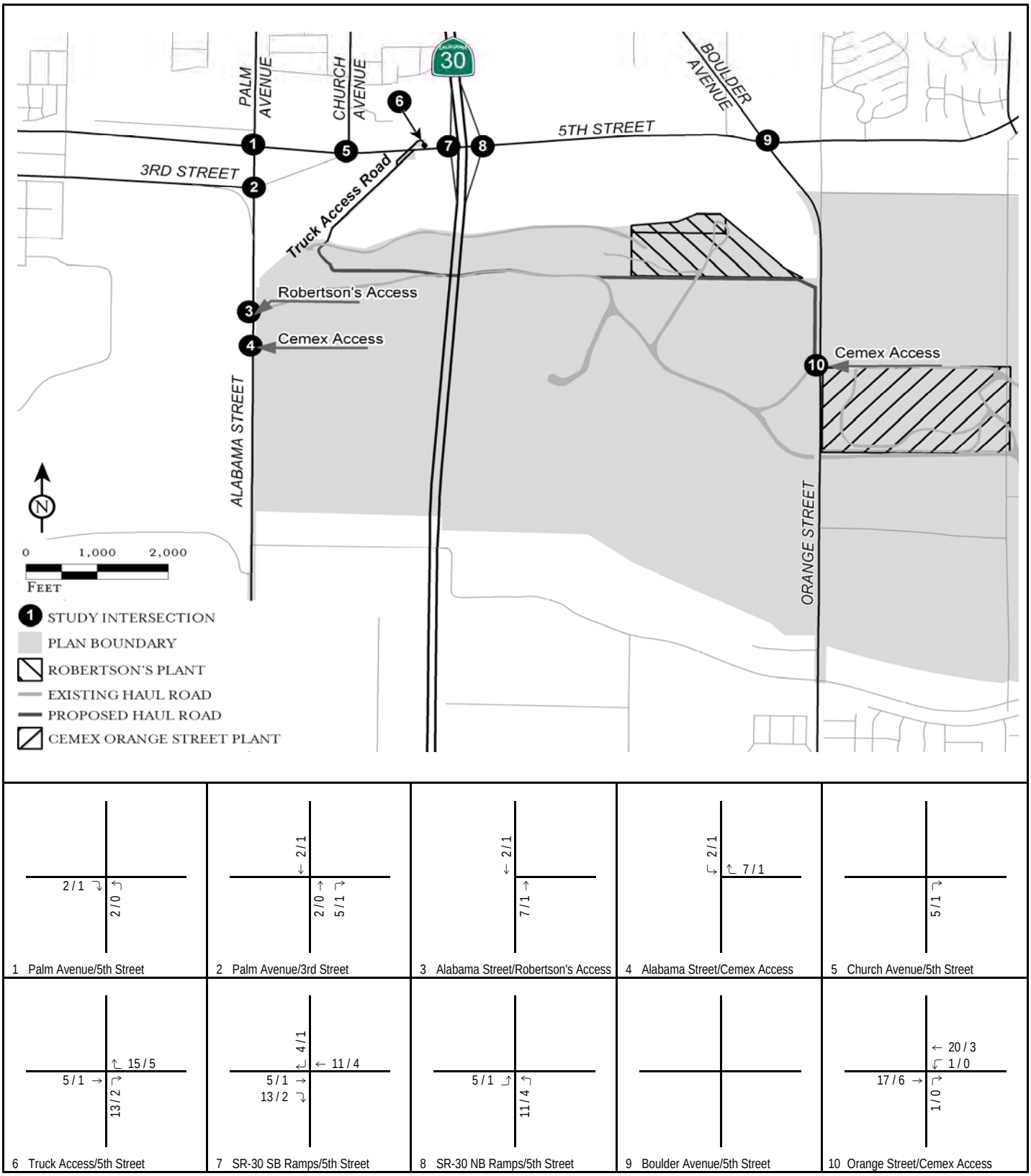
[1] Based on Robertson's memo updated February 24, 2006 (3 years of truck data from 2003 to 2005)

[2] Robertson's has the ability to limit shipments during local peak traffic hours, so that NO net change from baseline conditions would occur during these hours.

[3] All values given are in Passenger Car Equivalency (PCE). PCE of 3 has been used for all aggregate trucks

[4] Based on Lilburn Corporation and Cemex memo updated June 16, 2006 (3 years of truck data from 2003 to 2005)

[5] Based on Robertson's memo updated February 24, 2006 and Cemex memo updated June 16, 2006



LSA

FIGURE 17

123 / 456 AM / PM Volume

Upper Santa Ana River Wash

New Cemex Aggregate Trips (in PCEs)

Land Use Alternative 1, Access Alternative D

R:\SBW330\Traffic\Formatted To EIR\January 2007\g30_17_New Cemex Trips Alt 1D (1/25/2007)

CUMULATIVE PROJECT 2

URBAN
CROSSROADS

41 Corporate Park, Suite 300
Irvine, CA 92606

Prepared by:

Carleton Waters, P.E.
Raul Armenta, E.I.T.
Domingo Maclang

Prepared for:

Mr. Camille Bahri
SPRING PACIFIC PROPERTIES, LLC
31866 Camino Capistrano
San Juan Capistrano, CA 92675

BLOSSOM TRAILS
SITE ACCESS EVALUATION
CITY OF HIGHLAND, CALIFORNIA

January 27, 2006

JN: 03524-02
CW:RA:DM:mg

TABLE 2

TRIP GENERATION SUMMARY

BLOSSOM TRAILS

LAND USE	QUANTITY	UNITS[1]	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Family Detached	14	DU	3	8	11	9	5	14	134
Residential Condo/Townhouse	306	DU	21	113	134	107	52	159	1,793
Total			**24**	**121**	**145**	**116**	**57**	**173**	**1,927**

ADJACENT PARCEL

LAND USE	QUANTITY	UNITS[1]	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Residential Condo/Townhouse	252 [2]	DU	18	93	111	88	43	131	1,477
Total			**18**	**93**	**111**	**88**	**43**	**131**	**1,477**

[1] DU = Dwelling Units

[2] Property is zoned for 12 units/acre and is approximately 21 acres

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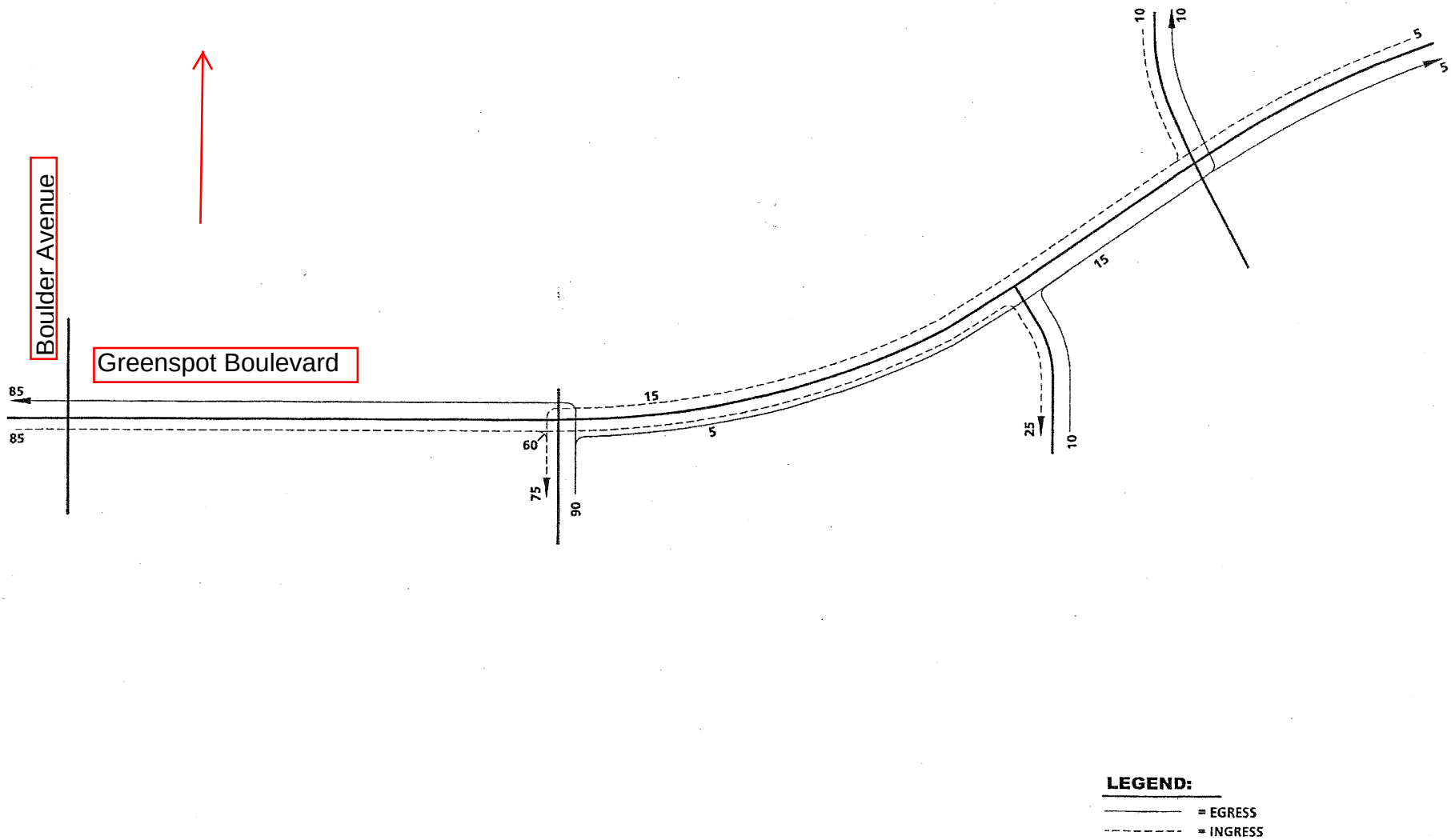
EXHIBIT C

BLOSSOM TRAILS SOUTH TRIP DISTRIBUTION WITHOUT ADJACENT PROJECT (FULL ACCESS)



BLOSSOM TRAILS ACCESS EVALUATION, Highland, California - 03524: 05.dwg

URBAN CROSSROADS

CUMULATIVE PROJECT 3

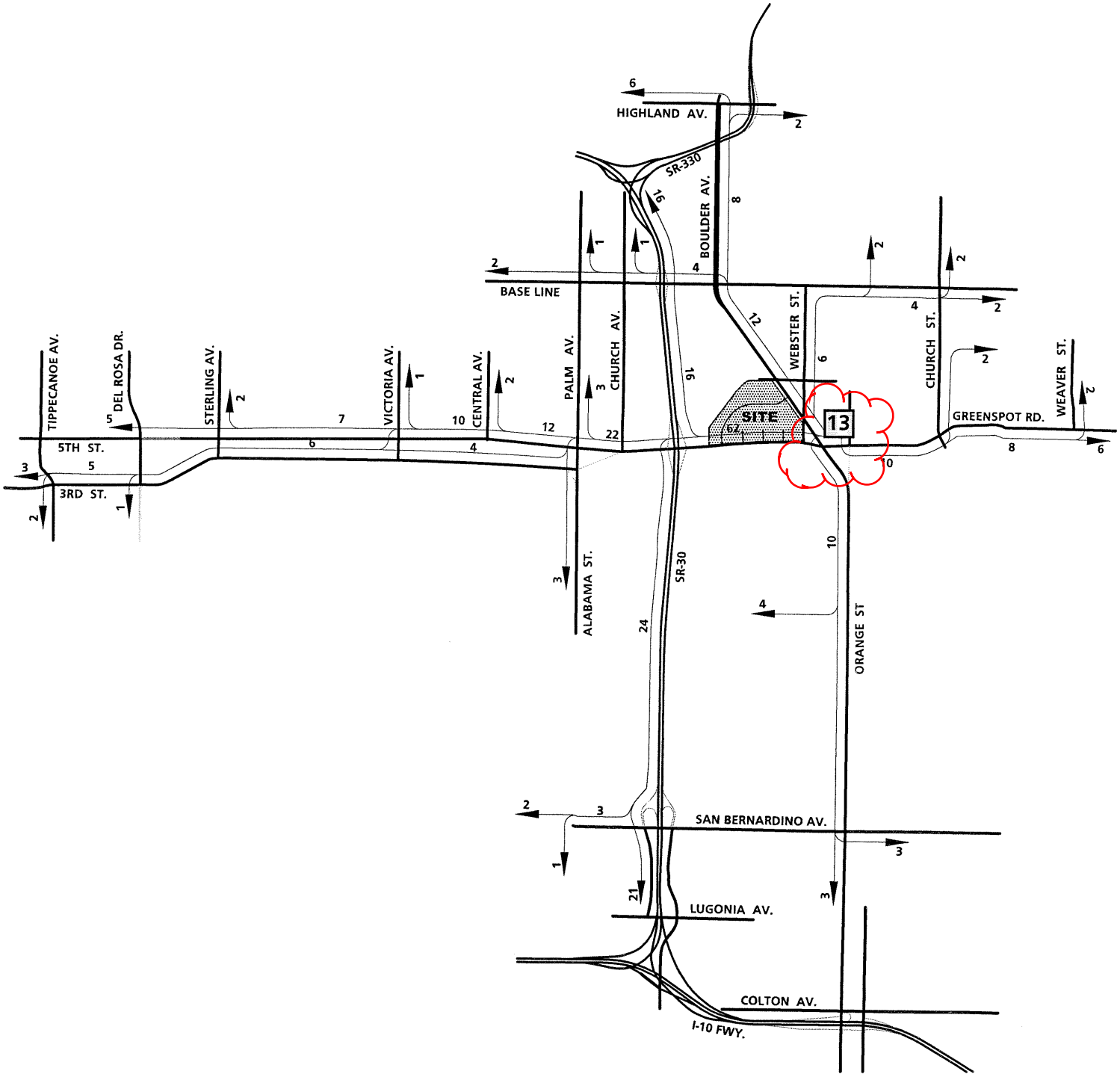
121 DU
2/2/09

7th Ed ITE - Weekday rates

Page No.	Category	Unit	Ave Trip Rate per Unit	Total Trips	In %	In Trips	Out %	Out Trips
	210 - SFH	121						
269	ADT		9.57	1158.0	50	579	50	579
270	AM Peak Hour of Adjacent Traffic		0.75	90.8	25	23	75	68
271	PM Peak Hour of Adjacent Traffic		1.01	122.2	63	77	37	45

EXHIBIT D-3

121 DU SFD GATED COMMUNITY TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

13 = 121 DU SINGLE FAMILY DETACHED HOUSING GATED COMMUNITY

N

SOURCE: RECENT SUBMITTED DEVELOPMENT

URBAN CROSSROADS

CUMULATIVE PROJECT 4

San Manuel

San Manuel Village
Traffic Impact Analysis
(TIA)

Final

Prepared by:

Transportation Engineering and Planning, Inc.
P.O. Box 18355
Irvine, CA 92623
Contact: Craig S. Neustaedter,
California Registered Traffic Engineer, License #: TR 1433
Phone: 909 263 0383

Prepared for:

Mooney-Jones & Stokes
Attention: Daniel A. Serrano
9903 Business Park Avenue
San Diego, CA 92131
Phone: 858-578-8964

June 1, 2006

Table 1
San Manuel Village TIA (February 2006)
Site Land-Use Assumptions for Trip Generation Estimation

ITE	Site Plan Land Use	ITE Use	Quantity (trip generation parameter)
934	Pad 1: restaurant with drive-through	Fast food restaurant with a drive-through window	3500 SF
814	Pad 2: retail	Specialty retail center	6000 SF
932	Pad 3: restaurant	High turnover (sit down) restaurant	5800 SF
912	Pad 4: commercial	Drive-in bank	5200 SF
934	Pad 5: restaurant with drive-through	Fast food restaurant with drive-through	5000 SF
932	Pad 6: restaurant and retail	High turnover (sit down) restaurant and specialty retail center	13,000 SF
710	Office	General office building	68,500 SF
310	Hotel	All suites hotel	110 rooms

FIGURE 6

SAN MANUEL VILLAGE TIA

PROJECT AM AND PM PEAK HOUR TURNING MOVEMENTS

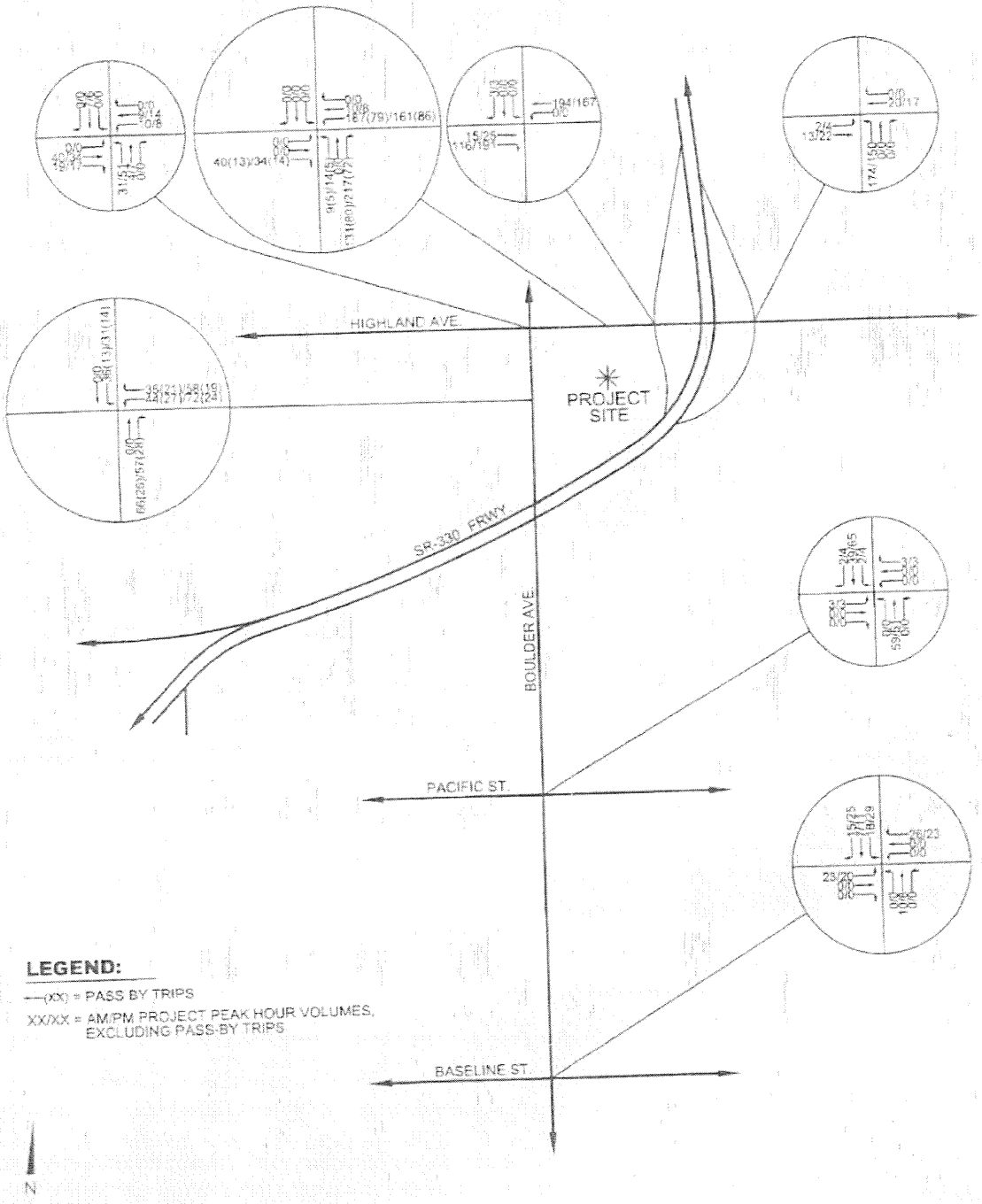
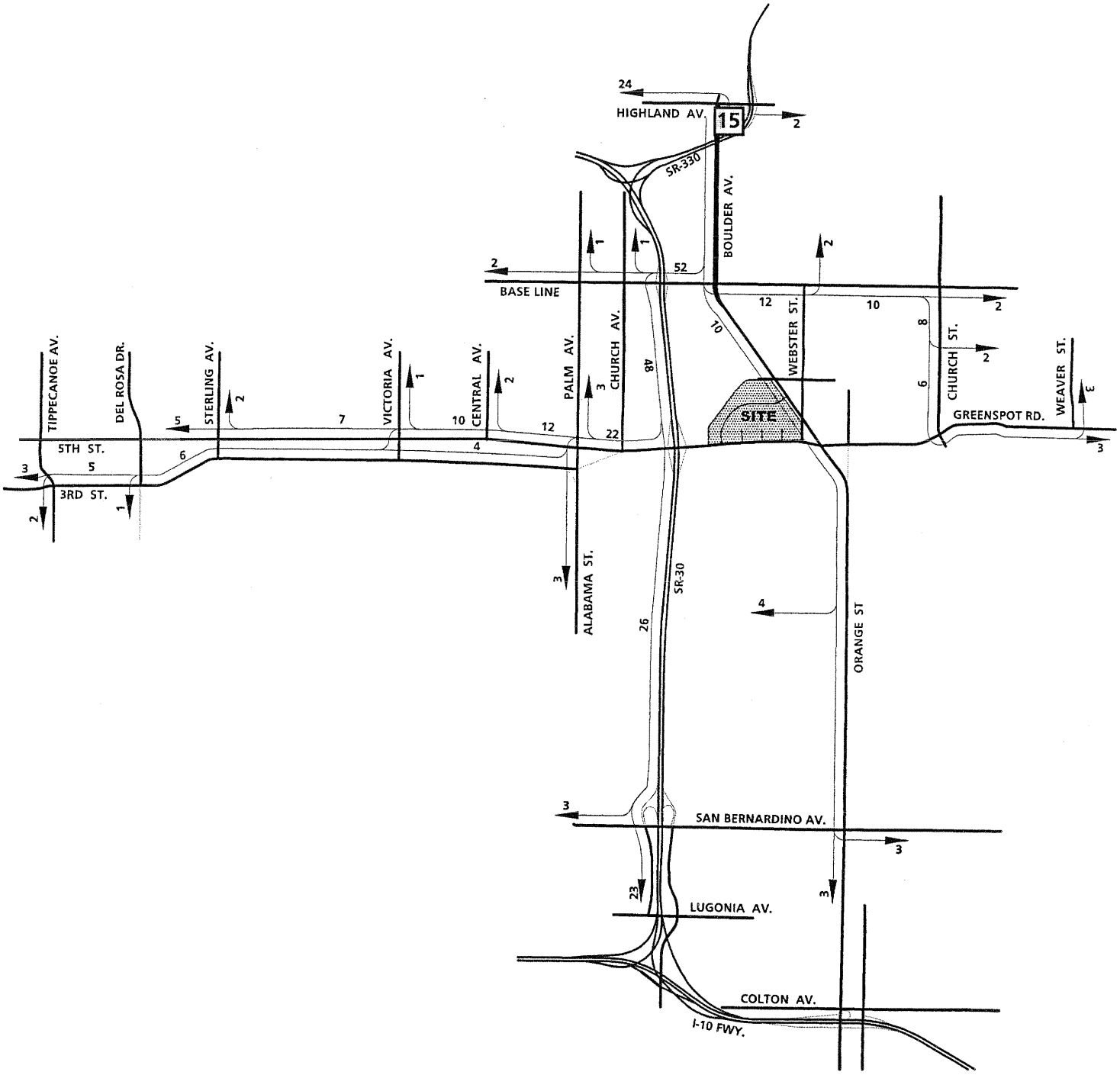


EXHIBIT D-5

SAN MANUEL VILLAGE (RETAIL CENTER & HOTEL/CONVENTION) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

15 = SAN MANUEL VILLAGE (RETAIL CENTER & HOTEL/CONVENTION)

N

SOURCE: RECENT SUBMITTED DEVELOPMENT

URBAN CROSSROADS

GREENSPOT VILLAGE & MARKETPLACE CMP TIA, Highland, California - 003126: 11

TABLE 1

SAN MANUEL TRIP GENERATION RATES[1]

PAD	LAND USE	ITE CODE	QUANTITY	UNITS[2]	PEAK HOUR AM IN	PEAK HOUR AM OUT	PEAK HOUR AM TOTAL	PEAK HOUR PM IN	PEAK HOUR PM OUT	PEAK HOUR PM TOTAL	DAILY
1	Restaurant W/Drive Thru	934	3.5	TSF	27.09	26.02	53.11	18.01	16.63	34.64	496.12
2	Specialty Retail	814	6.0	TSF	NOM	NOM	NOM	1.19	1.52	2.71	44.32
3	Restaurant (High Turnover)	932	5.8	TSF	5.99	5.53	11.52	6.66	4.26	10.92	127.15
4	Bank w/ Drive Thru	912	5.2	TSF	11.24	8.14	19.38	25.54	25.54	51.08	411.17
5	Restaurant W/Drive Thru	934	5.0	TSF	27.09	26.02	53.11	18.01	16.63	34.64	496.12
6	Restaurant (High Turnover) W/Specialty Retail[3]	932	13.0	TSF	5.99	5.53	11.52	6.66	4.26	10.92	127.15
7	Office	710	68.5	TSF	1.78	0.24	2.02	0.39	1.88	2.27	14.55
8	Hotel	310	110	RM	0.34	0.22	0.56	0.31	0.27	0.58	8.17

SAN MANUEL TRIP GENERATION SUMMARY

PAD	LAND USE	QUANTITY	UNITS	PEAK HOUR AM IN	PEAK HOUR AM OUT	PEAK HOUR AM TOTAL	PEAK HOUR PM IN	PEAK HOUR PM OUT	PEAK HOUR PM TOTAL	DAILY
1	Restaurant W/Drive Thru	3.5	TSF	95	91	186	63	58	121	1,736
2	Specialty Retail	6.0	TSF	NOM	NOM	NOM	7	9	16	266
3	Restaurant (High Turnover)	5.8	TSF	35	32	67	39	25	64	737
4	Bank w/ Drive Thru	5.2	TSF	58	42	100	133	133	266	2,138
5	Restaurant W/Drive Thru	5.0	TSF	135	130	265	90	83	173	2,481
6	Restaurant (High Turnover) W/Specialty Retail[3]	13.0	TSF	78	72	150	87	55	142	1,653
	Subtotal			401	367	768	419	363	782	9,011
	-Commercial 25% Pass By Reduction [4]			*-100*	*-92*	*-192*	*-105*	*-91*	*-196*	*-2,253*
	Net Commercial Trips			**301**	**275**	**576**	**314**	**272**	**586**	**6,758**
7	Office	68.5	TSF	122	16	138	27	129	156	997
8	Hotel	110.0	RM	37	24	61	34	30	64	899
	Net Trips			**460**	**315**	**775**	**375**	**431**	**806**	**8,654**

[1] Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 7th Edition, 2003.

[2] TSF = thousand square feet, DU = dwelling units, RM = rooms

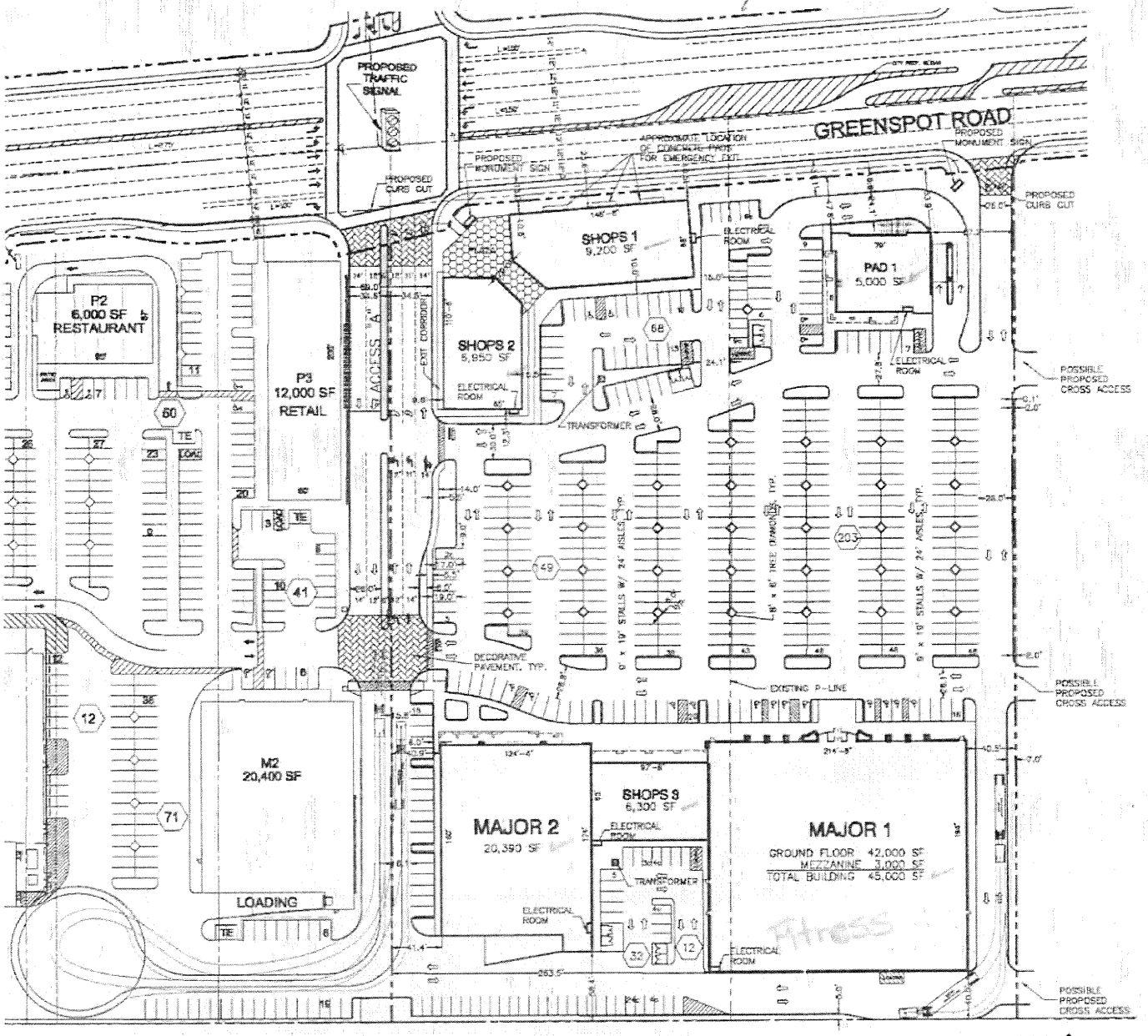
[3] ITE Code 932 has been used for this cumulative project to be more conservative

[4] Not all of the trips generated by this project are 'NEW' trips. A 25% Pass-By reduction has been considered for trip generation purposes.

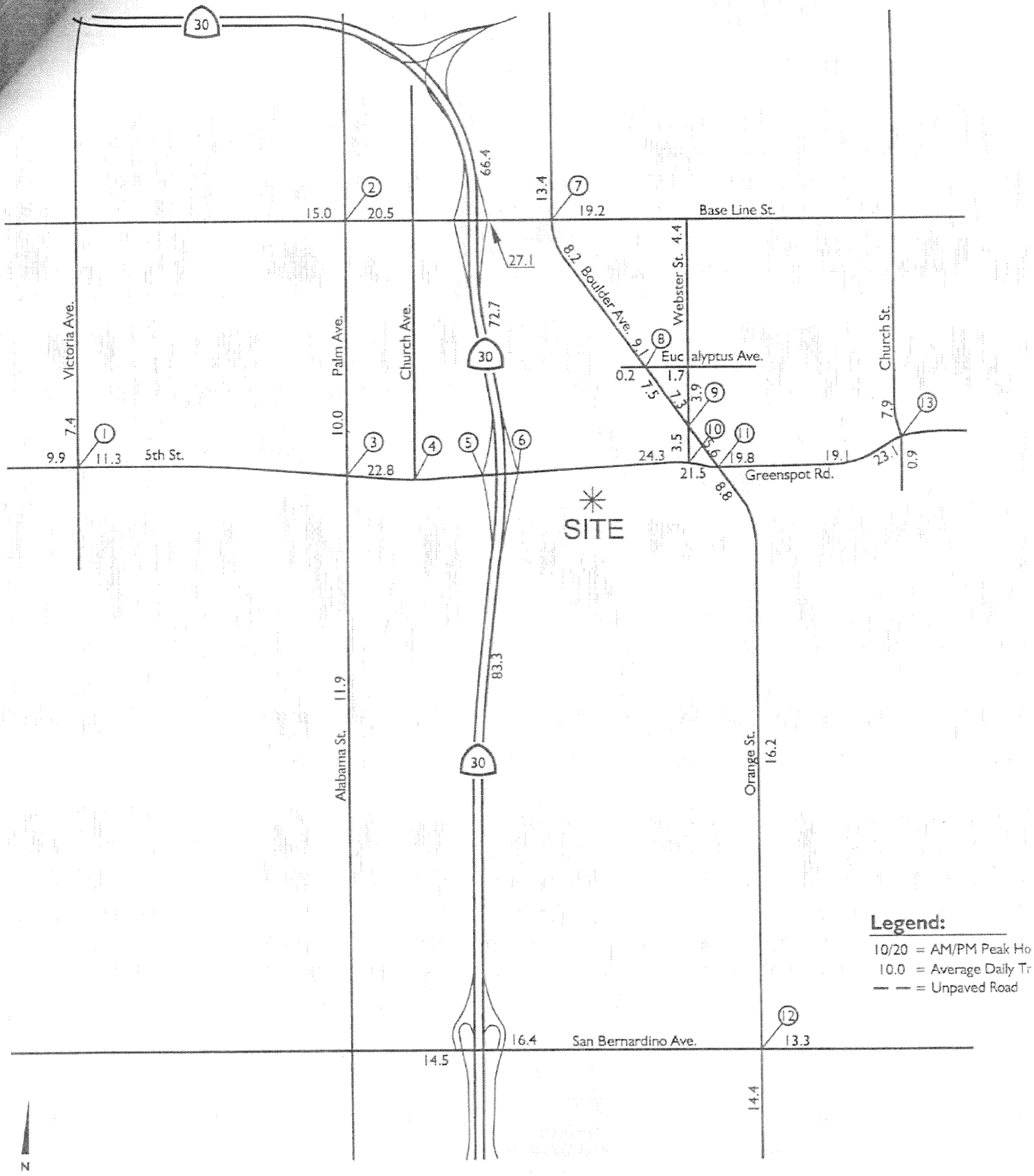
NO NAME:[San Manuel Village TG.xls]TGinputarea

CUMULATIVE PROJECT 5

#21 2nd Submittal 07-1032



42,840 Retail
45000 Fitness

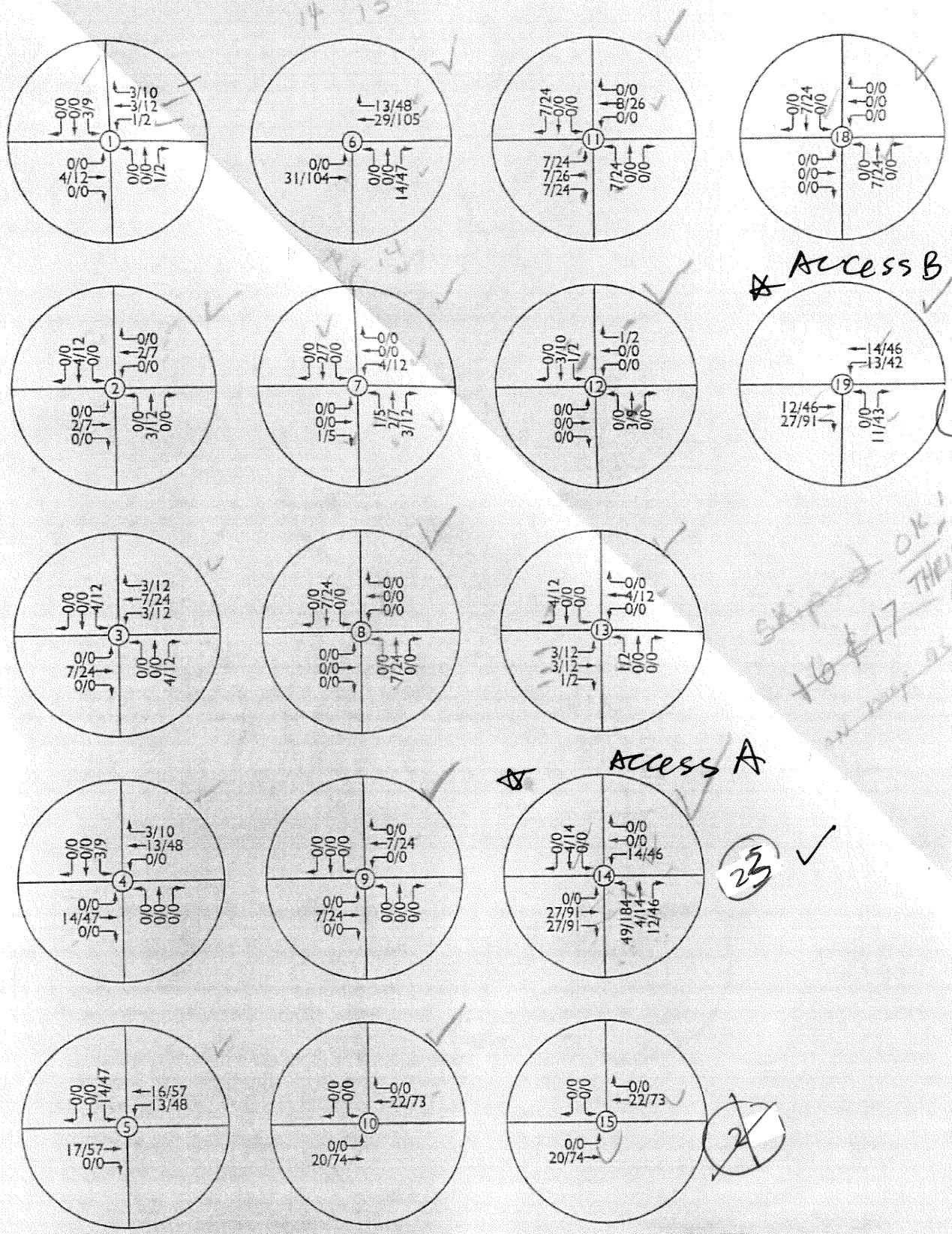


1958-07-01 (ExF)

REGENCY CENTERS TRAFFIC IMPACT STUDY, City of Highland, California

Exhibit H

Project Peak Hour Intersection Volumes



Access B

24

Access A

23

2

ur Volumes
afic

RK engineering group, inc.

1958-07-01 (ExH)
REGENCY CENTERS TRAFFIC IMPACT STUDY, City of Highland, California

TABLE 3

Trip Generation[1]

Land Use	ITE Code	Quantity	Units[2]	Peak Hour AM In	Peak Hour AM Out	Peak Hour AM Total	Peak Hour PM In	Peak Hour PM Out	Peak Hour PM Total	Daily
Bank w/ Drive-Thru	912	5.000	TSF	35	27	62	114	114	229	1,232
Less Pass-by Trips (25%)				-9	-7	-16	-29	-29	-57	-308
Net Trip Generation (Bank)				26	20	46	86	86	172	924
Retail	820	42.840	TSF	27	17	44	77	84	161	1,840
Less Pass-by Trips (25%)				-7	-4	-11	-19	-21	-40	-460
Net Trip Generation (Retail)				20	13	33	58	63	121	1,380
Health / Fitness Club	492	45.000	TSF	23	32	54	93	89	182	1,482
Gross Total Trip Generation				85	76	160	284	287	572	4,554
Net Total Trip Generation				70	65	133	236	238	475	3,786

[1] TSF = Thousand Square Feet

[2] Full Trip Generation Without Pass-by Trips; Utilized for Analysis at Project Access Points

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IN\1958-07-01

CUMULATIVE PROJECT 6

Retail Center -
SWC Boulder - Greenspot Road

Traffic Study for a Retail Project in the City of Highland

February 17, 2009

Prepared for:

Boulder Holdings, LLC
Thatcher Engineering & Associates
345 5th Street, Suite B
Redlands, California 92374
(909) 748-7777

Prepared by:

KOA CORPORATION
PLANNING & ENGINEERING
3190 C Shelby Street
Ontario, CA 91764
(909) 890-9693

Job No: JA84062

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PLANNING & ENGINEERING

3190 C Shelby Street
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www.koacorporation.com

February 17, 2009

Boulder Holdings, LLC
c/o Thatcher Engineering & Associates
345 5th Street, Suite B
Redlands, California 92374
Attn: Vicky Valenzuela-Gilliland

SUBJECT: Traffic Study for a Retail Project in the City of Highland

Dear Ms. Gilliland:

KOA Corporation is pleased to present the attached traffic study for a Retail Project in the City of Highland. The project consists of 6,019 square feet of fast food restaurants with drive thru windows, 8,356 square feet of fast food restaurants without drive thru window and 16,332 square foot retail building located on the southwest corner of Boulder Avenue at Greenspot Road. The traffic study has been prepared to meet the traffic study requirements of the City of Highland and revised per their request.

The report is being submitted to you for review and processing. Please contact our office if you have any questions about the report, or if you need additional information to complete your submittal. If there are any comments that require response or revisions, please notify our office as soon as possible for prompt revision.

It has been a pleasure to prepare this study for you and the City of Highland.

Sincerely,

Mujib Ahmed, P.E.
Vice President

REGISTERED PROFESSIONAL ENGINEER
MUJIB AHMED
No.C68467
Exp.09/30/09
CIVIL
STATE OF CALIFORNIA

LOS ANGELES OAKLAND ONTARIO ORANGE COUNTY SAN DIEGO

6. Project Trips

Project-related traffic consists of trips on any portion of the street system that will begin or end on the project site as a result of the development of the proposed project. Project-related traffic is a function of the extent and type of development proposed for the site. This information is used to establish traffic generation for the site.

The proposed project will consist of 6,019 square feet of fast food restaurants with drive thru windows, 8,356 square feet of fast food restaurants without drive thru windows, and 16,332 square feet of retail buildings.

Existing Land Use Traffic

The project site is currently vacant. No traffic is currently generated from the site; therefore, the current trip generation for the project site is zero.

Project Trip Generation

Trip generation is a measure or forecast of the number of trips that will be made to or from the project. It is generally equal to the traffic volume expected at the project entrance.

Trip generation characteristics for projects are normally estimated based on rates published in *Trip Generation, Seventh Edition*, published by the Institute of Transportation Engineers (ITE). This document is widely used in Southern California and indicates the probable traffic generation rates for various land uses based upon studies of existing developments in comparable settings. The *Trip Generation Manual* indicates a daily and a PM peak hour for Specialty Retail; however, it does not indicate an AM peak hour rate. For the purpose of this traffic study report we used a rate that is 25% of the PM peak hour rate since the stores will be closed during the AM peak generally. The report includes trip generation information for the project uses, as shown in Table 6.

Table 6
Trip Generation Rates

Land Use	Units		AM Peak Hour			PM Peak Hour		
		Daily	Total	In	Out	Total	In	Out
Fast Food w/ Drive Thru ITE (934)	KSF	496.12	53.11	27.09	26.02	34.64	18.01	16.63
Fast Food w/o Drive Thru ITE (933)	KSF	260.0*	43.87	26.32	17.55	26.15	13.34	12.81
Specialty Retail** ITE (814)	KSF	44.32	0.68	0.30	0.38	2.71	1.19	1.52

Note: KSF = 1000 square feet. * 10 times the PM rate ** AM peak hour is 25% of the PM rate

Table 7 summarizes the traffic generation expected from project, based on the generation rates shown in Table 6.

Due to the retail nature of the project, it will attract "passby" trips. According to the *ITE Trip Generation Handbook* the retail uses will normally attract passby trips of 20% and the fast food uses will attract a passby of 40%.

Table 7
Project Traffic Generation

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
6,019 sq.ft. Fast Food w/ Drive Thru	2,986	320	163	157	208	108	100
8,356 sq.ft. Fast Food w/o Drive Thru	2,173	367	220	147	219	112	107
Subtotal Fast food	5,159	687	383	304	427	220	207
-40% passby trips	*-2,064*	*-276*	*-138*	*-138*	*-172*	*-86*	*-86*
Total Fast Food	***3,095***	***411***	***245***	***166***	***255***	***134***	***121***
16,332 sq.ft. Retail	724	11	5	6	44	19	25
-20% passby trips	*-145*	*-2*	*-1*	*-1*	*-10*	*-5*	*-5*
Total Retail	***579***	***9***	***4***	***5***	***34***	***14***	***20***
Total Project Trips	**3,674**	**420**	**249**	**171**	**289**	**148**	**141**

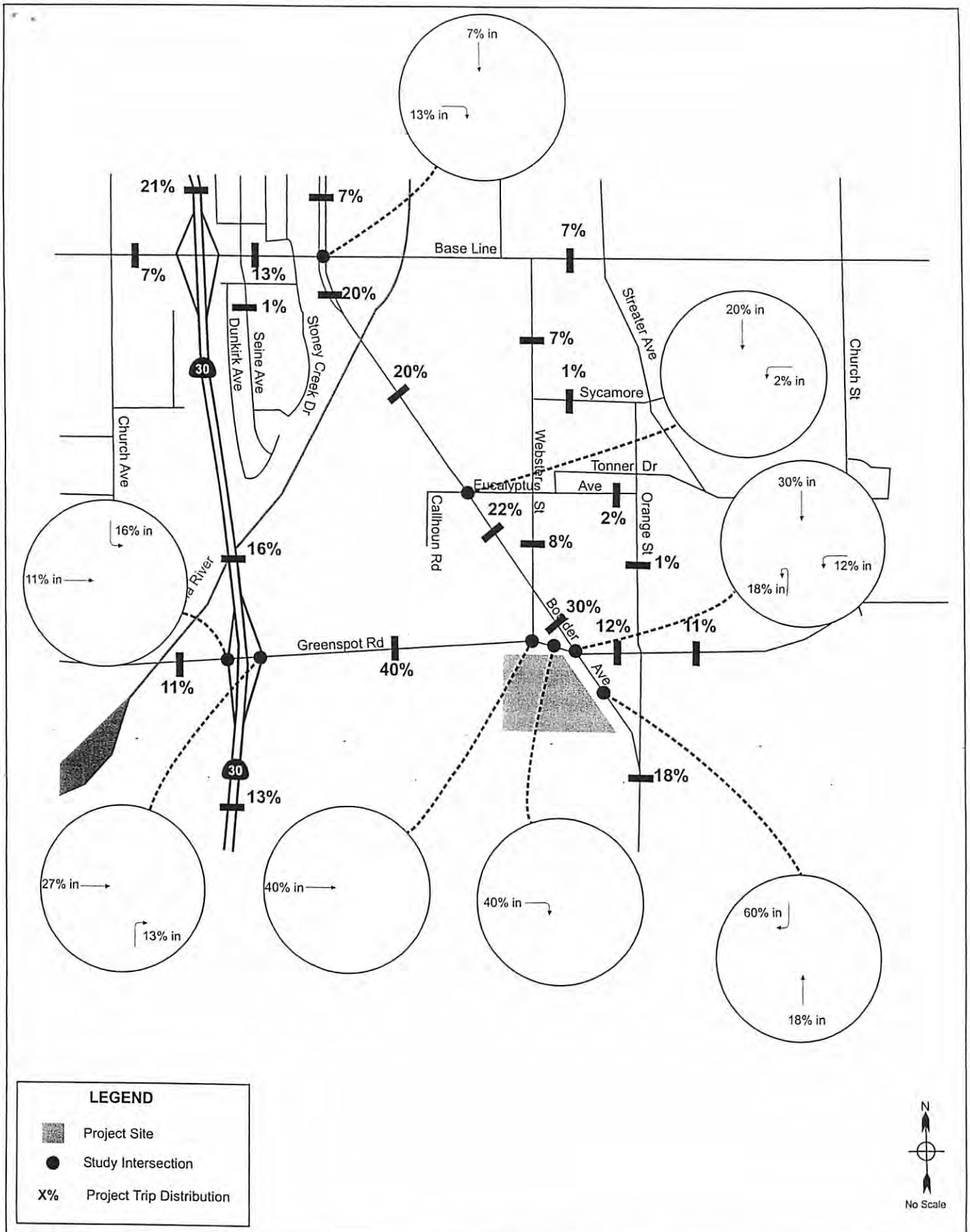
The project will generate a total 3,674 daily trips including, 420 trips during the AM peak hour and 289 trips during the PM peak hour.

Project Trip Distribution

Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by project traffic. The potential interaction between the proposed land use and surrounding regional access routes are considered to identify the route where the project traffic will distribute.

The Traffic Model was used to develop this trip distribution for this project. For SANBAG CMP level traffic studies, model "runs" are used to develop the project distribution, as prepared by City of San Bernardino and furnished to KOA Corporation for further analysis. The City furnished a traffic model select zone analysis with project traffic only. The select zone run shows the total volume assigned to all roadways from project traffic analysis zones. The total volume on each roadway is divided by the total site traffic generation to indicate the percentage of project traffic that will use each component of the regional roadway system in each relevant direction.

The anticipated trip distribution for the proposed development is presented on Figures 11A, 11B, 11C, and 11D. This figure indicates the proportion of project traffic that will use the street segments and turning movements indicated. Also, the project trip distribution assumes U-turns at the intersection of Greenspot Road at Boulder Avenue, as the City has indicated that they will be allowed at all movements at this intersection and current signage will be replaced with standard U-turn allowed signs.

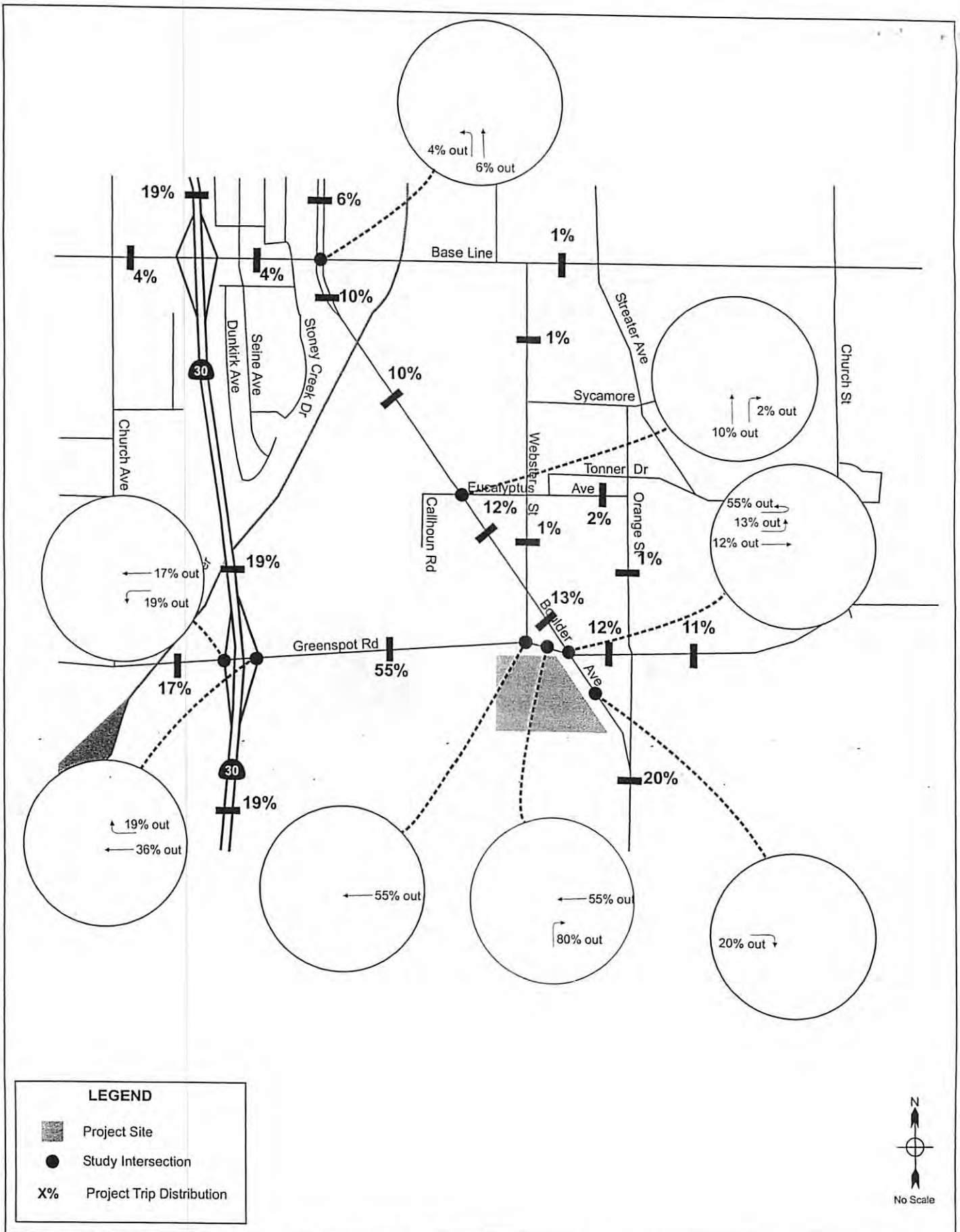


KOA CORPORATION
PLANNING & ENGINEERING

Highland Retail - Traffic Impact Study

Figure 11A

Project Trip Distribution - AM Peak Hour (Inbound)



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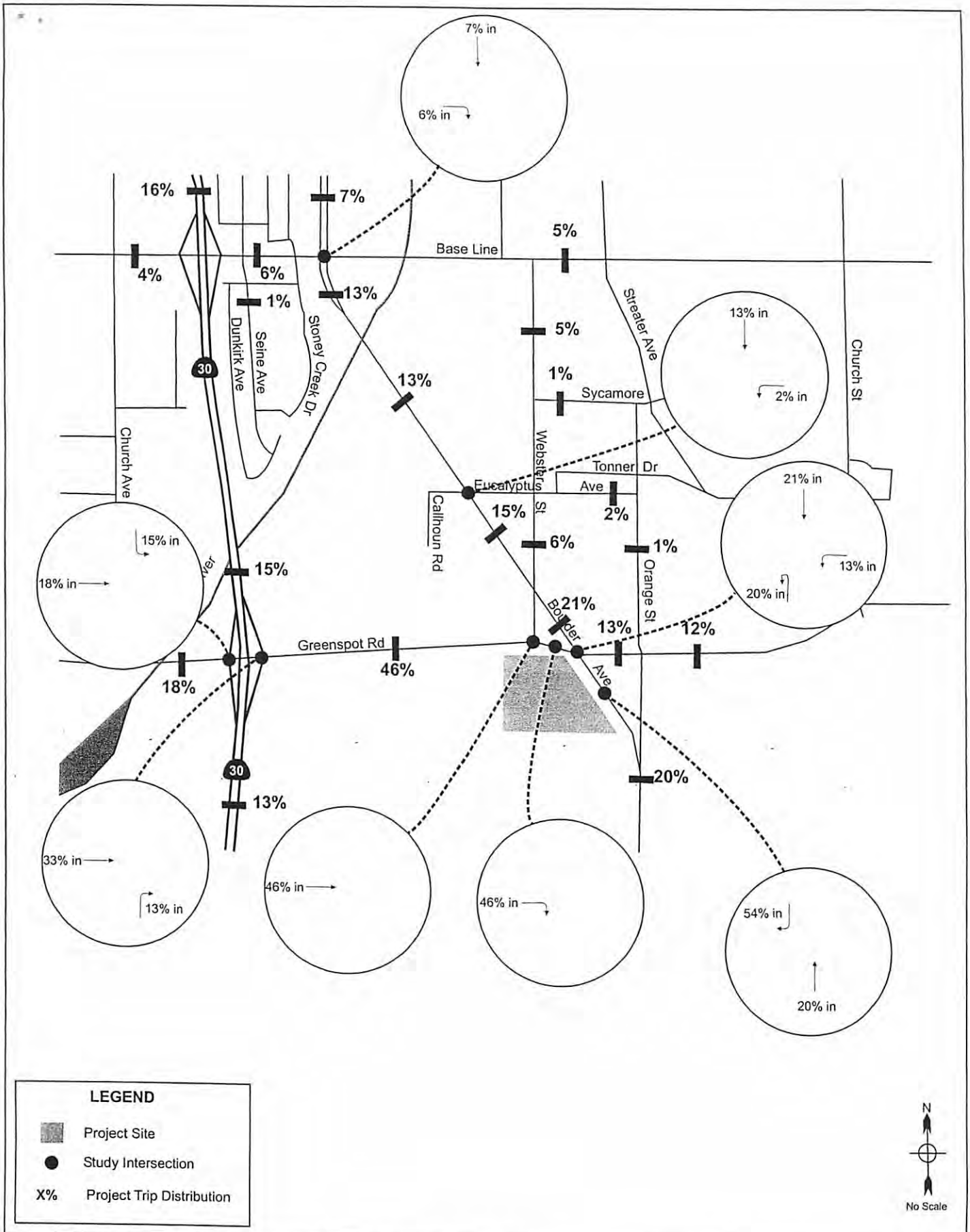
Highland Retail - Traffic Impact Study

Figure 11B

Project Trip Distribution - AM Peak Hour (Outbound)



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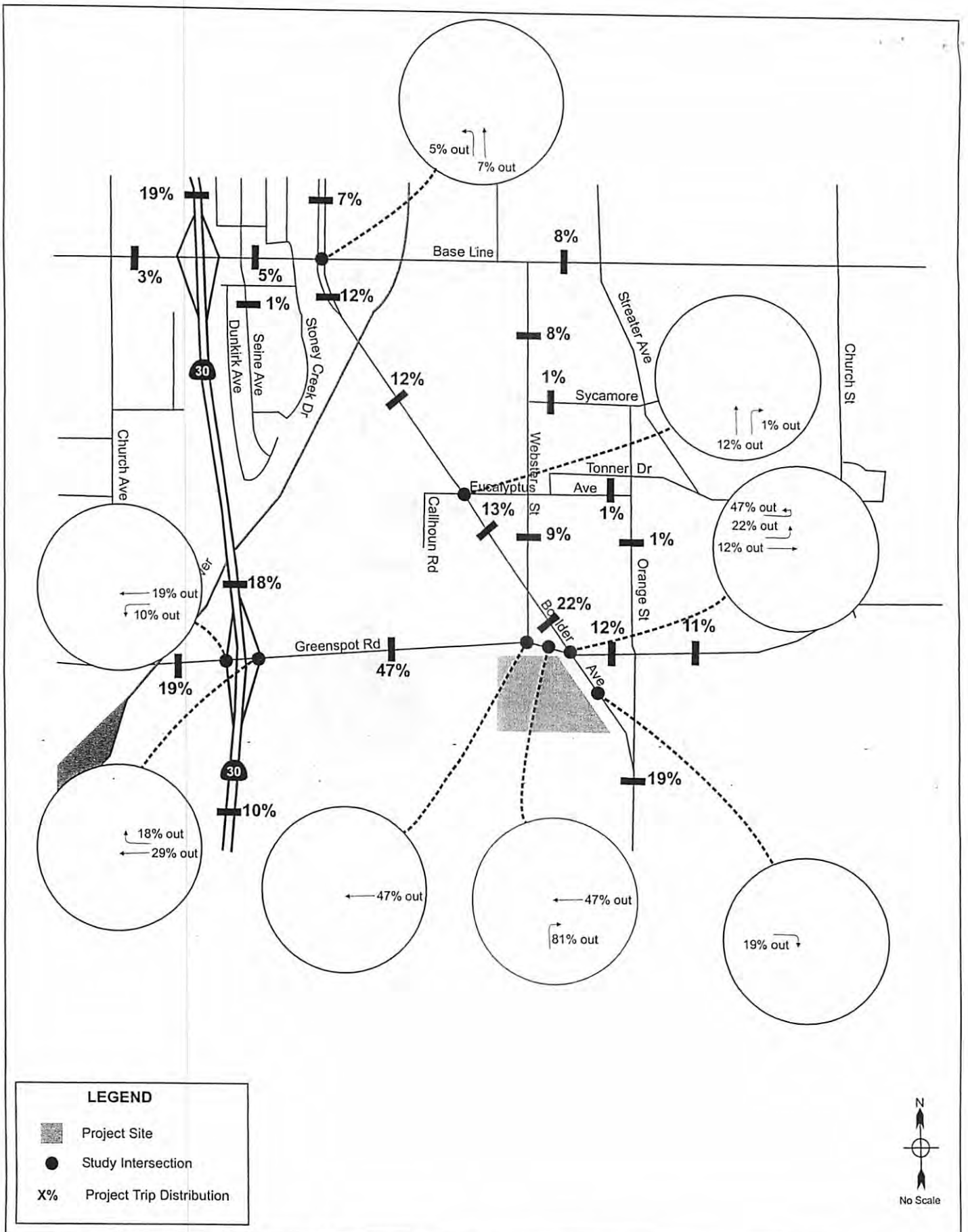
Highland Retail - Traffic Impact Study

Figure 11C

Project Trip Distribution - PM Peak Hour (Inbound)



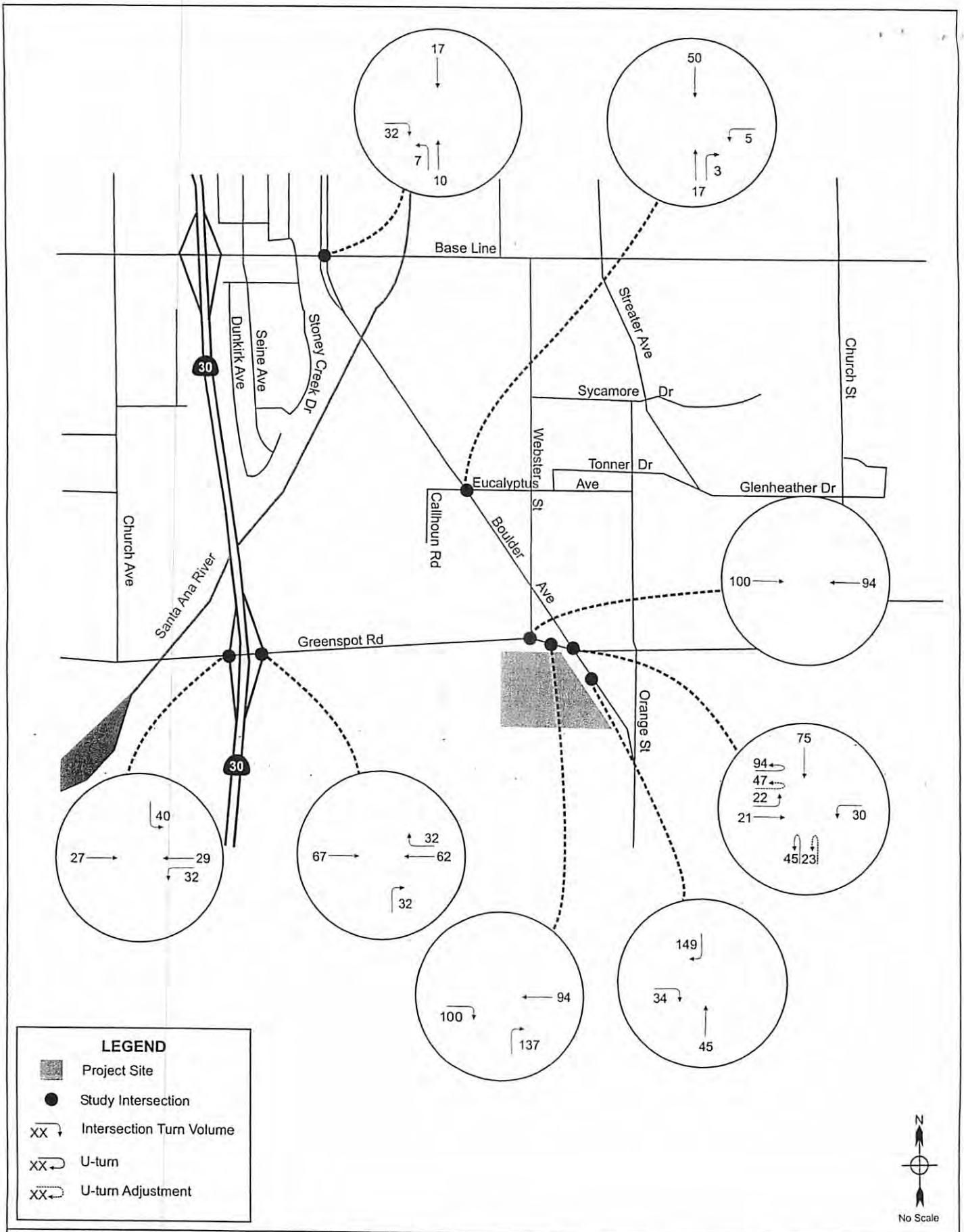
KOA CORPORATION
PLANNING & ENGINEERING

Highland Retail - Traffic Impact Study

Figure 11D

Project Trip Distribution - PM Peak Hour (Outbound)

Figures 12 and 13 indicate the near-term volume of project related traffic increases. Figures 14 and 15 show the future diverted trips at the driveways and nearby intersections for pass-by trips. Figures 16 and 17 indicate the total volume of future project related traffic increases. Future traffic levels in the project vicinity are expected to be changed by the amounts shown on these figures.



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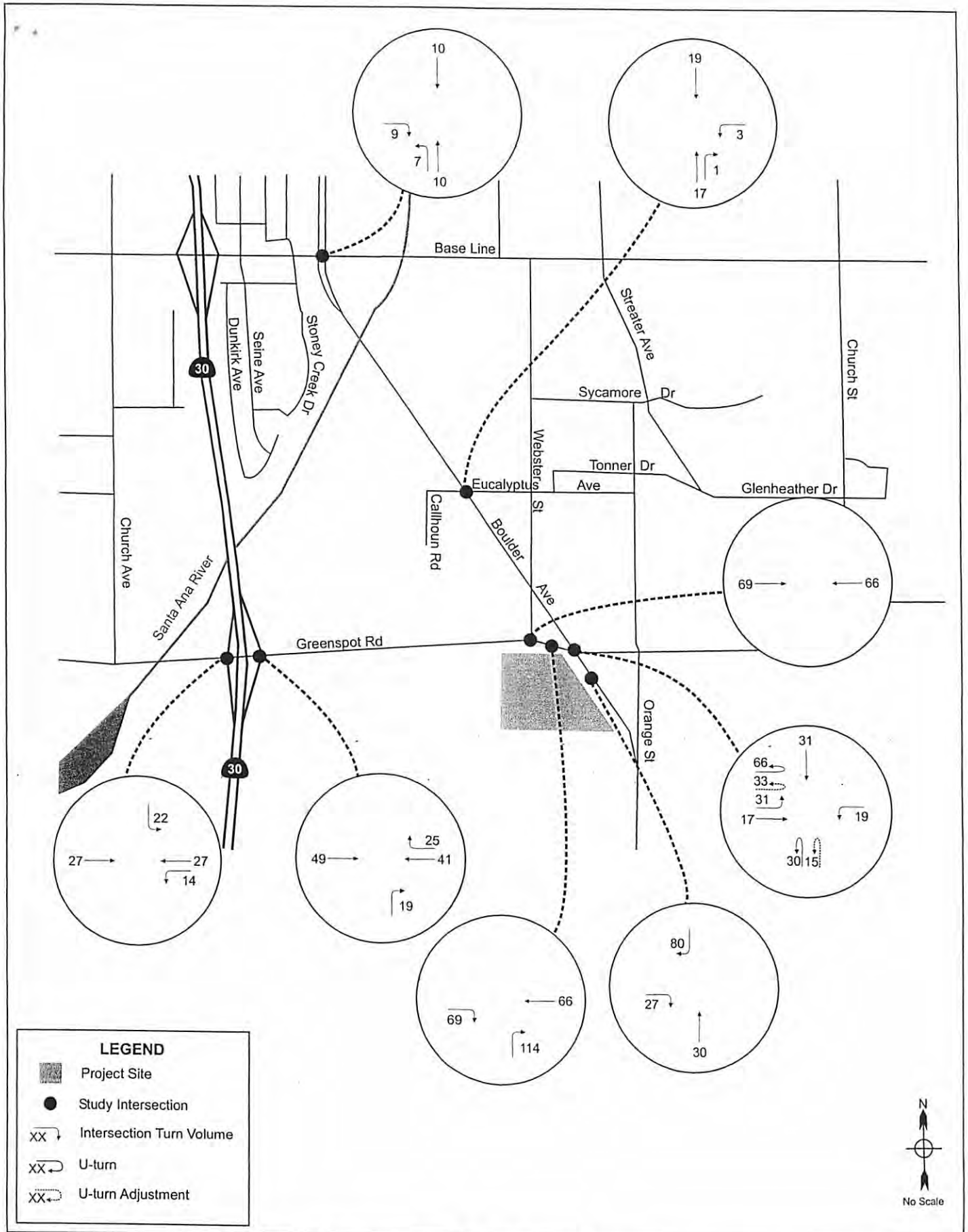
Highland Retail - Traffic Impact Study

Figure 12

Added Traffic Volumes - AM Peak Hour



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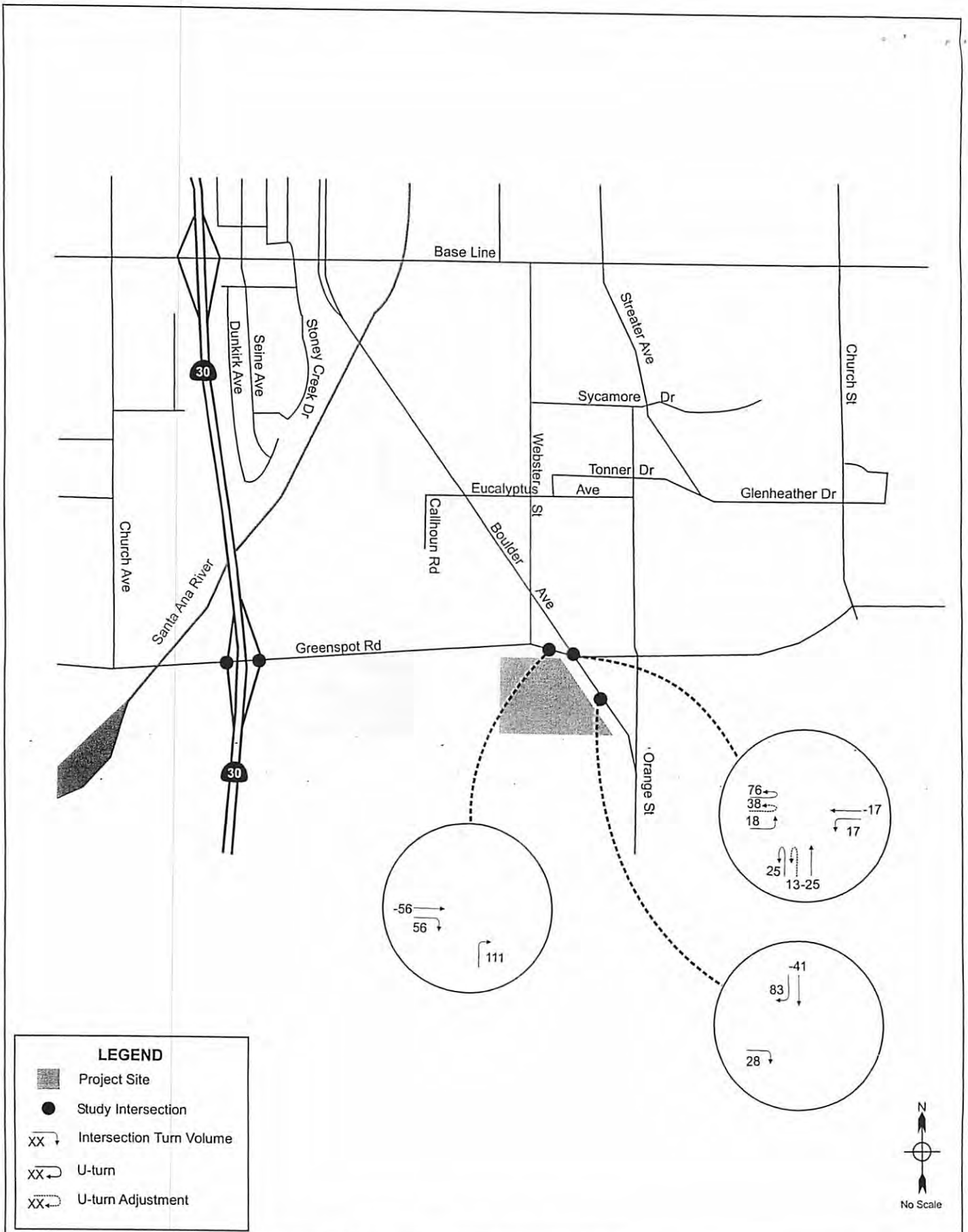
Highland Retail - Traffic Impact Study

Figure 13

Added Traffic Volumes - PM Peak Hour



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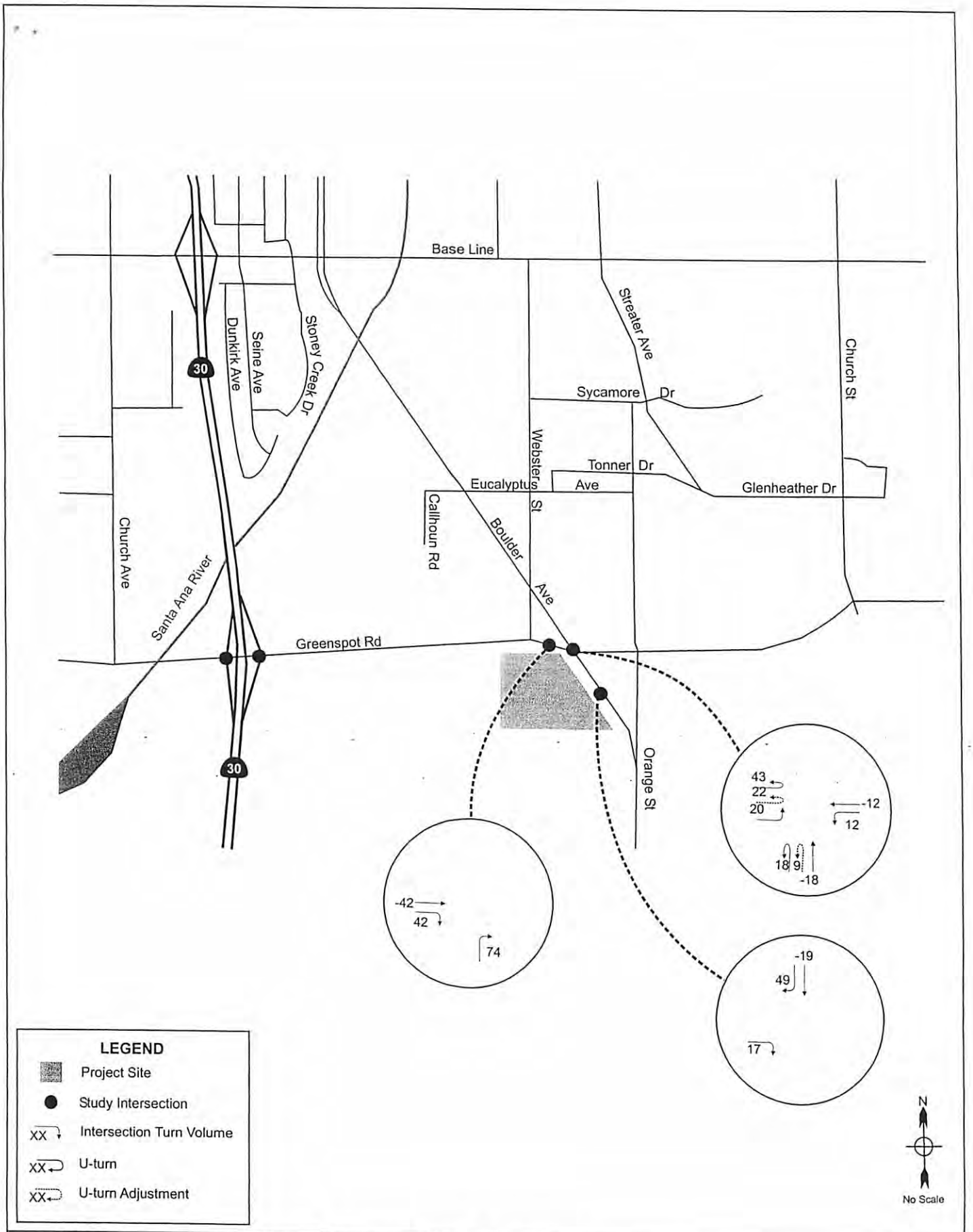
Highland Retail - Traffic Impact Study

Figure 14

Passby Traffic Volumes - AM Peak Hour



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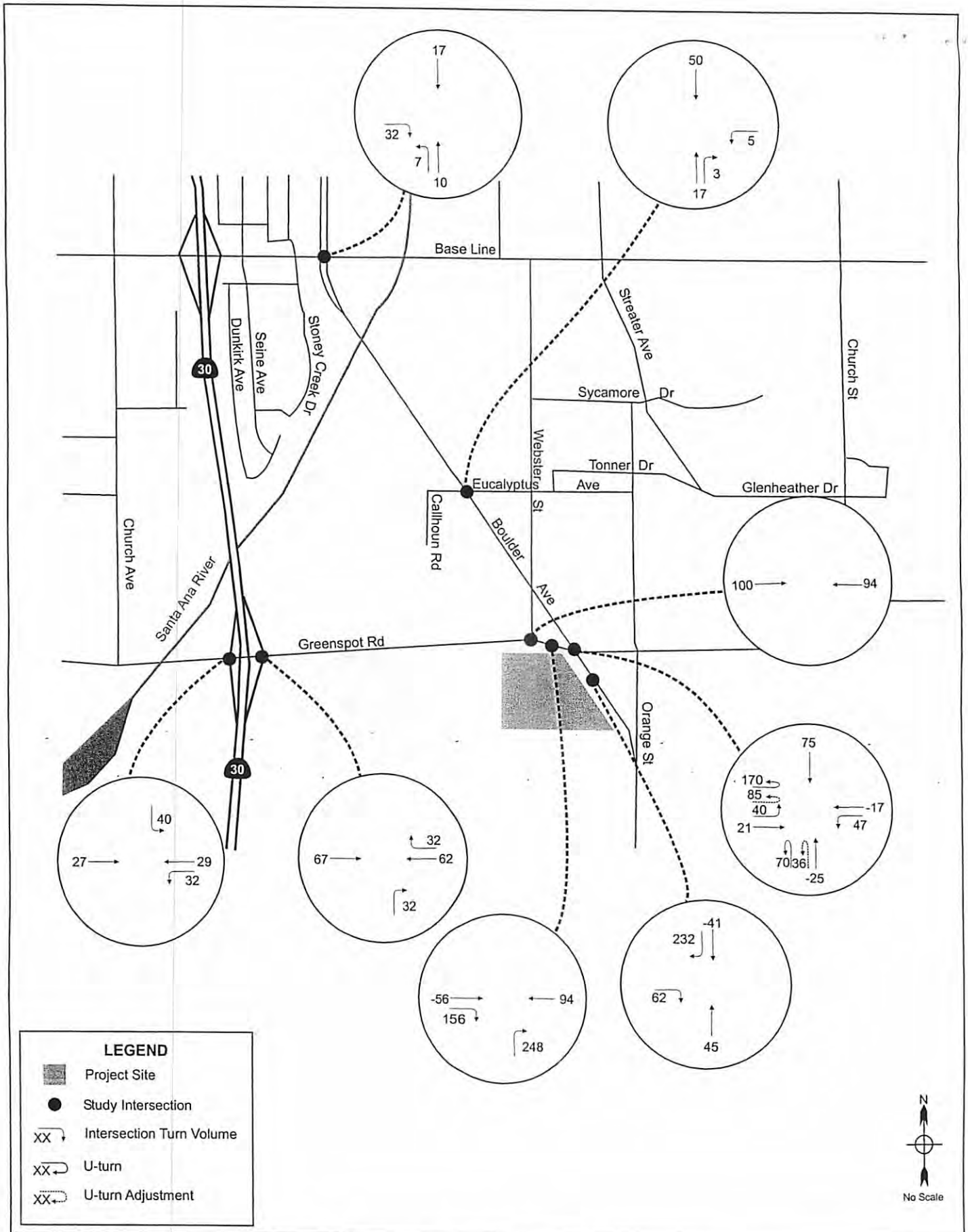
Highland Retail - Traffic Impact Study

Figure 15

Passby Traffic Volumes - PM Peak Hour



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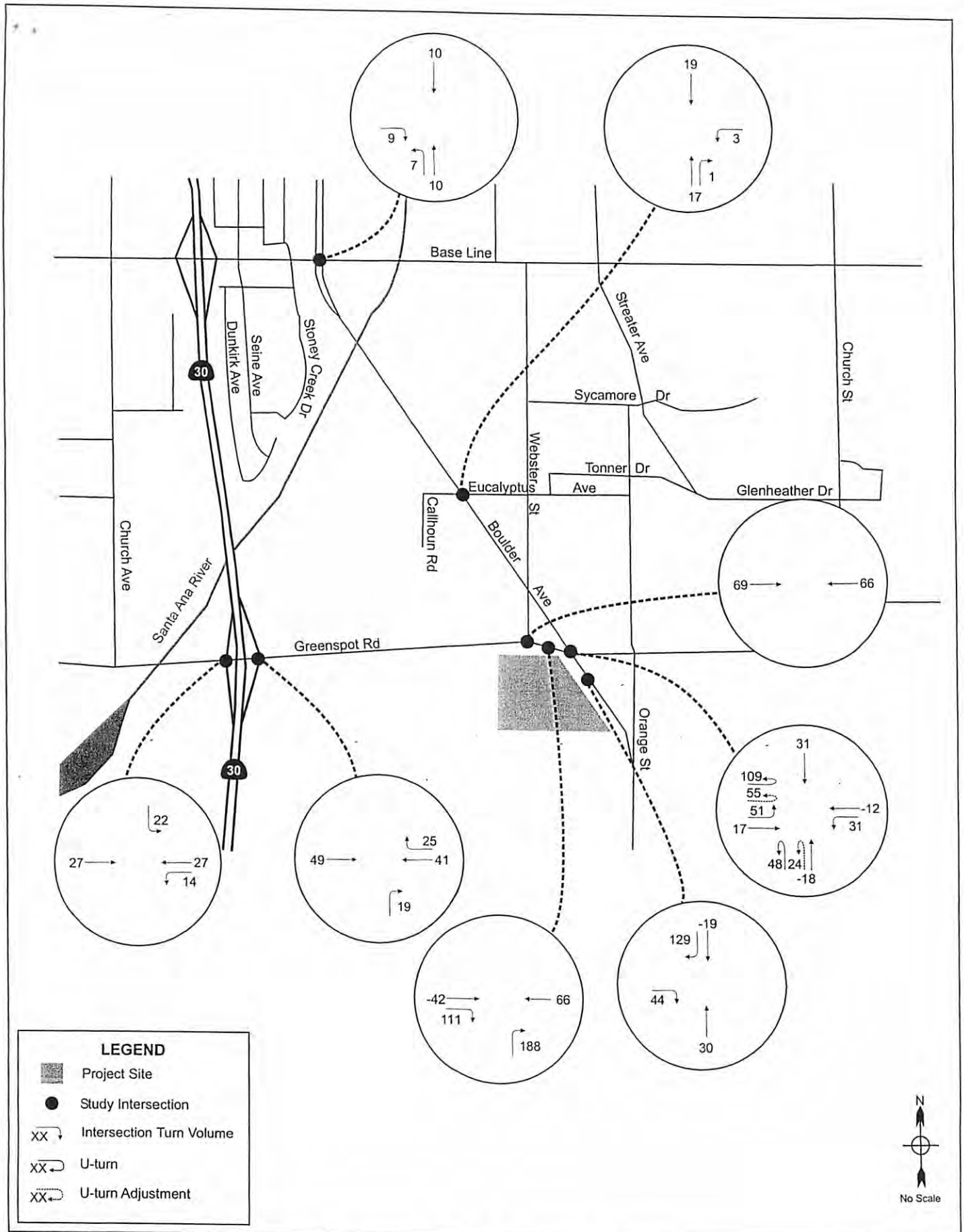
Highland Retail - Traffic Impact Study

Figure 16

Total Project Related Traffic Volumes - AM Peak Hour



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Highland Retail - Traffic Impact Study

Figure 17

Total Project - Related Traffic Volumes - PM Peak Hour

8. Near Term WITH Project Conditions (Year 2012)

This section documents the near term (Year 2012) traffic conditions with the addition of total project-related traffic to the surrounding street system.

Near Term Peak Hour Intersection Level of Service

The near term "WITH Project" traffic volumes were derived by adding the total project trips shown in Figures 16 and 17 to the future traffic volumes for the year 2012. Table 9 summarizes the results of the level of service analysis for the future "WITH Project" conditions.

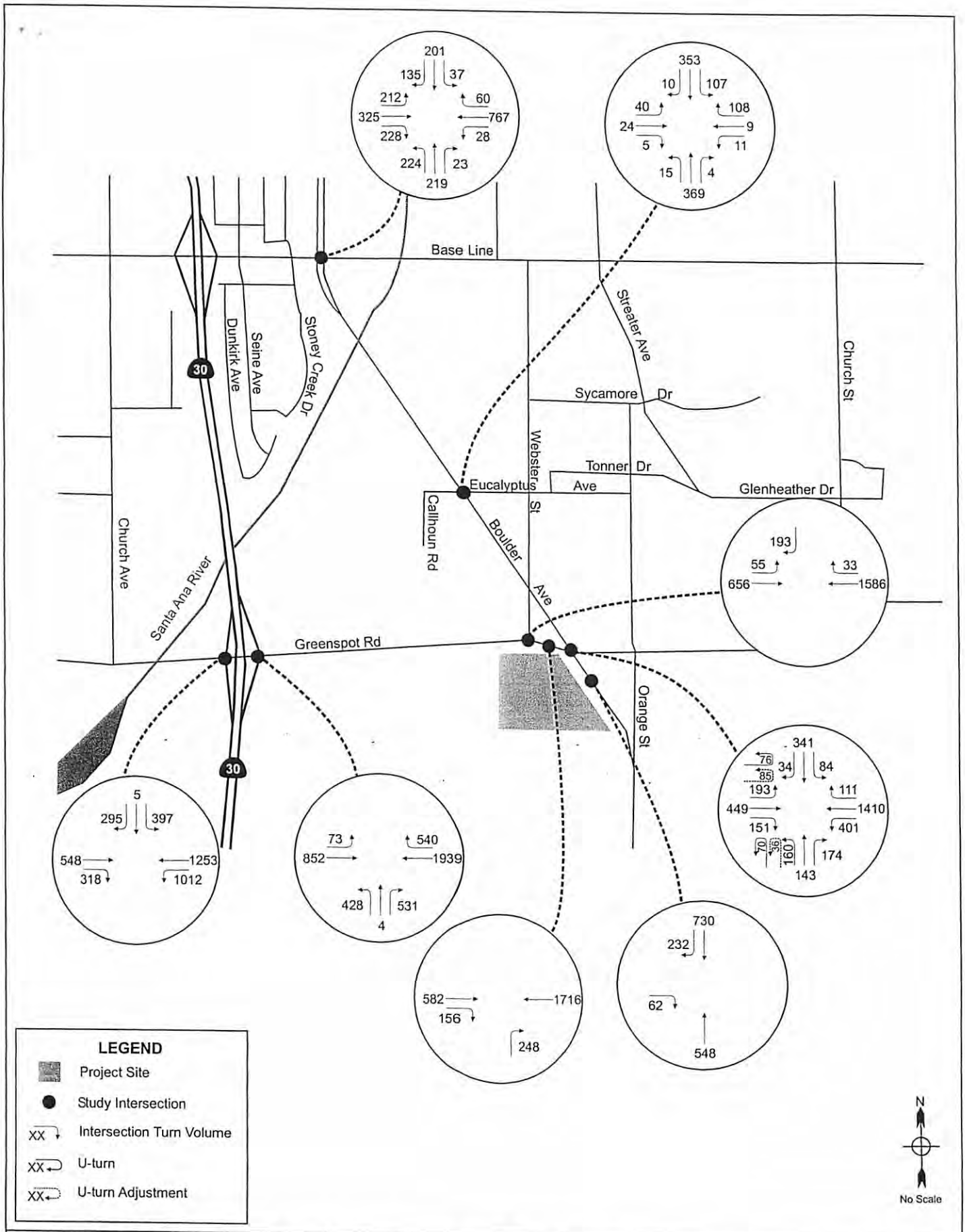
Table 9
AM/PM Peak Hour Intersection Performance
Near Term WITH Project Conditions (Year 2012)

Intersection	AM Peak Hour				PM Peak Hour			
	Delay (sec)		Level of Service		Delay (sec)		Level of Service	
	Average	Poorest Movement	Average	Poorest Movement	Average	Poorest Movement	Average	Poorest Movement
Unsignalized Intersections								
Project Driveway at Greenspot Rd.	1.2	12.9	A	B	1.3	22.9	A	C
Project Driveway at Boulder Ave.	0.5	11.5	A	B	0.5	9.3	A	A
Greenspot Rd. at Webster Ave.	5.1	63.6	A	F	2.7	20.0	A	C
Eucalyptus Ave. at Boulder Ave.	10.4	84.1	B	F	>120.0	>120.0	F	F
Signalized Intersections								
	Delay (sec)		Level of Service		Delay (sec)		Level of Service	
	Average		LOS		Average		LOS	
Greenspot Rd. at Boulder Ave.	99.5		F		72.6		E	
Greenspot Rd. at SR-30 NB Ramps	43.4		D		>120.0		F	
Greenspot Rd. at SR-30 SB Ramps	31.4		C		>120.0		F	
Base Line St. at Boulder Ave.	33.2		C		40.1		D	

Note: Delay based on seconds per vehicle average. LOS = Level of Service.

As shown in Table 9, the intersections are forecast to operate at Level of Service D or better during the AM or PM peak hour except the following:

- Greenspot Road at Webster Street for the poorest movement (AM peak hour)
- Eucalyptus Avenue at Boulder Avenue (AM and PM peak hours)
- Greenspot Road at Boulder Avenue (AM and PM peak hours)
- Greenspot Road at SR-30 Northbound Ramp (PM peak hour)
- Greenspot Road at SR-30 Southbound Ramp (PM peak hour)

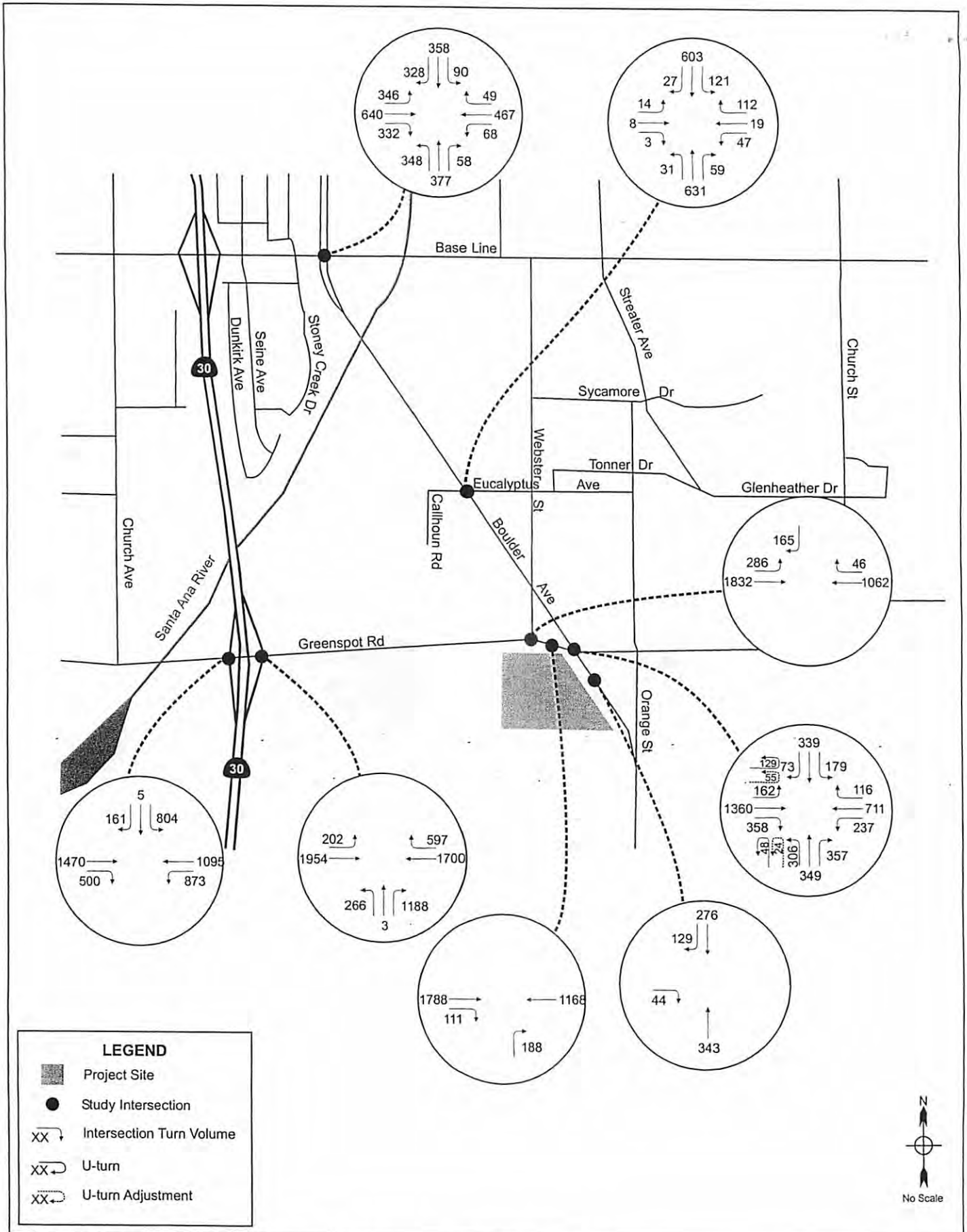


KOA CORPORATION
PLANNING & ENGINEERING

Highland Retail - Traffic Impact Study

Figure 18

Near Term (Year 2012) Traffic Volumes with Project Traffic - AM Peak Hour



KOA CORPORATION
PLANNING & ENGINEERING

Highland Retail - Traffic Impact Study

Figure 19

Near Term (Year 2012)Traffic Volumes with Project Traffic - PM Peak Hour

CUMULATIVE PROJECT 7

TRAFFIC IMPACT STUDY

Centerstone Subdivision

City of Highland, California

Prepared for:

City of Highland
27215 Base Line
Highland, CA 92346
(909) 864-8732

Prepared by:

Hernandez, Kroone & Associates
234 East Drake Drive
San Bernardino, CA 92408
(909) 884-3222

September 2009

INTRODUCTION

This analysis was prepared to determine the potential traffic impacts of the Centerstone Subdivision, a housing development proposed at the southeast corner of the Greenspot Road / Orange Street intersection. The project will provide 133 units of single family detached housing. The 21 acre site is located approximately 800 feet east of the intersection of Boulder Avenue / Greenspot Road in the City of Highland, California. (See Vicinity Map)

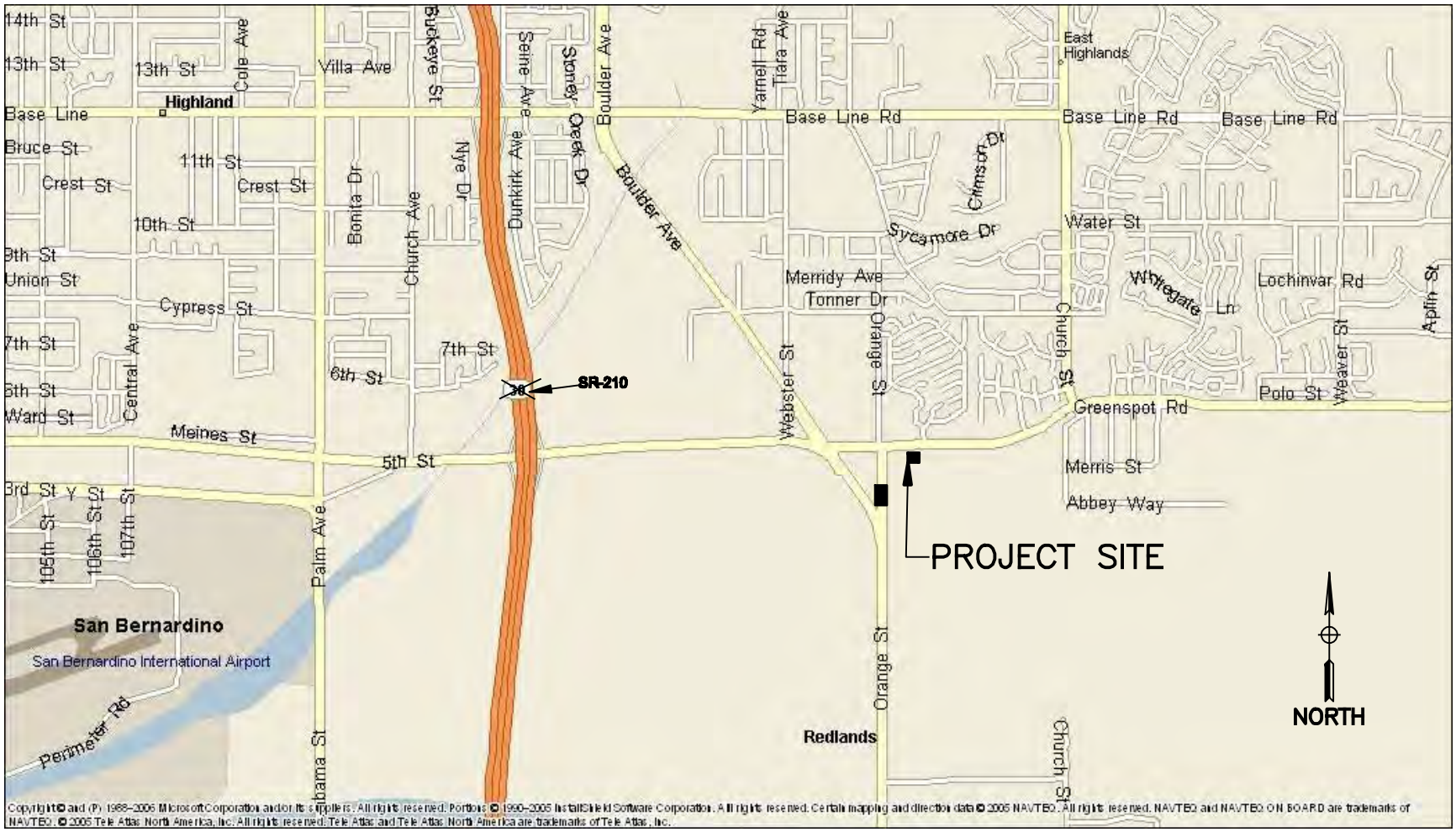
The site is currently undeveloped land. There is a mobile home park west of the project at the southwest corner of the Greenspot Road / Orange Street intersection. The property directly north of the site is developed as single family homes, with two operating schools and a post office under construction nearby. The property south of the project includes the easement for the Metropolitan Water District of Southern California Inland Feeder Pipeline, the Santa Ana River Wash and two land leases to gravel mining companies.

The land immediately to the east of the project is vacant. The site is proposed to be developed as Blossom Trails Subdivision consisting of 14 single family homes and 306 condos / town homes. The 14 single family homes will be north of Greenspot Road and the 306 condos / town homes will be south of Greenspot Road. Urban Crossroads completed a traffic study for the Blossom Trails project on January 27, 2006.

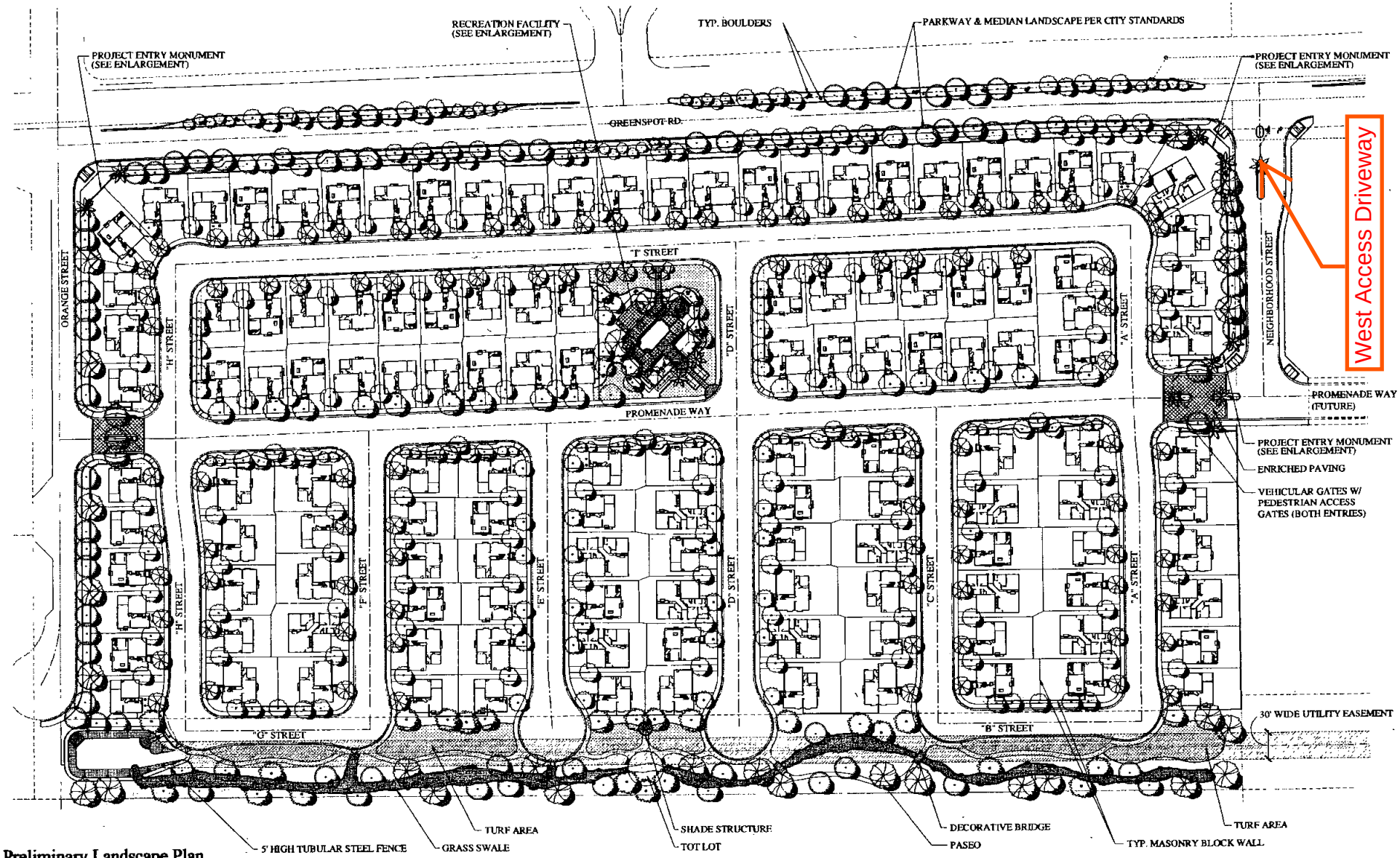
In the January 2006 traffic study the Blossom Trails Subdivision and the Centerstone Subdivision were anticipated to share an access to Greenspot Road about 1,320 feet east of Orange Street. Since that access was on the west side of the Blossom Trails project, it was called the "West Access Driveway". This access will be called the "West Access Driveway" in this traffic study as well even though it is on the east side of the development. (See Site Plan)

Centerstone Subdivision's other access will be at Orange Street / Greenspot Road. The main thrust of the study will be to analyze the West Access Driveway in the absence of the Blossom Trails development. This traffic study is a revision of the one completed December 2008. The number of dwelling units was changed from 120 to 133. This is an increase of 13 trips during the PM Peak Period. The exhibits, tables, analysis and conclusions have been revised to reflect this change.

This traffic study was completed with generally accepted procedures and reflects the opinions of Hernandez, Kroone & Associates.



Hernandez, Kroone & Associates, Inc — CONSULTING ENGINEERS — PLANNING - DESIGN - SURVEYING 234 EAST DRAKE DRIVE SAN BERNARDINO, CA 92408 (909) 884-3222 FAX (909) 383-1577 E-MAIL	OWNER CENTERSTONE SUBDIVISION	08–1030
	DESCRIPTION VICINITY MAP	DATE 12/08/08



Preliminary Landscape Plan

Centerstone @ Woodbridge Trails

Highland, California

Centerstone Communities, Inc.

SCALE: 1" = 40'-0"

NUVIS
LANDSCAPE ARCHITECTURE
AND PLANNING
CA 1226 NV 396

SHT 1 OF 3

The Single Family-Detached Housing category was used to approximate the number of AM and PM Peak Period trips in and out of the proposed 133 units housing development. These trips are summarized in Table 2 below. The detailed calculations can be found in Appendix C.

Table 2: Project Trip Summary Table

Development Type	**AM Peak Period**			**PM Peak Period**			**ADT[1]**
	Total	**In**	**Out**	**Total**	**In**	**Out**	
Single Family-Detached Housing	100	25	75	134	84	50	1,273

[1]*ADT (Average Daily Trips) is the average number of vehicles expected to enter or leave the site during one day.*

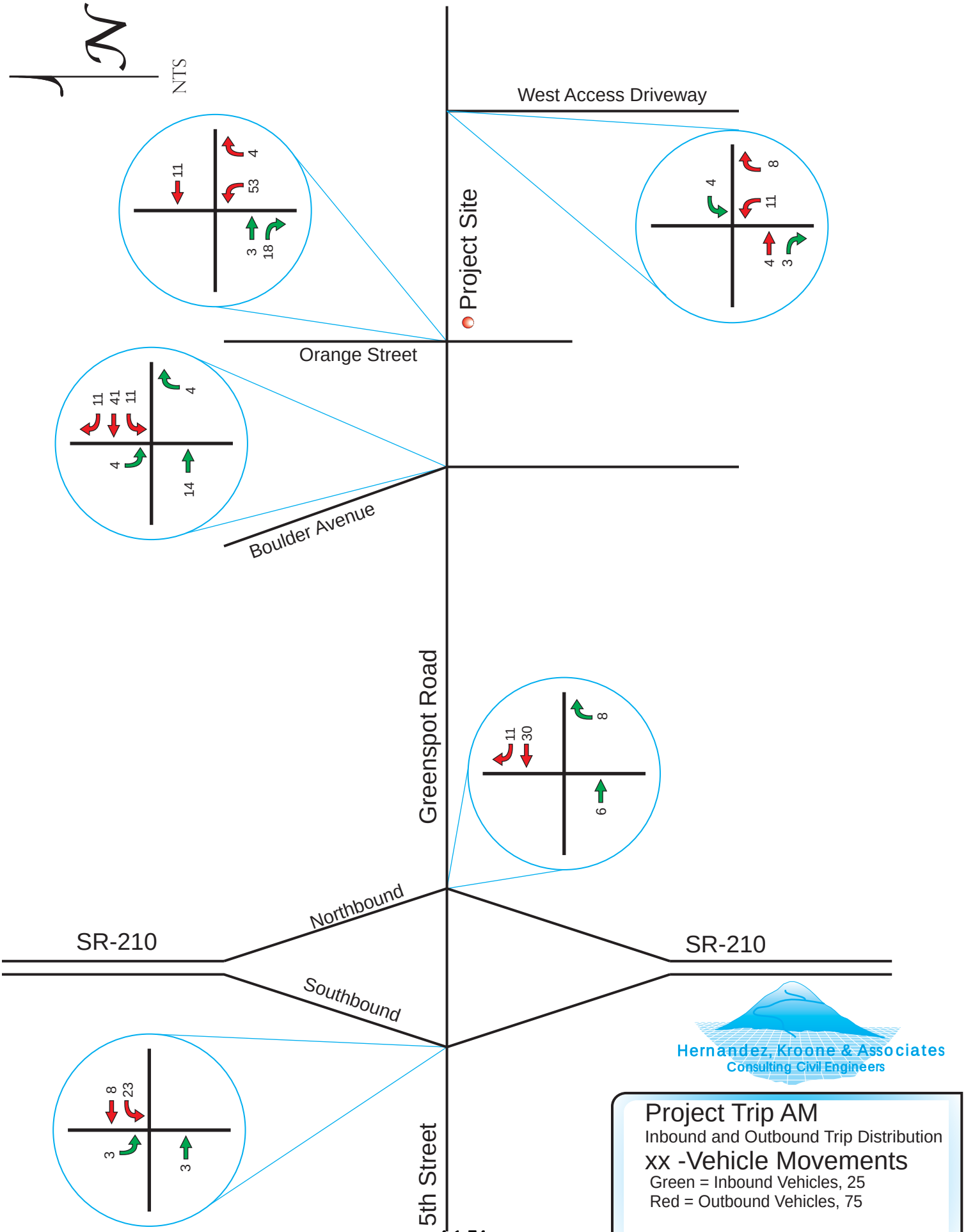
PROJECT TRIP DISTRIBUTION

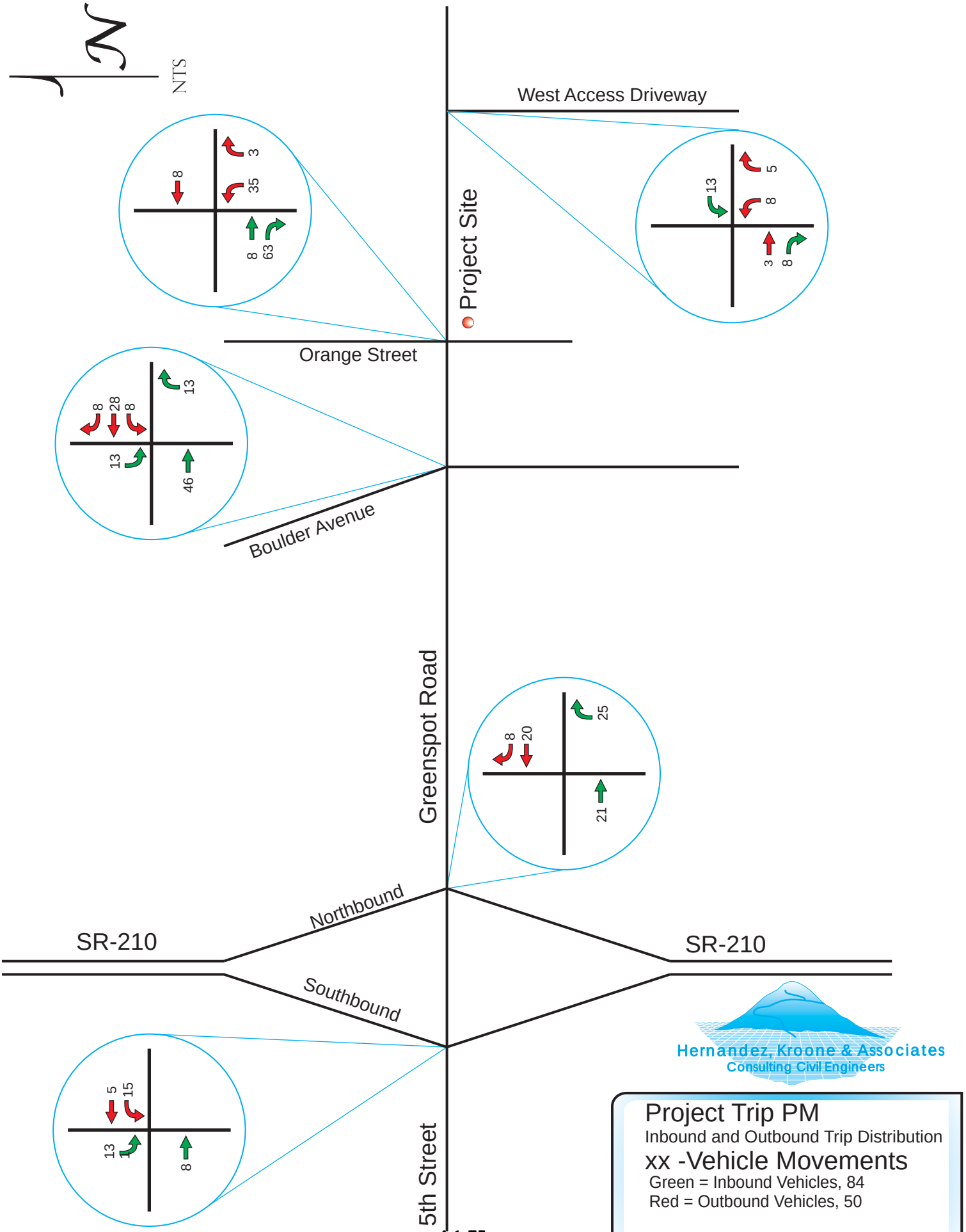
To the west of the Centerstone Subdivision is access to the Cities of Highland, San Bernardino, Redlands, schools, post office, or shopping via Boulder Avenue and SR-210 to Interstate 10 (I-10) or Interstate 215 (I-215). The Golden Triangle area west of Centerstone will be developing in the next few years and will provide a major attraction for shopping, entertainment, work and dining. To the east of the site are smaller shopping centers, subdivisions and indirect rural access to the unincorporated area of Mentone and the mountains. The Urban Crossroads study anticipated that 85% of the project traffic would leave to the west or arrive from the west. This distribution will be used for this analysis of the Centerstone development. The project's trip distribution is shown in Appendix C.

BACKGROUND TRAFFIC GROWTH

Growth Rate

In order to accurately model the traffic conditions for future scenarios, it is necessary to increase the background (existing) traffic in addition to adding in the cumulative project trips. A 2% growth rate per year will be assumed to the Opening Year for this analysis. Opening Year is assumed to be 2011. This will result in an overall increase of 6% to the existing counts at the study intersections.


NTS
West Access Driveway
Project Site
Orange Street
Boulder Avenue
Greenspot Road
Northbound
Southbound
SR-210
SR-210
5th Street
11
4
53
3
18
4
8
11
4
3
11
41
11
4
4
14
11
30
8
6
8
23
3
3
Hernandez, Kroone & Associates
Consulting Civil Engineers
Project Trip AM
Inbound and Outbound Trip Distribution
xx -Vehicle Movements
Green = Inbound Vehicles, 25
Red = Outbound Vehicles, 75


NTS
West Access Driveway
Project Site
Orange Street
Boulder Avenue
Greenspot Road
Northbound
Southbound
SR-210
SR-210
5th Street
8
3
35
8
63
13
5
8
3
8
8
28
8
13
13
46
8
20
25
21
5
15
13
1
8
Hernandez, Kroone & Associates
Consulting Civil Engineers
Project Trip PM
Inbound and Outbound Trip Distribution
xx -Vehicle Movements
Green = Inbound Vehicles, 84
Red = Outbound Vehicles, 50

CUMULATIVE PROJECT 8

TABLE 1

PROJECT TRIP GENERATION RATES[1]

Land Use[1]	ITE LU Code	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
PLANNING AREA 1 (COMMERCIAL)										
Phase 1:										
Shopping Center	820	588	TSF	0.45	0.29	0.74	1.74	1.81	3.55	36.53
Phase 2:										
Fast Food w/ Drive Thru	934	4	TSF	25.17	24.18	49.35	17.60	16.24	33.84	496.12
Gasoline/Service Station w/Conven. Mkt.[3]	945	3.6	TSF	40.44	38.86	79.30	48.54	48.54	97.08	1064.40
PLANNING AREA 2 (RESIDENTIAL):										
Apartment	220	546	Occupied DU	0.10	0.41	0.51	0.40	0.22	0.62	6.65
PLANNING AREA 3 (VILLAGE CENTER - MIXED USE):										
Shopping Center	820	91	TSF	0.98	0.62	1.60	3.22	3.35	6.57	70.19
Fast Food w/ Drive Thru	934	7.2	TSF	25.17	24.18	49.35	17.60	16.24	33.84	496.12
Drive-in Bank	912	10	TSF	6.92	5.43	12.35	12.91	12.91	25.82	148.15
Apartment	220	150	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.65
Senior Adult Housing - Attached	252	104	Occupied DU	0.05	0.08	0.13	0.10	0.06	0.16	3.48
Hotel	310	240	Occupied RM	0.39	0.28	0.67	0.34	0.36	0.70	8.92

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eighth Edition (2008).

[2] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Room

[3] The daily trip rate is based on PM Peak Hour to Daily Trip Ratio for ITE Code 946 (Service Station with Conv. Market and Car Wash)

TABLE 2 (PAGE 1 OF 2)

PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
TAZ 1 (COMMERCIAL)									
Phase 1									
Shopping Center	588	TSF	265	171	436	1,023	1,064	2,087	21,480
Phase 1 Subtotal			265	171	436	1,023	1,064	2,087	21,480
"Pass-By" Trips (25% Commercial Only) [2]			*-55*	*-55*	*-109*	*-261*	*-261*	*-522*	*-5,370*
Phase 1 Subtotal (less "Pass-By")			210	116	326	762	803	1,565	16,110
Phase 2									
Fast Food w/ Drive Thru	4	TSF	101	97	198	70	65	135	1,984
Gasoline/Service Station w/Conven. Mkt.	3.6	TSF	146	140	286	175	175	350	3,832
Phase 2 Subtotal			247	237	484	245	240	485	5,816
"Pass-By" Trips (25% Commercial Only) [2]			*-61*	*-61*	*-121*	*-61*	*-61*	*-121*	*-1,454*
Phase 2 Subtotal (less "Pass-By")			186	176	362	184	179	363	4,362
TOTAL PLANNING AREA 1 (without "pass-by" reduction)			512	408	920	1,268	1,304	2,572	27,296
TOTAL PLANNING AREA 1 (less "pass-by")			396	292	688	946	982	1,928	20,472
TAZ 2 (RESIDENTIAL)									
Apartment	546	DU	55	224	279	218	120	338	3,631
TOTAL PLANNING AREA 2			55	224	279	218	120	338	3,631
TAZ 3 (MIXED USE)									
Shopping Center	91	TSF	89	56	145	293	305	598	6,387
Fast Food w/ Drive Thru	7.2	TSF	181	174	355	127	117	244	3,572
Drive-in Bank	10	TSF	69	54	123	129	129	258	1,482
Subtotal for Commercial Uses			339	284	623	549	551	1,100	11,441
Apartment	150	DU	15	62	77	60	33	93	998
Senior Adult Housing - Attached	104	Occupied DU	5	8	13	10	6	16	362
Hotel	240	Occupied RM	94	67	161	82	86	168	2,141
Subtotal for Residential Uses			114	137	251	152	125	277	3,501
TOTAL PLANNING AREA 3			453	421	874	701	676	1,377	14,942

STUDY AREA PROJECT TRIP GENERATION							
Gross Total Commercial	*851*	*692*	*1,543*	*1,817*	*1,855*	*3,672*	*38,737*
Internal Capture with residential Uses [3]	*-43*	*-48*	*-91*	*-130*	*-115*	*-245*	*-2,532*
TOTAL COMMERCIAL *(with Internal Capture)*	808	644	1,452	1,687	1,740	3,427	36,205
Gross Total Residential	*169*	*361*	*530*	*370*	*245*	*615*	*7,132*
Internal Capture with Commercial Uses [3]	*-48*	*-43*	*-91*	*-115*	*-130*	*-245*	*-2,532*
TOTAL RESIDENTIAL *(with Internal Capture)*	121	318	439	255	115	370	4,600
TOTAL PROJECT TRIPS *(with Intenal Capture)*	929	962	1,891	1,942	1,855	3,797	40,805

TABLE 2 (PAGE 2 OF 2)

PROJECT TRIP GENERATION SUMMARY

EXTERNAL TRIPS PROJECT TRIP GENERATION							
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	Daily
Total Commercial (with Internal Capture) [4]	*808*	*644*	*1,452*	*1,687*	*1,740*	*3,427*	*36,205*
"Pass-By" Trips Total (25% Commercial Only) [2]	*-182*	*-182*	*-363*	*-429*	*-429*	*-857*	*-9,051*
TOTAL PROJECT COMMERCIAL *(less internal capture, less "pass-by")*	626	462	1,088	1,258	1,311	2,569	27,154
TOTAL RESIDENTIAL *(less internal capture)*	121	318	439	255	115	370	4,600
NET PROJECT EXTERNAL TRIPS	747	780	1,527	1,513	1,426	2,939	31,754
USED IN SUBSEQUENT ANALYSIS	793	838	1,631	1,524	1,427	2,951	32,765
DIFFERENCE	46	58	104	11	1	12	1,011
% DIFFERENCE	6.2%	7.4%	6.8%	0.7%	0.1%	0.4%	3.2%

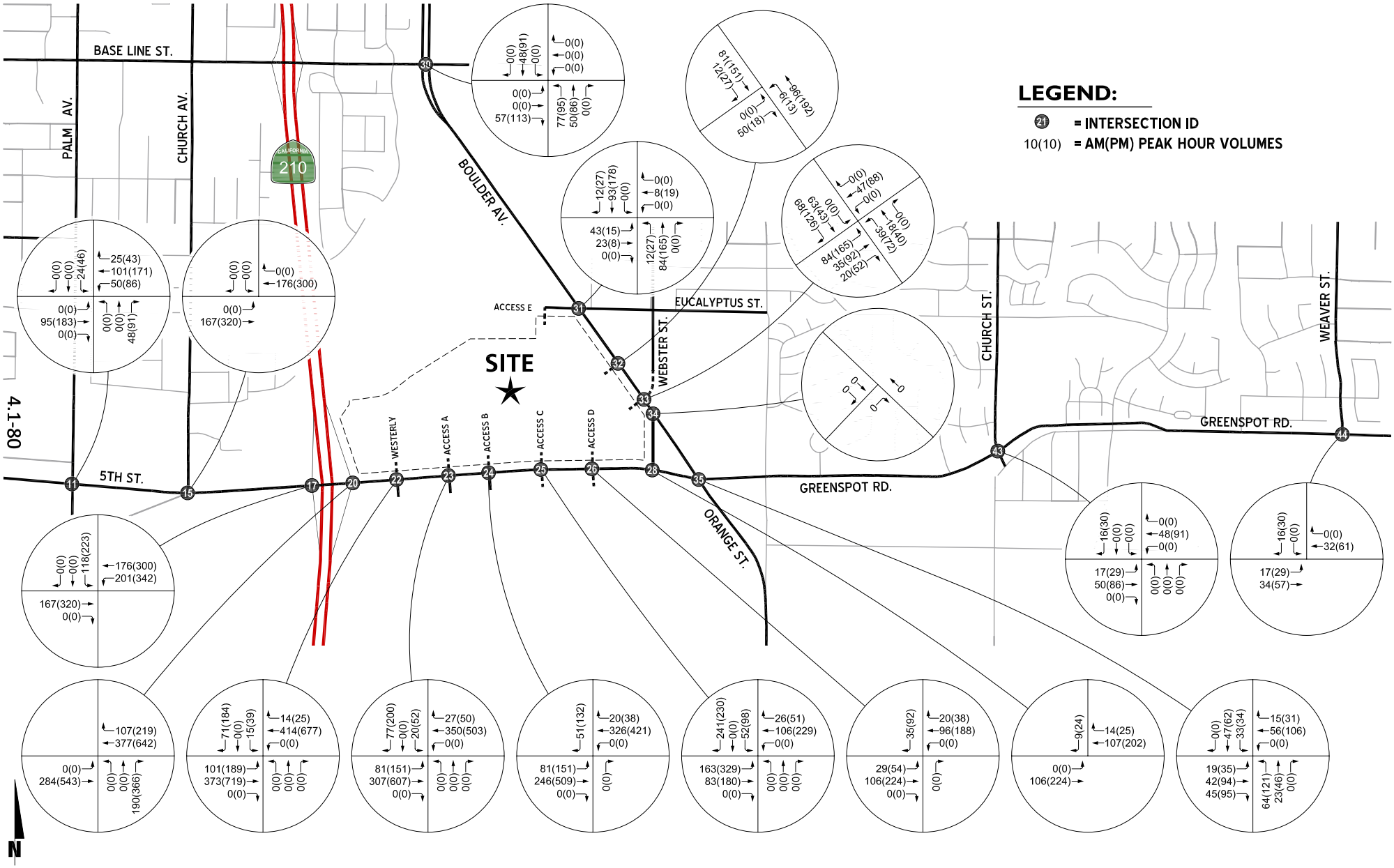
[1] TSF = Thousand Square Feet; DU = Dwelling Unit; RM = Room

[2] Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without route diversion. It should be noted that the pass-by reductions are applied after the internal capture reductions are taken. Pass-By reduction will not be applied to the project driveways and the intersections adjacent to the project site.

[3] Internal capture reductions include interactions between commercial, office, and residential uses. The internal capture rates are based upon data collected by the Institute of Transportation Engineers (ITE) and included in the Trip Generation Handbook, Chapter 7, Multi-Use Development.

[4] As mentioned previously, Pass-By trips are not applied at the project driveways and intersections adjacent to the site. Therefore, the following trip generation is utilized at the following intersections only: 1.) All Project Access points 2.) SR-210 NB Ramps/Greenspot Rd. 3.)Webster St./Greenspot Rd. 4.) Webster St./Boulder Ave.

PROJECT ONLY PEAK HOUR INTERSECTION VOLUMES



URBAN CROSSROADS

EXHIBIT E

PROJECT PASS-BY ONLY PEAK HOUR INTERSECTION VOLUMES

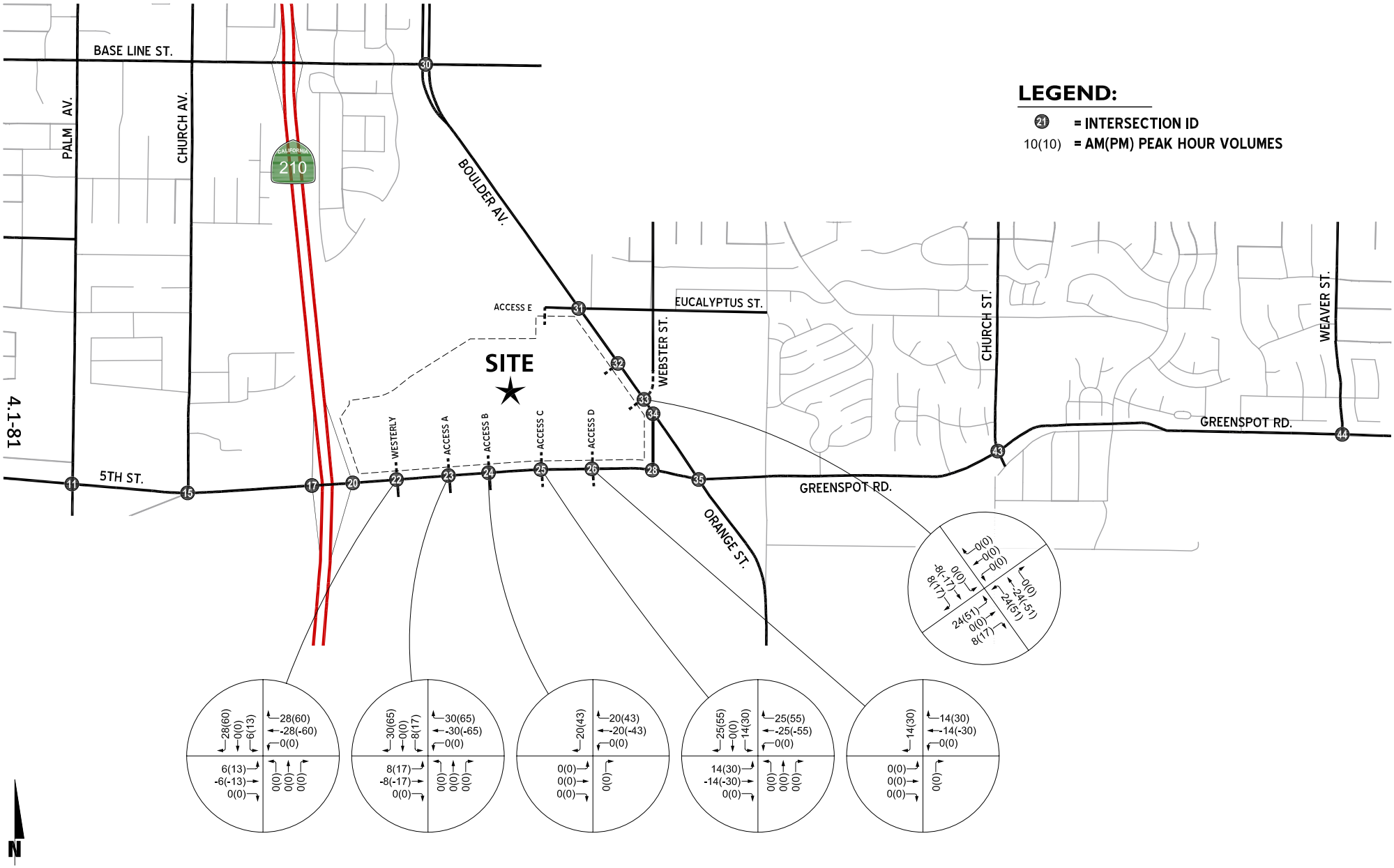
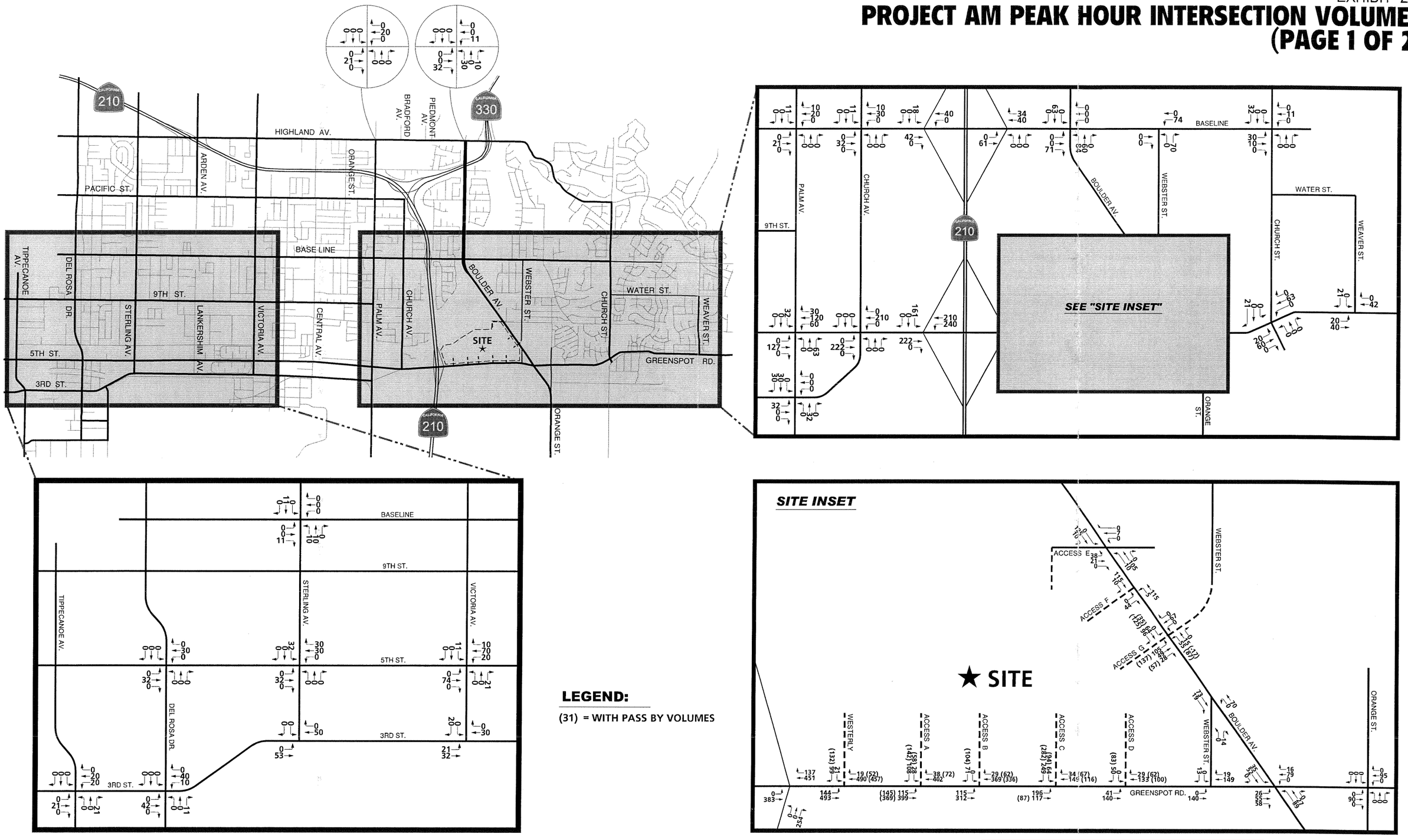


EXHIBIT 2-D

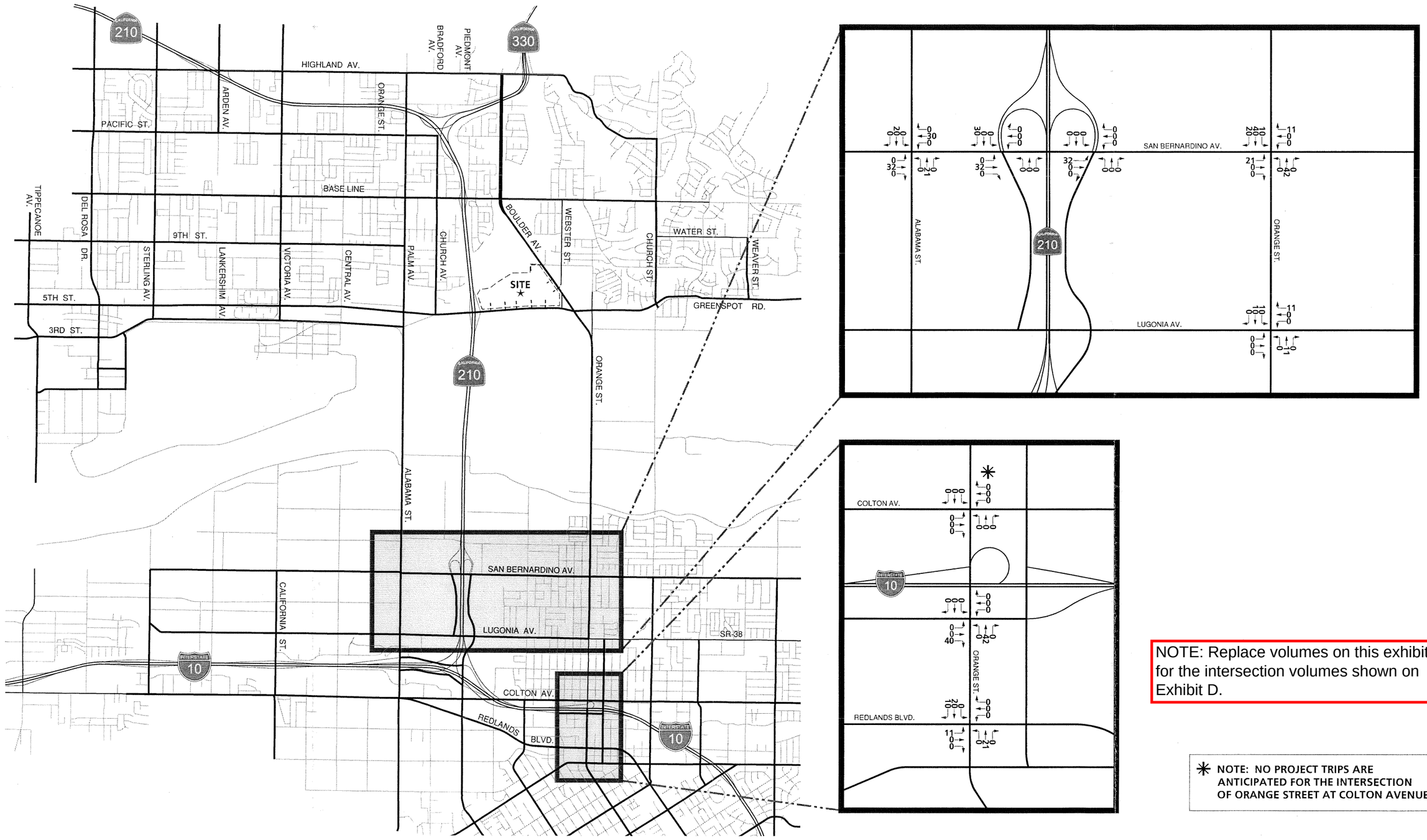
PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PAGE 1 OF 2)



NOTE: Replace volumes on this exhibit for the intersection volumes shown on Exhibit D.

EXHIBIT 2-D

PROJECT AM PEAK HOUR INTERSECTION VOLUMES (PAGE 2 OF 2)

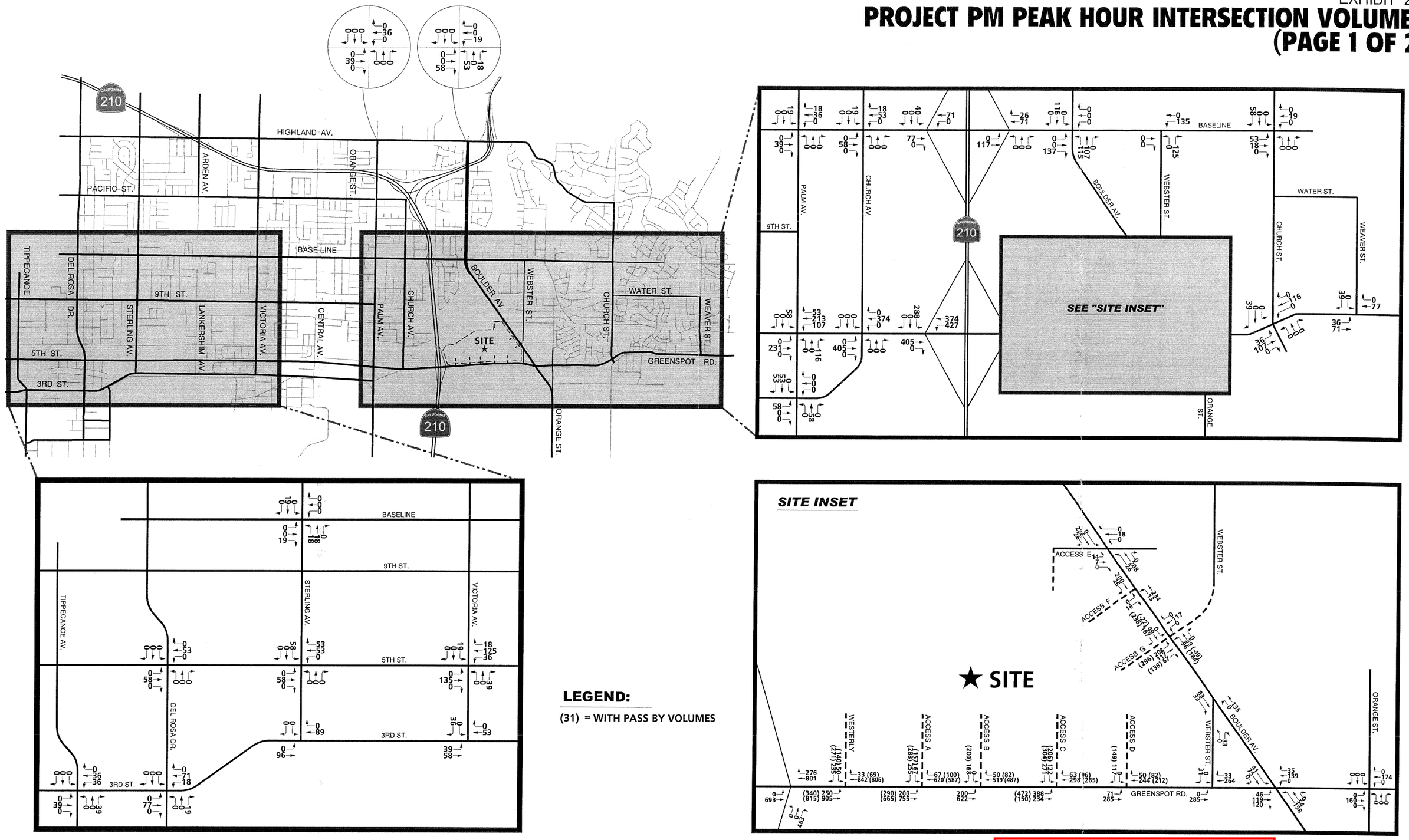


NOTE: Replace volumes on this exhibit for the intersection volumes shown on Exhibit D.

✳ NOTE: NO PROJECT TRIPS ARE ANTICIPATED FOR THE INTERSECTION OF ORANGE STREET AT COLTON AVENUE

EXHIBIT 2-E

PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PAGE 1 OF 2)



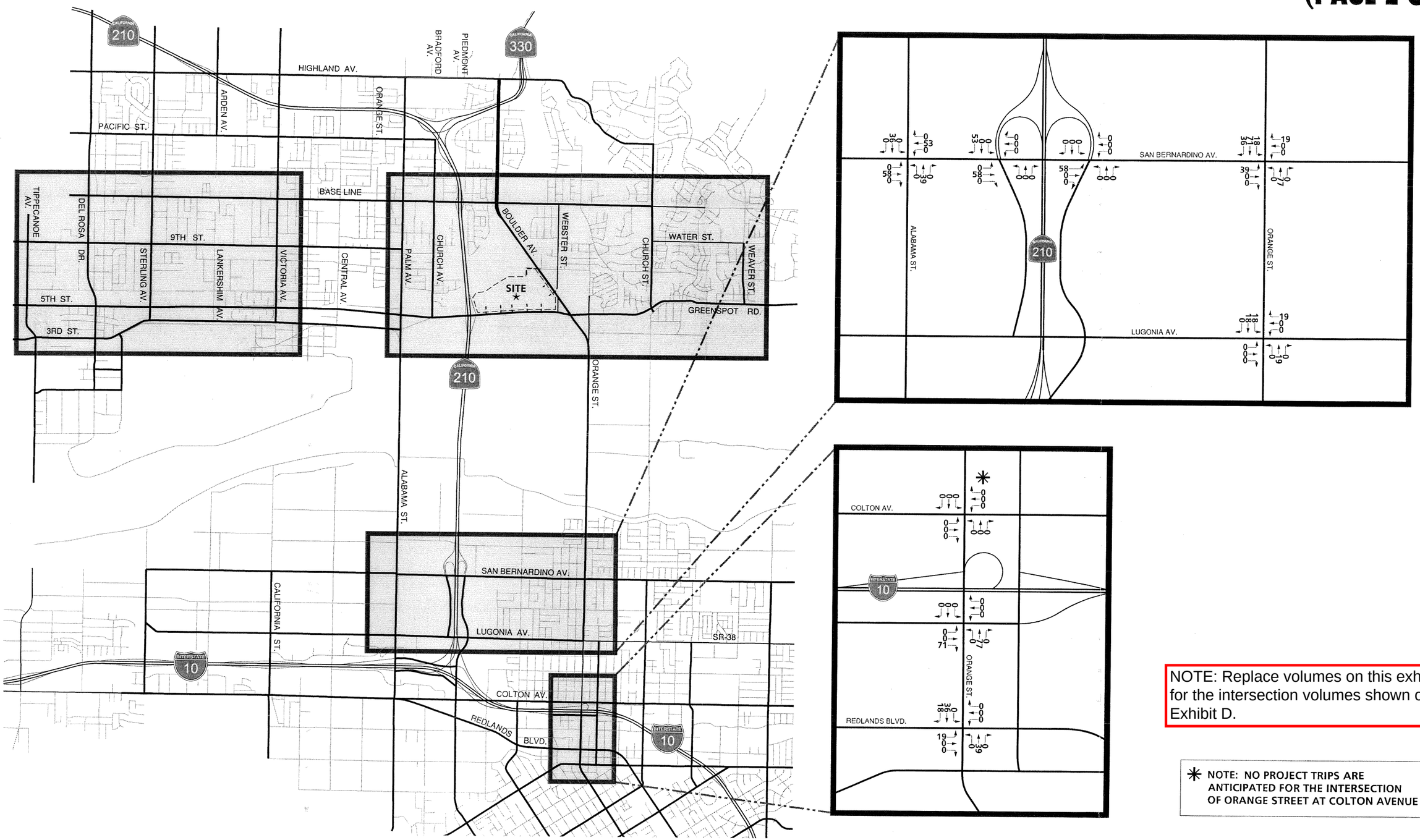
LEGEND:

(31) = WITH PASS BY VOLUMES

NOTE: Replace volumes on this exhibit for the intersection volumes shown on Exhibit D.

EXHIBIT 2-E

PROJECT PM PEAK HOUR INTERSECTION VOLUMES (PAGE 2 OF 2)



NOTE: Replace volumes on this exhibit for the intersection volumes shown on Exhibit D.

✳ NOTE: NO PROJECT TRIPS ARE ANTICIPATED FOR THE INTERSECTION OF ORANGE STREET AT COLTON AVENUE

CUMULATIVE PROJECT 9

Industrial Center - No of
NEC Palm - 5th

CITY OF HIGHLAND

27215 Base Line, Highland, CA 92346
Telephone (909) 864-8732 FAX: (909) 862-3180

Receipt # 341681
CLERK OF THE BOARD
DEC 07 2007
COUNTY OF
SAN BERNARDINO

NOTICE OF DETERMINATION

TO: ___ Office of Planning & Research
1400 Tenth St., Room 121
Sacramento, CA 95814

_X_ Clerk of the Board
385 N. Arrowhead Ave., Second Floor
San Bernardino, CA 92411

FROM: City of Highland
Community Development Dept.
27215 Base Line
Highland, CA 92346

Documentary Handling Fee ($35.00)
Receipt Number _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

PROJECT TITLE: Design Review Application (DRB-007-016)

STATE CLEARINGHOUSE NUMBER: NA

CONTACT PERSON AND TELEPHONE: Jack Lanphere, Lanphere and Associates (909) 362-1852

LEAD AGENCY CONTACT PERSON AND TELEPHONE: Sean Kelleher, Assistant Planner (909) 864-8732, ext. 210

PROJECT LOCATION: The Project is located on four (4) adjoining properties north /northeast of the intersection of Fifth Street and Palm Avenue.
Assessor Parcel Numbers 1201-301-01, 02, 03, and 09

PROJECT DESCRIPTION: A Design Review Application (DRB-007-016) which proposing the construction of three (3) Industrial Buildings each with attached associated business offices. The Buildings will range in size from 11,752 square feet to 13,250 square feet. Each of the proposed Buildings will be located on a separate parcel of land along with associated parking and landscaping, for Industrial / Business Park type uses.

APPLICANT: Jack Lanphere, Lanphere and Associates
36317 bay Hill Drive
Beaumont, CA 92223

This is to advise that the City of Highland (Lead Agency) has approved the above described project on December 4, 2007 and has made the following determinations regarding the above described project:

1. The project ___ will, _X_ will not, have a significant effect on the environment.
2. ___ An Environmental Impact Report was prepared for this pursuant to the provisions of CEQA.

   _X_ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures _X_ were, ___ were not, made a condition of the approval of the project by reference to umbrella approved projects.
4. This project ___ has, _X_ has no, potential (*de minimis*) impact for any adverse effect, either individually or cumulatively on wildlife resources or wildlife habitat.
5. A statement of Overriding Considerations ___ was, _X_ was not, adopted for this project.
6. Findings _X_ were, ___ were not made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration with comments and responses and record of project approval is available to the General Public at City of Highland, Community Development Department, 27215 Base Line, Highland, CA 92346.

DATE FILED & POSTED

Signature (Public Agency) 12/4/07 Date Community Development Director Title

Date received for filing at OPR: _____

CLERK OF THE
BOARD OF SUPERVISORS
07 OCT 24 AM 11:36
COUNTY OF SAN BERNARDINO
CALIFORNIA

DATE FILED & POSTED

CITY OF HIGHLAND

27215 Base Line, Highland, CA 92346
Telephone (909) 864-8732 FAX: (909) 862-3180

NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION

PUBLICATION OF THIS NOTICE DOES NOT IMPLY THE REVIEWING AUTHORITY (CITY OF HIGHLAND) HAS MADE A FINAL DECISION TO ADOPT THE NEGATIVE DECLARATION

Lead Agency:
City of Highland
Planning Division
27215 Base Line
Highland, CA 92346

Contact:
Sean Kelleher
Assistant Planner
(909) 864-8732, Ext. 210

The City of Highland, in its capacity as the Lead Agency for this project, evaluated the potential environmental impacts of the project in accordance with the California Environmental Quality Act (CEQA). The City has determined through the preparation of an Initial Study the project will not result in any significant environmental impacts, and therefore will prepare a Mitigated Negative Declaration for the project identified below. The Initial Study meets the requirements of CEQA, and the City of Highland Guidelines for the implementation of CEQA.

We need to know your views as to the scope and contents of the environmental information, which has been included in the Initial Study. If you represent a responsible or trustee agency, we are particularly interested in information germane to your statutory responsibilities. If you are a public agency, you will need to use the Initial Study prepared by our Agency when considering your permit or other approval for the project.

Due to the time limits mandated by State Law, your response must be sent at the earliest possible date, but no later than the ending date specified below.

Project Title: Design Review Board Application (DRB-007-016)
Palm Avenue Business Park

Project Location: The Project is located on four (4) adjoining properties North /Northeast of the intersection of Fifth Street and Palm Avenue and is identified as Assessor Parcel Numbers 1201-301-01, 02, 03, and 09.

City: Highland County: San Bernardino

Project Description: The Applicant is proposing the Construction of Three (3) Industrial

Buildings each with attached associated business offices. The Buildings will range in size from 11,752 square feet to 13,250 square feet. Each of the proposed Buildings will be located on a separate parcel of land. The Applicant will be conditioned to record a lot merger and lot line adjustments to relocate and or eliminate lot lines to create the proposed configuration.

Each of the proposed buildings has been proposed with parking counts consistent with the Highland Municipal Code. The City has required the Applicant to process reciprocal access agreements between each of the three (3) parcels. Reciprocal access will also be granted to the parcel east of the site at the time of future development.

The Highland Municipal Code requires a development of this nature to be processed as a Major Design Review Application subject to a Public Meeting before the Design Review Board.

Public Review: Design Review Board (DRB-007-016) Initial Study/Mitigated Negative Declaration, and related documents are available for public review daily during normal business hours. Members of the public may view these documents at City Hall Planning Division, located at 27215 Base Line, Highland and submit comment at or prior to the Planning Commission hearing.

An opportunity will be given at said hearing for all interested persons to be heard.

Public Review Period: Begins: October 24, 2007 Ends: November 14, 2007

Public Hearing(s): Tentative Date: December 4, 2007

Time: 5:00 p.m. or soon thereafter
Location: Leo Donahue Council Chambers
27215 Base Line

Comments: All comments and questions should be in writing and directed to:

City of Highland
Attention: Sean Kelleher, Assistant Planner
27215 Base Line
Highland, CA 92346

C:\environmental\notice of intent

18. Are any of the following studies required?

Soils Report	Yes ☑ No ☐
Slope Study	Yes ☐ No ☑
Geological Report	Yes ☐ No ☑
Traffic Study	Yes ☐ No ☑
Air Quality Study	Yes ☐ No ☑
Hydrology	Yes ☐ No ☑
Sewer Study	Yes ☐ No ☑
Biological Study	Yes ☐ No ☑
Noise Study	Yes ☑ No ☐
Hazardous Materials Study	Yes ☐ No ☑
Housing Analysis	Yes ☐ No ☑
Archaeological Report	Yes ☑ No ☐
Groundwater Analysis	Yes ☐ No ☑
Water Quality Report	Yes ☑ No ☐
Other	Yes ☐ No ☑

19. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement).

20. INFORMATION SOURCES CITED: The documents below are incorporated herein by reference and are available for review at Highland City Hall, located at 27215 Base Line, California.

1. Chambers Group

2. City of Highland General Plan and Environmental Impact Report Adopted by the City Council March 14, 2006.

3. City of Highland Municipal Code

4. Flood Insurance Rate Map Panel 06071C8701, dated February 23, 2005 and Flood Insurance Rate Map Panel 06071C8682, dated March 18, 1996.

5. L and L Environmental Inc. "A Phase 1 Archaeological Survey Report located between Fifth Street and Palm Avenue. August 30, 2007.

6. Institute of Transportation Engineers; Trip Generation, 7th Edition, Volume 2 of 3; Institute of Transportation Engineers, 2003

7. "San Bernardino County Important Farm Land. Sheet 2 of 2." Farmland Mapping and Monitoring Program. May, 2004

14. RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Explanation:

14ab <u>No Impact:</u> The site has a proposed use as an Industrial Center. The proposed Project will not result in the direct addition of new residents to the City of Highland. Therefore there is no additional services are generated by this Project, no mitigation measures are required.

Mitigation Measures: Not Required

15. TRANSPORTATION/TRAFFIC -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☑
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Result in inadequate parking capacity?	☐	☐	☐	☑
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

Explanation:

15ab No Impact: The Proposed Project will generate 21 (20.99994) AM Peak Hour Trips and 23 (22.47362) PM Peak Hour Trips each day. The vehicle trip generation numbers were calculated pursuant to Pages 202 and 203 of Trip Generation, 7th Edition, Volume 2 of 3. The Proposed number of peak hour vehicle trips will not impact the existing road system with the Street Improvements proposed by the Applicant. The proposed trip generation is not considered a substantial increase in peak traffic that could cause an LOS standard to be exceeded. No mitigation measures are required.

15c No Impact: The proposed Project would not result in a change in air traffic patterns although the San Bernardino International Airport is located Approximately one half (½) mile away from the site and the Redlands Municipal Airport is located approximately four (4) miles from the project site. No mitigation measures are required.

15d No Impact: The Proposed Project will result in the widening of Palm Avenue along the frontage of existing Parcels 1201-301-01and 09. In addition the City of Highland has sixty feet (60') of dedicated Right of Way located between Assessor Parcel Numbers 1201-301-13 and 14, which will grant access to the Applicants development on Parcels 1201-301-03 and 04. At this time there are no existing Street Improvements constructed between parcels 1201-301-13 and 14. The Applicant will be required to dedicate property to allow for a Cul-de-Sac, as well as, construct all street improvements. Therefore, the Applicant will not be increase hazards due to a design feature. Therefore, no mitigation measures are required.

15e No Impact: The proposed Project utilizes Palm Avenue as the primary point of access to the site via direct street access and a proposed cul-de-sac. A Third point of access to the site will also be conditioned for future connections to the parcels to the east of the site once they are developed. No mitigation measures are required.

15f No Impact: The proposed Project provides a total of sixty two (62) parking stalls four (4) greater than is required by the City Municipal Code for a Business park use. Therefore, no mitigation measures are required.

15g No Impact: The Project site is bounded on the west by Palm Avenue (classified as a Secondary Highway). No bus turnouts are proposed for the Project; however, it will comply with the City's Municipal Code Chapter 16.40.470, Transportation Control Measures. Therefore, no mitigation measures are required.

Mitigation Measures: Not Required

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐

Explanation:

16a Less Than Significant Impact: The proposed Project would construct 36,842 square feet of Industrial buildings with sixty-two (62) associated parking stalls, drive lanes, and landscaping. According to EVWD, the sewerage system has adequate capacity to serve the development. Therefore, operation of the site as a residential development would not result in an accedence of wastewater treatment requirements of the SARWQCB. No mitigation measures are required.

16b Less Than Significant Impact: The proposed Project would construct 36,842 square feet of Industrial buildings with sixty-two (62) associated parking stalls, drive lanes, and landscaping. According to EVWD, the wastewater service provider has adequate capacity to serve the development. No additional facilities would be required to handle the flows from the proposed development.

CUMULATIVE PROJECT 10

Retail Office - SWC
Greenspot / Church Street

CITY OF HIGHLAND

27215 Base Line, Highland, CA 92346
Telephone (909) 864-8732 FAX: (909) 862-3180

CLERK OF THE BOARD
JUL 17 2008
COUNTY OF
SAN BERNARDINO

NOTICE OF DETERMINATION

TO: ___Office of Planning & Research
1400 Tenth St., Room 121
Sacramento, CA 95814

X Clerk of the Board
385 N. Arrowhead Ave., Second Floor
San Bernardino, CA 92411

FROM: City of Highland
Community Development Dept.
27215 Base Line
Highland, CA 92346

Documentary Handling Fee ($35.00)
Receipt Number #353001

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

PROJECT TITLE: Design Review Application (DRB-007-025)

STATE CLEARINGHOUSE NUMBER: NA

CONTACT PERSON AND TELEPHONE: Jae Kim, (909) 899-1476

LEAD AGENCY CONTACT PERSON AND TELEPHONE: Sean Kelleher, Assistant Planner (909) 864-8732, ext. 210

PROJECT LOCATION: The Project is located at the southwest corner of Greenspot Road and Church Street and is identified as Assessor Parcel Number 1201-201-01.

PROJECT DESCRIPTION: The Applicant is proposing the construction of a five thousand (5,000) square foot two-story Commercial building. The first-story will be comprised of 4,656 square feet of the building and the second floor will be 344 square feet. The second floor leasable space will be incorporated into the eastern most suite. The Project as proposed is set on a single parcel of land approximately .49 acres (21,400 square feet) in size.

APPLICANT: Jae Kim
7951 Etiwanda Avenue #11108
Rancho Cucamonga, CA 91739

This is to advise that the City of Highland (Lead Agency) has approved the above described project on April 15, 2008 and has made the following determinations regarding the above described project:

1. The project ___ will, X will not, have a significant effect on the environment.
2. ___ An Environmental Impact Report was prepared for this pursuant to the provisions of CEQA.
   X A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures X were, ___ were not, made a condition of the approval of the project by reference to umbrella approved projects.
4. This project ___ has, X has no, potential (*de minimis*) impact for any adverse effect, either individually or cumulatively on wildlife resources or wildlife habitat.
5. A statement of Overriding Considerations ___ was, X was not, adopted for this project.
6. Findings X were, ___ were not made pursuant to the provisions of CEQA.

This is to certify that the Mitigated Negative Declaration with comments and responses and record of project approval is available to the General Public at City of Highland, Community Development Department, 27215 Base Line, Highland, CA 92346.

Signature (Public Agency)	7/16/2008 Date	Assistant Planner Title

Date received for filing at OPR:_____

DATE FILED & POSTED

CITY OF HIGHLAND

27215 Base Line, Highland, CA 92346
Telephone (909) 864-8732 FAX: (909) 862-3180

CLERK OF THE BOARD
MAY - 1 2008
COUNTY OF
SAN BERNARDINO

NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION

PUBLICATION OF THIS NOTICE DOES NOT IMPLY THE REVIEWING AUTHORITY (CITY OF HIGHLAND) HAS MADE A FINAL DECISION TO ADOPT THE NEGATIVE DECLARATION

Lead Agency:
City of Highland
Planning Division
27215 Base Line
Highland, CA 92346

Contact:
Sean Kelleher
Assistant Planner
(909) 864-8732, Ext. 210

The City of Highland, in its capacity as the Lead Agency for this project, evaluated the potential environmental impacts of the project in accordance with the California Environmental Quality Act (CEQA). The City has determined through the preparation of an Initial Study the project will not result in any significant environmental impacts, and therefore will prepare a Mitigated Negative Declaration for the project identified below. The Initial Study meets the requirements of CEQA, and the City of Highland Guidelines for the implementation of CEQA.

We need to know your views as to the scope and contents of the environmental information, which has been included in the Initial Study. If you represent a responsible or trustee agency, we are particularly interested in information germane to your statutory responsibilities. If you are a public agency, you will need to use the Initial Study prepared by our Agency when considering your permit or other approval for the project.

Due to the time limits mandated by State Law, your response must be sent at the earliest possible date, but no later than the ending date specified below.

Project Title: Design Review Application (DRB-007-025) A five thousand (5,000) square foot Neighborhood Commercial Building at the southwest corner of Greenspot Road and Church Street

Project Location: The Project is located at the southwest corner of Greenspot Road and Church Street and is identified as Assessor Parcel Number 1201-201-01.
City: Highland County: San Bernardino

Project Description: The Applicant is proposing the construction of a five thousand (5,000) square foot two-story Commercial building. The first-story will be comprised of 4,656 square feet of the building and the second floor will be 344 square feet. The second floor leasable space will be incorporated into the eastern most Suite. The Project as proposed is set on a single parcel of land approximately .49 acres (21,400 square feet) in size.

The Project Site has a General Plan and Zoning designation of Neighborhood Commercial, which allows for the uses proposed as part of the subject Application.

The Site is located at the southwest corner of Greenspot Road and Church Street. Access to the Site will be taken from Greenspot Road to the north of the Site and Old Greenspot Road to the south of the Site.

DATE FILED & POSTED

The Highland Municipal Code requires a development of this nature to be processed as a Major Design Review Application.

Public Review Period: Begins: May 1, 2008 Ends: May 22, 3008

Public Meeting(s):

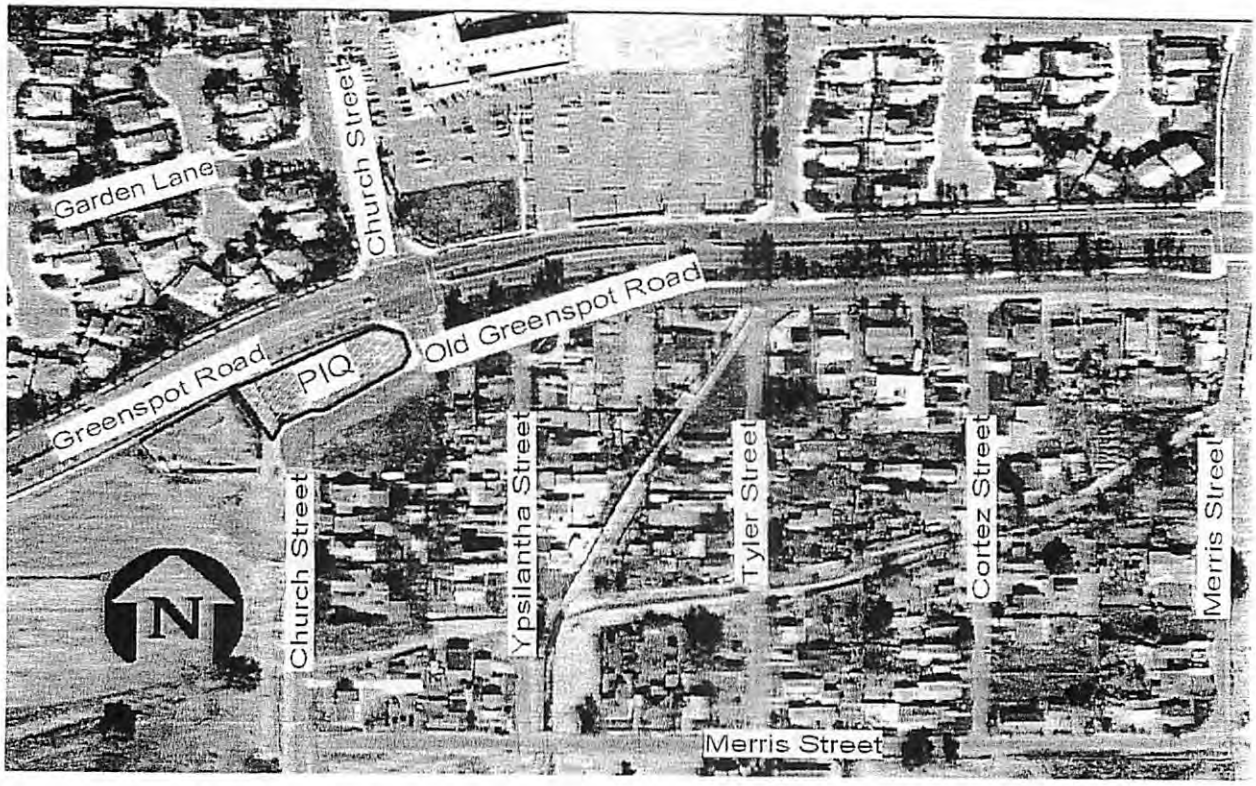
Tentative Date: June 3, 2008
Time: 5:00 p.m. or soon thereafter
Location: Leo Donahue Council Chambers
27215 Base Line

Comments: All comments and questions should be in writing and directed to:

City of Highland
Attention: Sean Kelleher, Assistant Planner
27215 Base Line
Highland, CA 92346

C:\environmental\notice of intent

Aerial Photo (Exhibit 2)



18. Are any of the following studies required?

Soils Report	Yes ☐ No ☑
Slope Study	Yes ☐ No ☑
Geological Report	Yes ☐ No ☑
Traffic Study	Yes ☐ No ☑
Air Quality Study	Yes ☐ No ☑
Hydrology	Yes ☐ No ☑
Sewer Study	Yes ☐ No ☑
Biological Study	Yes ☐ No ☑
Noise Study	Yes ☐ No ☑
Hazardous Materials Study	Yes ☐ No ☑
Housing Analysis	Yes ☐ No ☑
Archaeological Report	Yes ☐ No ☑
Groundwater Analysis	Yes ☐ No ☑
Water Quality Report	Yes ☑ No ☐
Other	Yes ☐ No ☑

19. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement).

City of Highland Design Review Board, City of Highland Building and Safety Division, City of Highland Public Works / Engineering Department, City of Highland Fire Department, and East Valley Water District

20. INFORMATION SOURCES CITED: The documents below are incorporated herein by reference and are available for review at Highland City Hall, located at 27215 Base Line, California.

1. City of Highland General Plan and Environmental Impact Report Adopted by the City Council March 14, 2006.

2. City of Highland Municipal Code

3. Flood Insurance Rate Map Panel 06071C8706F, dated February 23, 2005

4. Institute of Transportation Engineers. Trip Generation, 7th Edition, Volume 3 of 3; Institute of Transportation Engineers. 2003

5. "San Bernardino County Important Farm Land. Sheet 2 of 2." Farmland Mapping and Monitoring Program. May, 2004

14. RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Explanation:

14ab <u>No Impact:</u> The Site has a proposed use as a Commercial building. The proposed Project will not result in the direct addition of new residents to the City of Highland. Therefore there is no additional services are generated by this Project, no mitigation measures are required.

Mitigation Measures: Not Required

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
15. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☑
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Result in inadequate parking capacity?	☐	☐	☐	☑
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

Explanation:

15ab No Impact: The Proposed Project will generate and estimated 35 (34.2) AM Peak Hour Trips and 26 (25.1) PM Peak Hour Trips each weekday. In addition, the project will generate an estimated 211 (210.2) Daily Trips on Saturday and an estimated 103 (102.1) Daily Trips on Sunday. The vehicle trip generation numbers were calculated pursuant to Pages 1340-1343 of Trip Generation, 7th Edition, Volume 3 of 3. The proposed number of Peak Hour Trips will not impact the existing road system with the Street Improvements proposed by the Applicant. The proposed trip generation is not considered a substantial increase in peak traffic that could cause an LOS standard to be exceeded. No mitigation measures are required.

15c No Impact: The proposed Project would not result in a change in air traffic patterns although the San Bernardino International Airport is located Approximately two (2) miles southwest of the Site and the Redlands Municipal Airport is located approximately two (2) miles to the southeast of the Project Site. No mitigation measures are required.

15d No Impact: Access to the Site will betaken from an existing curb cut placed on Greenspot Road at the time of the streets most recent widening project. A secondary access point will be placed on Old Greenspot Road. The location of said access point has been assessed by the City of Highland to ensure adequate sight distance for

vehicle maneuvering is achieved. Due to the proximity to the intersections of Church Street / Greenspot Road and Church Street / Old Greenspot Road, no access point will be permitted on Church Street. Therefore, the Applicant will not be increase hazards due to a design feature. Therefore, no mitigation measures are required.

15e No Impact: The proposed Project utilizes Greenspot Road and Old Greenspot Road for Emergency Access. No mitigation measures are required.

15f No Impact: The proposed Project provides City of Highland Municipal Code required twenty (20) parking stalls for the proposed use. Therefore, no mitigation measures are required.

15g No Impact: The Project site is bounded on the north by Greenspot Road (Major Highway), the south by Old Greenspot Road (Local Street), and the east by Church Street (Secondary Highway). No bus turnouts are proposed for the Project; however, it will comply with the City's Municipal Code Chapter 16.40.470, Transportation Control Measures. Therefore, no mitigation measures are required.

Mitigation Measures: Not Required

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☑	☐

Explanation:

16a Less Than Significant Impact: The proposed Project would construct a five thousand (5,000) square foot two-story Commercial building with (20) associated parking stalls drive lanes, and landscaping. According to EVWD, the sewerage system has adequate capacity to serve the development. Therefore, operation of the site as a residential development would not result in an accedence of wastewater treatment requirements of the SARWQCB. No mitigation measures are required.

16b Less Than Significant Impact: The proposed Project would construct a five thousand (5,000) square foot two-story Commercial building with (20) associated parking stalls drive lanes, and landscaping. According to EVWD, the wastewater service provider has adequate capacity to serve the development. No additional facilities would be required to handle the flows from the proposed development. Therefore, no mitigation measures are required.

16c Less Than Significant Impact: There is an existing storm drain facility that runs through the Project Site. The Applicant may connect though a lateral line to the existing facility or the site may surface flow to the nearest catch basing approximately 300 feet south

CUMULATIVE PROJECT 11

David Chong
5 Lot SFD, North of Highland

The eastern site boundary abuts a new single-family residential development in the City of Highland. Building pads of the adjacent development are elevated above the project site. The southern site boundary is adjacent to two single-family residences in the City of Highland located off of Applewood Street, one single-family residence off of Orange Blossom Drive, one single-family residence located at the intersection of Summit Avenue and Live Oak Road, and the Sycamore Heights Hydro-Pneumatic Pump Plant, operated by the East Valley Water District (EVWD). The single-family residential homes surrounding the site vary from one to two stories with most being two stories in height. Two single-family homes on the southeastern border of the site, east of Applewood Street, are separated from the project site by a block masonry wall.

RECEIVED
SEP 21 2011

1.3 PROJECT DESCRIPTION

1.3.1 LAFCO Process

The project proposes a municipal reorganization of the City of San Bernardino and the City of Highland for annexation of the 3.62-acre site into the City of Highland due to the physical location of the project adjacent to the City of Highland and separated from the City of San Bernardino by Cook Canyon. The Local Agency Formation Commission (LAFCO) is the authority for local boundary changes and municipal reorganizations. Municipal reorganization for the project would include detachment of the 3.62-acre parcel from the City of San Bernardino, annexation of the parcel into the City of Highland Sphere of Influence (SOI) area, pre-zoning (ZC 006-002) of the parcel by the City of Highland to Low Density Residential (LDR), and annexation of the parcel into the City of Highland. The project would also be annexed into the Consolidated Landscape and Lighting District 96-1 and zoned within the Fire Safety Overlay District (FR 1).These actions would require a General Plan amendment (GPA 006-002) for both the City of Highland and the City of San Bernardino. Detachment of the parcel from the City of San Bernardino requires a Resolution from the City of San Bernardino City Council accepting the proposed action.

1.3.2 Proposed Land Use

24,700

Upon annexation into the City of Highland, the project applicant proposes to develop the 3.62-acre site for a five-lot residential subdivision as Tentative Tract Map No. 16636. Lot sizes would range from approximately 24,000 square feet to 42,700 square feet. Proposed structures would range in height from one to two stories. Figure 6, *Conceptual Site Plan*, shows the proposed layout of the five residential lots on the 3.62-acre site.

The project involves modifications to the existing landform and topography and removal of the irrigation canals (zanjas) along the northern and western property line. To create level residential pads, elevations in the northern portions of the site would be lowered while elevations in the southwestern portion of the site would be raised. As a result of the landform modifications, Lot 1 would be situated at an elevation of 1,880 feet, Lots 2 and 3 would be situated at an elevation of 1,885 feet, Lot 4 would be situated at an elevation of 1,850 feet, and Lot 5 at an elevation of 1,838 feet. Because of the difference in elevations on the southwestern end of the site, as a result of the existing 20-foot utility easement, a retaining wall with a height of approximately four feet would be required along the southern side of the proposed driveway to the Lot 5 pad. A retaining wall, measuring approximately five feet in height, would also be required between Lots 3 and 4 as a result of the difference in elevations.

The northerly end of Applewood Street, within the project site, would be a cul-de-sac with a curb radius of 40 feet for adequate space for maneuvering emergency vehicles. To accommodate the grade difference between the residential pads and the existing street elevation of Applewood Street, driveways to Lots 1, 2, and 3 would have a slope of 18 percent from the end cul-de-sac of Applewood Street leading up toward the residential pads, while the driveway to Lot 4 would have a slope of 14 percent downward towards the residential pad.

The project would be connected to existing utility connections in the right-of-way of Applewood Street. Electricity to the project site would be provided by Southern California Edison, gas service would be provided by the Southern California Gas Company (Sempra Utilities), and water and sewer service would be provided by EVWD. The EVWD also maintains an easement immediately north of the southwestern property line, near the Sycamore Heights Hydro-Pneumatic Pump Plant.

1.3.3 Project Phasing

The project would be completed in two phases. The first phase encompasses the three-part municipal reorganization for the parcel, which includes: (1) detachment of the 3.62-acre site from the City of San Bernardino, (2) sphere of influence (SOI) change for the parcel from the City of San Bernardino to the City of Highland by LAFCO, the City of San Bernardino, and the City of Highland, and (3) subsequent annexation of this parcel into the City of Highland. The second phase includes development and operation of the 3.62-acre site for the five single-family residential lots.

Tentative Construction Schedule

Construction is estimated to begin in 2007 and includes grading for development of individual building pads on the five single-family residential lots. Construction of the single-family residential homes would occur later as individual lots may be sold separately. Site grading is estimated to take approximately one and a half months. Site grading would require 5,398 cubic yards (cy) of cut and 1,614 cy of fill, resulting in the export of 3,784 cy of soil exported offsite.

1.4 EXISTING ZONING AND GENERAL PLAN

The project site is located in an area of the City of San Bernardino currently designated by the General Plan as Residential Low (RL), which permits 3.1 single-family detached dwelling units per acre and a 10,800-square-foot minimum lot size. The City of San Bernardino General Plan also designates the project site as within the Highlands Specific Plan area.

1.5 CITY/AGENCY ACTION REQUESTED

- LAFCO-sponsored application for detachment of the parcel from the City of San Bernardino, inclusion of the parcel into the City of Highland SOI, and annexation to the City of Highland.
- City of San Bernardino Resolution accepting the detachment of the parcel from the City
- General Plan Amendment, SOI area exchange, annexation and prezone application to designate the parcel as Low Density Residential (LDR) within the Fire Safety Overlay District (FR 1) and Consolidated Landscape and Lighting District 96-1 in the City of Highland.
- Development Plan Review, Approval of Tentative Tract Map No. 16636, and approval of the Initial Study/Mitigated Negative Declaration by Planning Commission and City Council.
- Review and approval of the project development plans and fuel management zone by the California Department of Forestry and Fire (CDF).
- Approval of a variance for driveways that exceed 12 percent slope required by the City engineer.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. The project would not construct any recreational facilities on the project site. No impact would occur and no mitigation measures are required.

3.15 TRANSPORTATION/TRAFFIC

a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Less Than Significant Impact. The project site is accessed at the north terminus of Applewood Street in the City of Highland. Urban Crossroads prepared the traffic analysis for the proposed project (dated August 2006), which is included in Appendix H.

Project trip generation has been calculated in accordance with the Institute of Transportation Engineers' (ITE) manual, *Trip Generation* (2003). As shown in Table 15, the project is anticipated to generate 48 average daily trips, with four trips during the morning peak hour and five trips during the evening peak hour.

Table 15
Project-Generated Traffic

Time Period	*Trip Generation Rate (trips per dwelling unit)*	*Generated Traffic Volume*
AM Peak Hour (7:00-8:00 a.m.)		
In	0.19	1
Out	0.56	3
Total	**0.75**	**4**
PM Peak Hour (3:00-4:00 p.m.)		
In	0.64	3
Out	0.37	2
Total	**1.01**	**5**
Total Daily Traffic	**9.57**	**48**

Project traffic was distributed over local roadways. It was assumed that project traffic would utilize Highland Avenue and Base Line via Church Street to reach destinations within the City and outlying areas. The regional plan for the area was examined for purposes of assessing project plus cumulative project growth within the vicinity of the project. As shown in the subregional Comprehensive Transportation Plan (CTP) Traffic Analysis Zone (TAZ) map, the project is located within TAZ 290800. The 2020 forecast for TAZ 290800 includes significant increases of single-family housing, multifamily housing, and retail and service uses. Consequently, the regional model has accounted for the amount of trips that the project would generate.

Roadways within the vicinity of the project have sufficient capacity to accommodate the 48 additional daily trips generated by the project. Intersections along the primary project access route were analyzed in the context of the recent City of Highland General Plan Update. Level of Service (LOS) is a measure of traffic operating conditions that based on prevailing traffic volumes (Average Daily Traffic [ADT]) in relation to the roadway capacity. The City of Highland has established an LOS D as the lowest acceptable level of service for peak hour intersection volumes. All streets within the vicinity of the project currently operate at LOS C or better during both the morning and evening peak hours and would continue to do so with implementation of

the proposed project. The addition of four morning and five evening peak-hour trips would not adversely affect the level of service on the roadway system that would serve project-related traffic.

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

No Impact. The 2003 update to the Congestion Management Program (CMP) for San Bernardino County, defines a network of state highways and arterials in addition to level of service standards for roadways and intersections within the CMP network. The project site is not located adjacent to nor would it impact a roadway or intersection that is a part of the San Bernardino County CMP. Therefore, no impact to roadways or intersections within the County of San Bernardino CMP network would occur.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The project involves annexation and subsequent development of a 3.62-acre site for residential development. The project would not result in changes of air traffic patterns, as the project would not result in increases in safety risks or air traffic levels. No impact would occur.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. A cul-de-sac with a minimum 40-foot diameter would be constructed at the north terminus of Applewood Street. Each of the five lots would have access to Applewood Street by means of a private driveway. The project would not create any design hazards (e.g., sharp curves or dangerous intersections) or incompatible uses. No impact would occur. No mitigation measures are required.

e) Result in inadequate emergency access?

No Impact. The project would have one access point located at current north terminus of Applewood Street. The cul-de-sac would be designed with a minimum 40-foot-diameter turnaround for emergency vehicle access and to allow for sufficient turnaround radius by emergency vehicles. Furthermore, emergency access for the project would be review by the City of Engineer to ensure adequate access for emergency vehicles; therefore, no impact would occur.

f) Result in inadequate parking capacity?

No Impact. The City of Highland requires two spaces per single-family unit (Municipal Code Section 16.52.030) within an enclosed garage area. Single-family residential homes would be required to show that homes include two-car garages on building plans. New construction on the residential lots would be required to adhere to the parking requirements of the City of Highland Municipal code; therefore, no impact would occur.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No Impact. The project is located adjacent to single-family residential neighborhoods within the City of Highland. The project is not located within close proximity to designated bus routes or bicycle routes. Development of the project would not conflict with policies, plans, or programs of the City of Highland which support alternative transportation. No impact would occur.

CUMULATIVE PROJECT 12

Two Trip Assignments given as a decision has not yet been reached between the two. Use the one that impacts your study intersections more.
HKA June 2014

Table D - Harmony Trip Generation (with Commercial Overlay)

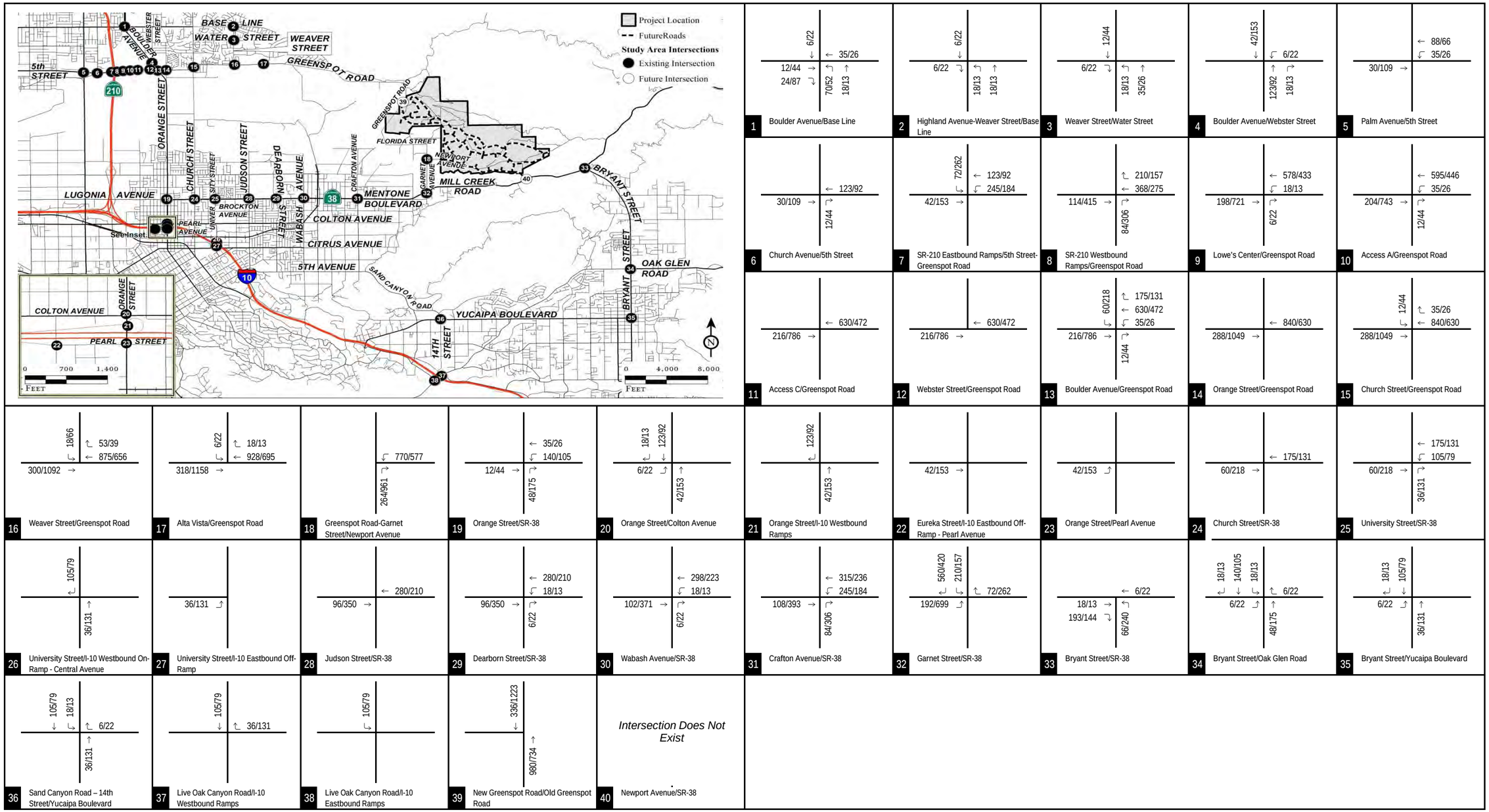
Land Use		Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
PA 1	Single Family Residential	46 DU	9	26	35	29	17	46	438
PA 2	Single Family Residential	104 DU	20	58	78	66	38	104	990
PA 3	Single Family Residential	141 DU	27	79	106	89	52	141	1342
PA 4	Single Family Residential	51 DU	10	28	38	32	19	51	486
PA 5	Single Family Residential	36 DU	7	20	27	23	13	36	343
PA 6	Single Family Residential	36 DU	7	20	27	23	13	36	343
PA 7	Single Family Residential	133 DU	25	75	100	84	49	133	1266
PA 8	Single Family Residential	47 DU	9	26	35	30	17	47	447
PA 9	Single Family Residential	13 DU	2	8	10	8	5	13	124
PA 10	Single Family Residential	84 DU	16	47	63	53	31	84	800
PA 11	Single Family Residential	19 DU	4	10	14	12	7	19	181
PA 12	Single Family Residential	27 DU	5	15	20	17	10	27	257
PA 13	Single Family Residential	63 DU	12	35	47	40	23	63	600
PA 14	Single Family Residential	94 DU	18	53	71	59	35	94	895
PA 18	Recreation Center	16.0 TSF	22	11	33	22	22	44	541
PA 45	Single Family Residential	15 DU	3	8	11	9	6	15	143
PA 48	City Park	2.9 Acres	0	0	0	0	0	0	5
PA 49	City Park	4.3 Acres	0	0	0	0	0	0	8
PA 15	Single Family Residential	208 DU	40	116	156	131	77	208	1980
PA 16	Single Family Residential	39 DU	7	22	29	25	14	39	371
PA 19A	Elementary School	832 Students	209	165	374	59	67	126	1072
PA 19B	City Park	5.3 Acres	0	0	0	0	0	0	10

Table D - Harmony Trip Generation (with Commercial Overlay)

Land Use			Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
PA	**20D**	Single Family Residential	53 DU	10	30	40	33	20	53	505
PA	**21**	Single Family Residential	115 DU	22	64	86	72	43	115	1095
PA	**22**	Single Family Residential	47 DU	9	26	35	30	17	47	447
PA	**26**	Condominium/Townhomes	173 DU	12	64	76	61	29	90	1005
PA	**27**	Single Family Residential	62 DU	12	35	47	39	23	62	590
PA	**29A**	Single Family Residential	45 DU	9	25	34	28	17	45	428
PA	**29B**	Single Family Residential	52 DU	10	29	39	33	19	52	495
PA	**44**	Sports Complex	4.0 Fields	3	1	4	47	24	71	285
PA	**46**	Single Family Residential	15 DU	3	8	11	9	6	15	143
PA	**50**	City Park	0.7 Acres	0	0	0	0	0	0	1
PA	**51**	City Park	0.8 Acres	0	0	0	0	0	0	2
PA	**52**	City Park	0.7 Acres	0	0	0	0	0	0	1
PA	**17**	Single Family Residential	157 DU	30	88	118	99	58	157	1,495
PA	**20A/C**	Commercial (NC Overlay)	141.6 TSF	85	51	136	252	273	525	6,045
PA	**20B**	Commercial	62.1 TSF	37	23	60	110	120	230	2,651
PA	**23**	Single Family Residential	77 DU	15	43	58	49	28	77	733
PA	**24**	Single Family Residential	56 DU	11	31	42	35	21	56	533
PA	**25**	Single Family Residential	110 DU	21	62	83	69	41	110	1047
PA	**28**	Single Family Residential	31 DU	6	17	23	20	11	31	295
PA	**30**	Single Family Residential	31 DU	6	17	23	20	11	31	295
PA	**31A**	Single Family Residential	52 DU	10	29	39	33	19	52	495
PA	**31B**	Single Family Residential	63 DU	12	35	47	40	23	63	600
PA	**32A**	Single Family Residential	63 DU	12	35	47	40	23	63	600
PA	**32B**	Single Family Residential	54 DU	10	31	41	34	20	54	514
PA	**43A**	Single Family Residential	130 DU	25	73	98	82	48	130	1238
PA	**43B**	Single Family Residential	99 DU	19	55	74	62	37	99	942

Table D - Harmony Trip Generation (with Commercial Overlay)

Land Use		Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
PA 53	City Park	0.9 Acres	0	0	0	0	0	0	2
PA 54	City Park	0.8 Acres	0	0	0	0	0	0	2
PA 55	City Park	0.6 Acres	0	0	0	0	0	0	1
PA 56	City Park	1.0 Acres	0	0	0	0	0	0	2
PA 57	City Park	0.8 Acres	0	0	0	0	0	0	2
PA 33	Single Family Residential	105 DU	20	59	79	66	39	105	1000
PA 34	Single Family Residential	52 DU	10	29	39	33	19	52	495
PA 35	Single Family Residential	25 DU	5	14	19	16	9	25	238
	Commercial (NC Overlay)	10.9 TSF	7	3	10	19	21	40	465
PA 36	Single Family Residential	45 DU	9	25	34	28	17	45	428
PA 37	Single Family Residential	28 DU	5	16	21	18	10	28	267
PA 38	Single Family Residential	23 DU	4	13	17	14	9	23	219
PA 58	City Park	1.0 Acres	0	0	0	0	0	0	2
PA 59	City Park	0.8 Acres	0	0	0	0	0	0	2
PA 39	Single Family Residential	119 DU	23	66	89	75	44	119	1133
PA 40	Single Family Residential	195 DU	37	109	146	123	72	195	1856
	Commercial (NC Overlay)	10.9 TSF	7	3	10	19	21	40	465
PA 41	Single Family Residential	81 DU	15	46	61	51	30	81	771
PA 42	Single Family Residential	152 DU	29	85	114	96	56	152	1447
PA 47	City Park	6.5 Acres	0	0	0	0	0	0	12
Phase V Completion Trip Generation Summary									
	Gross Trip Generation		**1,012**	**2,162**	**3,174**	**2,666**	**1,793**	**4,459**	**43,931**
	Internal Trips:								
	Residential		**(175)**	**(237)**	**(412)**	**(197)**	**(181)**	**(378)**	**(4107)**
	City Park		**0**	**0**	**0**	**0**	**0**	**0**	**(52)**
	Recreation Center		**(22)**	**(11)**	**(33)**	**(22)**	**(22)**	**(44)**	**(541)**
	Elementary School		**(178)**	**(142)**	**(320)**	**(51)**	**(57)**	**(108)**	**(914)**
	Commercial		**(37)**	**(22)**	**(59)**	**(108)**	**(118)**	**(226)**	**(2600)**
	Pass By Trips		**0**	**0**	**0**	**(104)**	**(104)**	**(207)**	**(1968)**
	Net Trip Generation		**600**	**1,750**	**2,350**	**2,185**	**1,312**	**3,496**	**33,749**



LSA

FIGURE 13

Harmony Specific Plan
Traffic Impact Analysis

XXX/YYY AM/PM Peak Hour Trips

Phase V Project Trip Assignment
(without Newport Avenue/SR-38 Connection)

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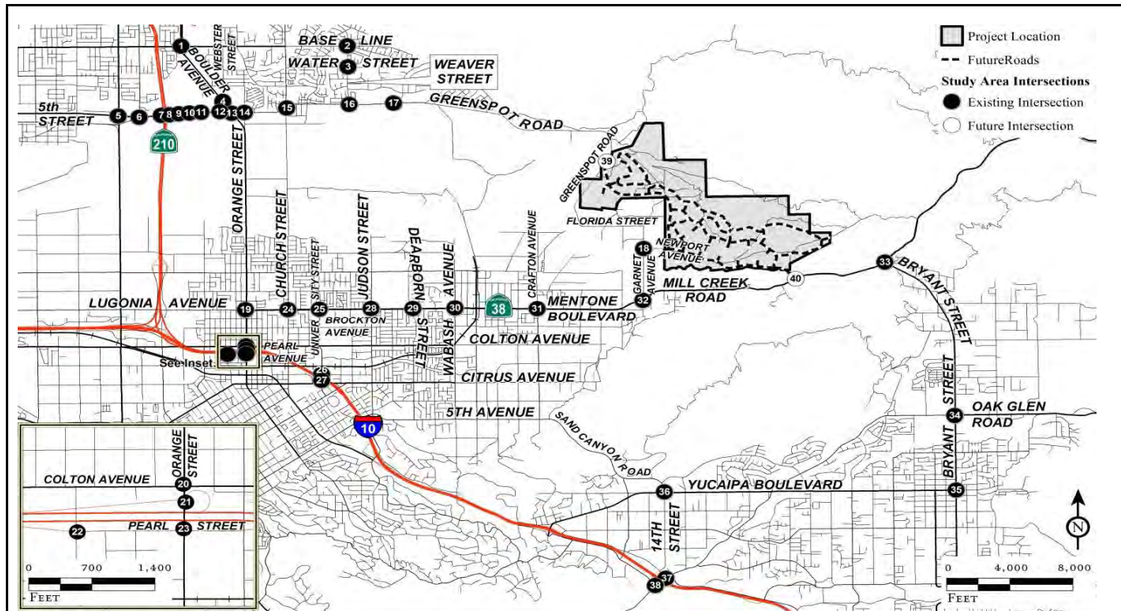

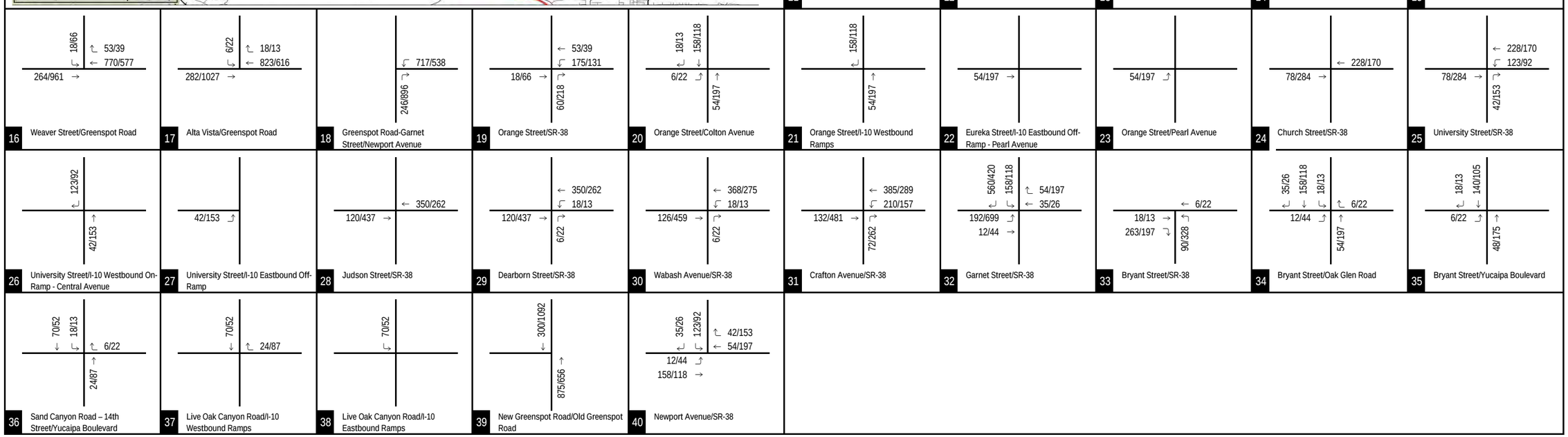

LSA

FIGURE 15

Harmony Specific Plan
Traffic Impact Analysis

XXX/YYY AM/PM Peak Hour Trips

Phase V Project Trip Assignment
(with Newport Avenue/SR-38 Connection)

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CUMULATIVE PROJECT 13

ASSOCIATED TRANSPORTATION ENGINEERS
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March 3, 2014 14007L03.wpd

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REVISED ASSUMPTIONS FOR THE TRAFFIC AND CIRCULATION STUDY FOR THE BASE LINE COMMERCIAL CENTER, CITY OF HIGHLAND, CALIFORNIA

The following letter list the revised trip generation and trip distribution assumptions, also the traffic scenarios for the traffic and circulation study for the Base Line Commercial Center located in the northwest quadrant of the State Route 210/Base Line Interchange. Please review and comment on these assumptions so we can proceed with the traffic and circulation study.

PROJECT TRIP GENERATION

Trip generation estimates were calculated for the Base Line Commercial Center are based on the rates presented in the Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition for High-Turnover Restaurant (Land-Use Code #932) and Fast-Food Restaurant with Drive-Through Window(Land-Use Code #934).[1] The indoor and outdoor seating area is used for the purpose of trip generation. Table 1 summarizes the average daily trips (ADT), A.M. and P.M. peak hour trip generation estimates for the proposed project.

[1] Trip Generation, Institute of Transportation Engineers, 9th Edition, 2013.

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Table 1
Project Trip Generation

Land Use	Size	ADT		A.M. Peak Hour		P.M. Peak Hour	
		Rate	Trips	Rate	Trips	Rate	Trips
High-Turnover Restaurant	120 seats	4.83	580	0.47	56 (31/25)	0.41	49 (29/20)
Fast-Food Rest w/Drive-Thru Less 25% Pass-By Trips: Primary Trips:	20 seats	19.52	390 -98 292	1.27	25 (13/12) - 6 (-3/-3) 19 (10/9)	0.95	19 (10/9) -4 (-2/-2) 15 (8/7)
Fast-Food Rest w/Drive-Thru Less 25% Pass-By Trips; Primary Trips:	66 seats	19.52	1,288 -322 966	N/A	0 0 0	0.95	63 (33/30) -16 (-8/-8) 47 (25/22)
Total Trip Site Generation: **Total Pass-by Trip Generation:** **Total Primary Trip Generation:**			**2,258** **-420** **1,838**		**81 (44/37)** **-6 (-3/-3)** **75 (41/34)**		**131 (72/59)** **-20 (-10/-10)** **111 (62/49)**

The data presented in Table 1 show that the proposed project would generate a total of 2,258 average daily trips, 81 A.M. peak hour trips, and 131 P.M. peak hour trips. Of the total trip generation 420 average daily trips, 6 A.M. peak hour trips, and 20 P.M. peak hour trips would be 'pass-by" in nature. The remaining 1,838 average daily trips, 75 A.M. peak hour trips, and 111 P.M. peak hour trips would be primary in nature.

PROJECT TRIP DISTRIBUTION

Project trip distribution percentages are presented in Table 2 and shown on Figure A (attached).

Table 2
Project Trip Distribution

Origin/Destination	Direction	Percent
State Route 210 North of Base Line Avenue	North	20%
State Route 210 South of Base Line Avenue	South	20%
Base Line Avenue West of Church Avenue	West	25%
Base Line Avenue East of Seine Avenue	East	25%
Church Avenue North of Base Line Avenue	North	2%
Church Avenue South of Base Line Avenue	South	2%
Buckeye Street North of Base Line Avenue	North	2%
Seine Avenue North of Base Line Avenue	North	2%
Seine Avenue South of Base Line Avenue	South	2%
Total		**100%**

TRAFFIC SCENARIOS

The traffic study will include the following evaluation scenarios:

- Existing Conditions
- Opening Year (including Cumulative Projects) without the Project Conditions
- Opening Year (including Cumulative Projects) with the Project Conditions

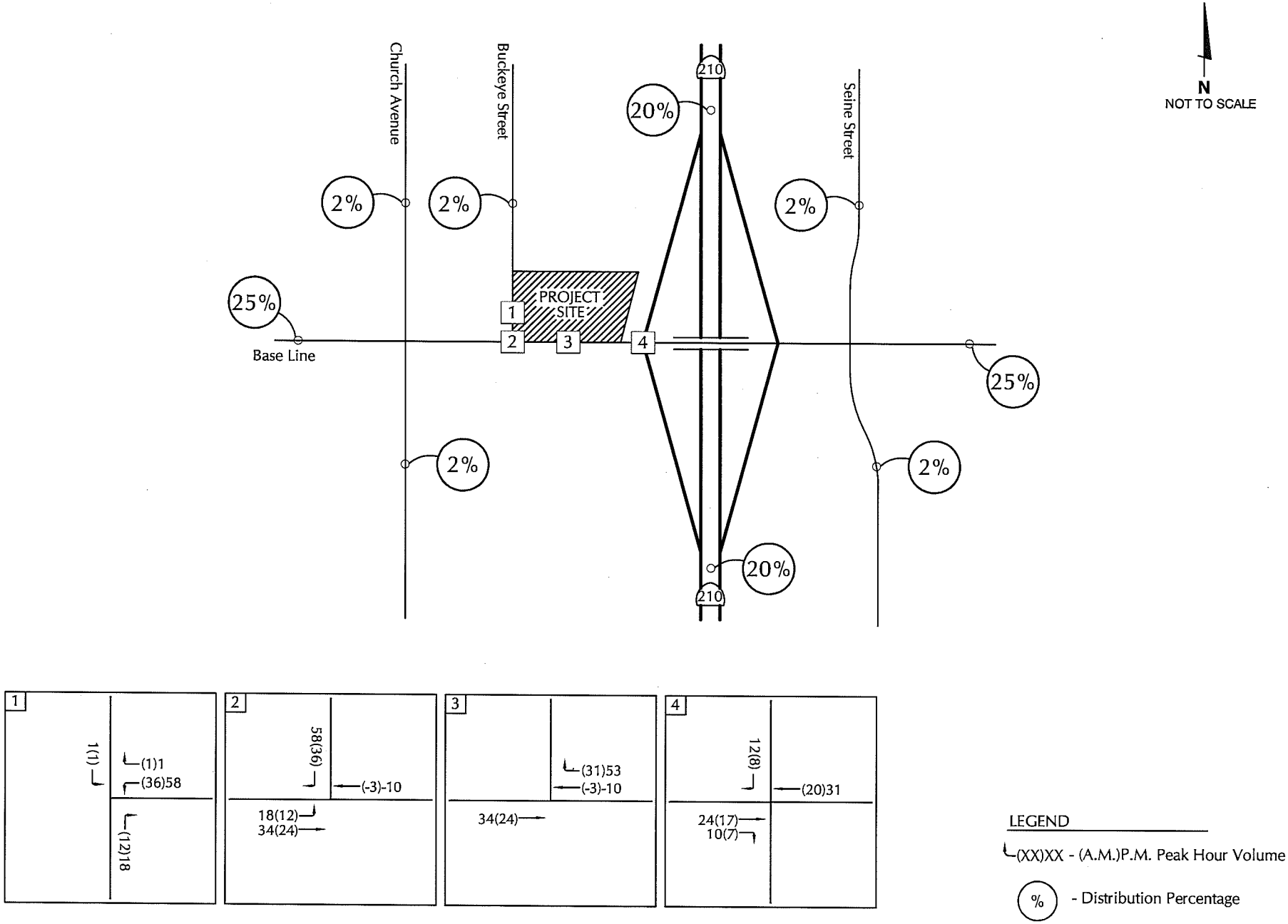
SITE ACCE SS AND ON-SITE CIRCULATION

The traffic and circulation study being prepared by ATE will address site access and on-site circulation.

Associated Transportation Engineers,

Darryl F. Nelson, PTP
Senior Transportation Planner

attachments: Project Trip Distribution



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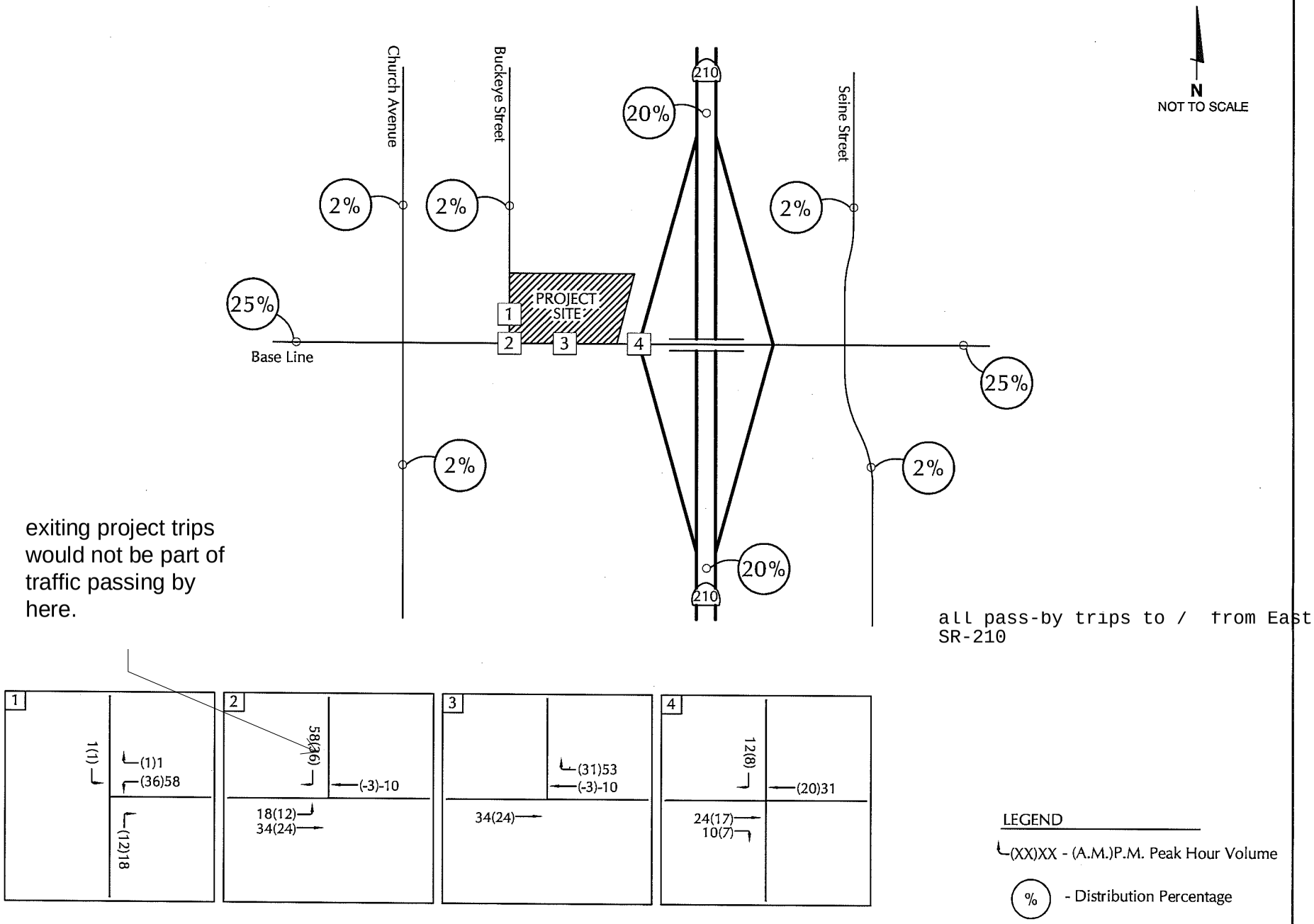
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 1

MMF - #14007



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PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

FIGURE 1

MMF - #14007

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APPENDIX 5.1:

EXISTING PLUS PROJECT CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	183	513	696	780	0	0	0	0	143	1	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	204	546	763	871	0	0	0	0	152	1	85
RTOR Reduction (vph)	0	0	245	0	0	0	0	0	0	0	0	74
Lane Group Flow (vph)	0	204	301	763	871	0	0	0	0	0	153	11
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		26.1	26.1	20.0	50.1						9.4	9.4
Effective Green, g (s)		26.1	26.1	20.0	50.1						9.4	9.4
Actuated g/C Ratio		0.37	0.37	0.29	0.72						0.13	0.13
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1342	659	915	2576						241	241
v/s Ratio Prot		0.06		c0.24	0.24							
v/s Ratio Perm			c0.17								0.09	0.01
v/c Ratio		0.15	0.46	0.83	0.34						0.63	0.05
Uniform Delay, d1		14.6	16.6	23.4	3.7						28.7	26.4
Progression Factor		1.00	1.00	0.71	0.63						1.00	1.00
Incremental Delay, d2		0.2	2.3	4.7	0.3						4.0	0.0
Delay (s)		14.8	18.9	21.3	2.6						32.7	26.4
Level of Service		B	B	C	A						C	C
Approach Delay (s)		17.8			11.4			0.0			30.4	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	283	0	0	1059	205	418	0	310	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5378			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5378			1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	47	327	0	0	1280	225	459	0	341	0	0	0
RTOR Reduction (vph)	0	0	0	0	35	0	0	0	249	0	0	0
Lane Group Flow (vph)	47	327	0	0	1470	0	0	459	92	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	4.5	40.7			32.2			18.8	18.8			
Effective Green, g (s)	4.5	40.7			32.2			18.8	18.8			
Actuated g/C Ratio	0.06	0.58			0.46			0.27	0.27			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	108	2093			2473			483	483			
v/s Ratio Prot	c0.03	0.09			c0.27							
v/s Ratio Perm								0.26	0.05			
v/c Ratio	0.44	0.16			0.59			0.95	0.19			
Uniform Delay, d1	31.5	6.7			14.0			25.1	19.7			
Progression Factor	0.53	1.73			1.00			1.00	1.00			
Incremental Delay, d2	1.0	0.2			1.1			28.5	0.1			
Delay (s)	17.6	11.8			15.1			53.7	19.8			
Level of Service	B	B			B			D	B			
Approach Delay (s)		12.5			15.1			39.2			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.628
Loss Time (sec):	16	Average Delay (sec/veh):	35.2
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	94	177	318	43	268	10	7	311	80	363	902	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	94	177	318	43	268	10	7	311	80	363	902	32
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	177	326	51	268	10	7	340	80	402	972	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	188	347	54	285	11	7	362	85	428	1034	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	188	347	54	285	11	7	362	85	428	1034	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.00
FinalVolume:	100	198	347	56	299	11	7	380	89	428	1086	59
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.93	0.07	1.00	1.62	0.38	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3471	129	1700	2914	686	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.06	0.05	0.19	0.02	0.09	0.09	0.00	0.13	0.13	0.25	0.30	0.03
Crit Moves:			****	****			****				****	
Green/Cycle:	0.17	0.23	0.23	0.11	0.17	0.17	0.11	0.16	0.16	0.31	0.37	0.37
Volume/Cap:	0.34	0.23	0.82	0.16	0.50	0.50	0.04	0.80	0.80	0.80	0.82	0.09
Delay/Veh:	33.4	28.1	45.1	36.4	34.4	34.4	35.8	44.0	44.0	36.7	30.2	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.4	28.1	45.1	36.4	34.4	34.4	35.8	44.0	44.0	36.7	30.2	18.7
LOS by Move:	C	C	D	D	C	C	D	D	D	D	C	B
HCM2kAvgQ:	3	2	12	1	4	4	0	9	9	14	16	1

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.628
Loss Time (sec):	16	Average Delay (sec/veh):	34.1
Optimal Cycle:	OPTIMIZED	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	94	177	318	43	268	10	7	311	80	363	902	32
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	94	177	318	43	268	10	7	311	80	363	902	32
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	177	326	51	268	10	7	340	80	402	972	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	100	188	347	54	285	11	7	362	85	428	1034	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	188	347	54	285	11	7	362	85	428	1034	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	100	198	347	56	299	11	7	380	85	428	1086	59
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.93	0.07	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3471	129	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.06	0.05	0.19	0.02	0.09	0.09	0.00	0.11	0.05	0.25	0.30	0.03
Crit Moves:			****	****			****				****	
Green/Cycle:	0.17	0.23	0.23	0.11	0.17	0.17	0.11	0.15	0.15	0.33	0.37	0.37
Volume/Cap:	0.34	0.23	0.82	0.16	0.50	0.50	0.04	0.72	0.32	0.76	0.82	0.09
Delay/Veh:	33.4	28.1	45.1	36.4	34.4	34.4	35.8	41.5	35.1	32.9	30.2	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.4	28.1	45.1	36.4	34.4	34.4	35.8	41.5	35.1	32.9	30.2	18.7
LOS by Move:	C	C	D	D	C	C	D	D	D	C	C	B
HCM2kAvgQ:	3	2	12	1	4	4	0	7	2	13	16	1

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	0	Critical Vol./Cap.(X):	0.644
Loss Time (sec):	0	Average Delay (sec/veh):	18.5
Optimal Cycle:	0	Level Of Service:	C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1 0	1	1 0		1 0	1	1 0		0 0	1!	0 0		0 0	1!	0 0	
Volume Module:																
Base Vol:	24	184	16		108	346	147		152	60	53		91	52	123	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	24	184	16		108	346	147		152	60	53		91	52	123	
Added Vol:	0	8	0		0	23	16		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	24	192	16		108	369	163		152	60	53		91	52	123	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.84	0.84	0.84		0.84	0.84	0.84		0.84	0.84	0.84		0.84	0.84	0.84	
PHF Volume:	29	228	19		128	438	194		181	71	63		108	62	146	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	29	228	19		128	438	194		181	71	63		108	62	146	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	29	228	19		128	438	194		181	71	63		108	62	146	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.85	0.15		1.00	1.39	0.61		0.57	0.23	0.20		0.34	0.20	0.46	
Final Sat.:	407	802	67		462	700	323		280	111	98		171	98	231	
Capacity Analysis Module:																
Vol/Sat:	0.07	0.28	0.28		0.28	0.63	0.60		0.64	0.64	0.64		0.63	0.63	0.63	
Crit Moves:		****				****			****					****		
Delay/Veh:	11.6	13.3	13.2		13.2	20.4	18.6		21.0	21.0	21.0		20.0	20.0	20.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	11.6	13.3	13.2		13.2	20.4	18.6		21.0	21.0	21.0		20.0	20.0	20.0	
LOS by Move:	B	B	B		B	C	C		C	C	C		C	C	C	
ApproachDel:		13.1				18.8				21.0				20.0		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		13.1				18.8				21.0				20.0		
LOS by Appr:		B				C				C				C		
AllWayAvgQ:	0.1	0.3	0.3		0.4	1.6	1.3		1.5	1.5	1.5		1.4	1.4	1.4	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.477
Loss Time (sec):	12	Average Delay (sec/veh):	18.4
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	24	184	16	108	346	147	152	60	53	91	52	123
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	184	16	108	346	147	152	60	53	91	52	123
Added Vol:	0	8	0	0	23	16	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	192	16	108	369	163	152	60	53	91	52	123
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	29	228	19	128	438	194	181	71	63	108	62	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	228	19	128	438	194	181	71	63	108	62	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	29	239	20	128	460	203	181	71	63	108	62	146
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.85	0.15	1.00	1.39	0.61	0.59	0.22	0.19	0.36	0.19	0.45
Final Sat.:	1700	3323	277	1700	2497	1103	999	394	348	604	345	816
Capacity Analysis Module:												
Vol/Sat:	0.02	0.07	0.07	0.08	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Crit Moves:	****				****			****				
Green/Cycle:	0.17	0.24	0.24	0.24	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31
Volume/Cap:	0.10	0.30	0.30	0.31	0.58	0.58	0.58	0.58	0.58	0.57	0.57	0.57
Delay/Veh:	21.3	18.7	18.7	19.0	17.7	17.7	18.8	18.8	18.8	18.6	18.6	18.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.3	18.7	18.7	19.0	17.7	17.7	18.8	18.8	18.8	18.6	18.6	18.6
LOS by Move:	C	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	1	2	2	2	6	6	6	6	6	6	6	6

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec):	65	Critical Vol./Cap.(X):	0.677
Loss Time (sec):	12	Average Delay (sec/veh):	18.4
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	16	21	1	41	5	328	163	372	10	0	753	79
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	21	1	41	5	328	163	372	10	0	753	79
Added Vol:	0	0	0	3	0	0	0	45	0	0	132	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	16	21	1	44	5	328	163	417	10	0	885	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	17	22	1	47	5	349	174	444	11	0	942	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	22	1	47	5	349	174	444	11	0	942	93
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	17	22	1	47	5	349	179	466	11	0	990	97
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.95	0.05	1.00	1.00	1.00	2.00	1.95	0.05	1.00	1.82	0.18
Final Sat.:	1700	1718	82	1700	1800	1800	3200	3516	84	1700	3278	322
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.03	0.00	0.19	0.06	0.13	0.13	0.00	0.30	0.30
Crit Moves:						****	****				****	
Green/Cycle:	0.26	0.26	0.26	0.26	0.26	0.26	0.15	0.56	0.56	0.00	0.40	0.40
Volume/Cap:	0.04	0.05	0.05	0.11	0.01	0.75	0.36	0.24	0.24	0.00	0.75	0.75
Delay/Veh:	18.1	18.1	18.1	18.5	17.9	28.8	25.1	7.4	7.4	0.0	18.8	18.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.1	18.1	18.1	18.5	17.9	28.8	25.1	7.4	7.4	0.0	18.8	18.8
LOS by Move:	B	B	B	B	B	C	C	A	A	A	B	B
HCM2kAvgQ:	0	0	0	1	0	8	2	3	3	0	11	11

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Average Delay (sec/veh): 4.0 Worst Case Level Of Service: B[14.2]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0			16	0			218	141		183	0		0		401		16
Growth Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00	1.00		1.00		1.00		1.00
Initial Bse:	0	0	0			16	0			218	141		183	0		0		401		16
Added Vol:	0	0	0			3	0			0	0		48	0		0		140		8
PasserByVol:	0	0	0			0	0			0	0		0	0		0		0		0
Initial Fut:	0	0	0			19	0			218	141		231	0		0		541		24
User Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00	1.00		1.00		1.00		1.00
PHF Adj:	0.89	0.89	0.89			0.89	0.89			0.89	0.89		0.89	0.89		0.89		0.89		0.89
PHF Volume:	0	0	0			21	0			244	158		259	0		0		606		27
Reduct Vol:	0	0	0			0	0			0	0		0	0		0		0		0
FinalVolume:	0	0	0			21	0			244	158		259	0		0		606		27
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.8	xxxx			6.9	4.1	xxxx	xxxxx	xxxxx		xxxx		xxxxx		
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	xxxx			3.3	2.2	xxxx	xxxxx	xxxxx		xxxx		xxxxx		
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			1064	xxxx			316	633	xxxx	xxxxx	xxxx		xxxx		xxxxx		
Potent Cap.:	xxxx	xxxx	xxxxx			221	xxxx			685	960	xxxx	xxxxx	xxxx		xxxx		xxxxx		
Move Cap.:	xxxx	xxxx	xxxxx			193	xxxx			685	960	xxxx	xxxxx	xxxx		xxxx		xxxxx		
Volume/Cap:	xxxx	xxxx	xxxx			0.11	xxxx			0.36	0.16	xxxx	xxxx	xxxx		xxxx		xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			0.4	xxxx			1.6	0.6	xxxx	xxxxx	xxxx		xxxx		xxxxx		
Control Del:	xxxxx	xxxx	xxxxx			25.9	xxxx			13.1	9.5	xxxx	xxxxx	xxxxx		xxxx		xxxxx		
LOS by Move:	*	*	*			D	*			B	A	*	*	*		*		*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx			xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx			xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx
Shared LOS:	*	*	*			*	*			*	*	*	*			*	*			*
ApproachDel:	xxxxxx					14.2					xxxxxx					xxxxxx				
ApproachLOS:	*					B					*					*				

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec):	85	Critical Vol./Cap.(X):	0.481
Loss Time (sec):	12	Average Delay (sec/veh):	20.2
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	16	0	218	141	183	0	0	401	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	16	0	218	141	183	0	0	401	16
Added Vol:	0	0	0	3	0	0	0	48	0	0	140	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	19	0	218	141	231	0	0	541	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	21	0	244	158	259	0	0	606	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	21	0	244	158	259	0	0	606	27
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	21	0	244	158	272	0	0	636	28
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.92	0.08
Final Sat.:	0	0	0	1700	0	1800	1700	3600	0	0	3447	153
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.01	0.00	0.14	0.09	0.08	0.00	0.00	0.18	0.18
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.28	0.00	0.28	0.19	0.58	0.00	0.00	0.38	0.38
Volume/Cap:	0.00	0.00	0.00	0.04	0.00	0.48	0.48	0.13	0.00	0.00	0.48	0.48
Delay/Veh:	0.0	0.0	0.0	22.2	0.0	26.1	31.6	8.3	0.0	0.0	20.1	20.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	22.2	0.0	26.1	31.6	8.3	0.0	0.0	20.1	20.1
LOS by Move:	A	A	A	C	A	C	C	A	A	A	C	C
HCM2kAvgQ:	0	0	0	0	0	6	4	2	0	0	7	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: B[10.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	199	0	0	417	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	199	0	0	417	0
Added Vol:	0	0	0	3	0	101	34	16	0	0	47	1
PasserByVol:	0	0	0	1	0	-27	-9	9	0	0	27	0
Initial Fut:	0	0	0	4	0	74	25	224	0	0	491	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	4	0	80	27	243	0	0	534	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	4	0	80	27	243	0	0	534	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	832	832	267	535	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	342	307	776	1043	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	335	299	776	1043	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	479	390	xxxxx	449	400	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	0.00	0.10	0.03	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	748	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			10.4			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: B[10.1]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	199	0	0	417	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	199	0	0	417	0
Added Vol:	0	0	0	5	0	47	16	3	0	0	1	2
PasserByVol:	0	0	0	-1	0	27	9	1	0	0	0	0
Initial Fut:	0	0	0	4	0	74	25	203	0	0	418	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	4	0	80	27	221	0	0	454	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	4	0	80	27	221	0	0	454	2
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	730	730	228	457	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	392	351	816	1115	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	385	343	816	1115	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	512	426	xxxxx	490	436	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	0.00	0.10	0.02	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	789	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			10.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	522	581	395	594	0	0	0	0	328	8	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	583	618	433	664	0	0	0	0	349	9	73
RTOR Reduction (vph)	0	0	393	0	0	0	0	0	0	0	0	55
Lane Group Flow (vph)	0	583	225	433	664	0	0	0	0	0	358	18
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		25.5	25.5	13.0	42.5						17.0	17.0
Effective Green, g (s)		25.5	25.5	13.0	42.5						17.0	17.0
Actuated g/C Ratio		0.36	0.36	0.19	0.61						0.24	0.24
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1311	644	595	2185						437	437
v/s Ratio Prot		c0.16		c0.14	0.18							
v/s Ratio Perm			0.13								0.20	0.01
v/c Ratio		0.44	0.35	0.73	0.30						0.82	0.04
Uniform Delay, d1		16.9	16.2	26.8	6.6						25.0	20.3
Progression Factor		1.00	1.00	0.80	0.48						1.00	1.00
Incremental Delay, d2		1.1	1.5	3.3	0.3						10.8	0.0
Delay (s)		18.0	17.7	24.7	3.5						35.9	20.3
Level of Service		B	B	C	A						D	C
Approach Delay (s)		17.8			11.9			0.0			33.2	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	759	0	0	620	246	369	1	577	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5361			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5361			1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	95	822	0	0	703	254	380	1	595	0	0	0
RTOR Reduction (vph)	0	0	0	0	94	0	0	0	130	0	0	0
Lane Group Flow (vph)	95	822	0	0	863	0	0	381	465	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	7.4	35.6			24.2			23.9	23.9			
Effective Green, g (s)	7.4	35.6			24.2			23.9	23.9			
Actuated g/C Ratio	0.11	0.51			0.35			0.34	0.34			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	178	1830			1853			614	614			
v/s Ratio Prot	0.06	c0.23			0.16							
v/s Ratio Perm								0.21	c0.26			
v/c Ratio	0.53	0.45			0.47			0.62	0.76			
Uniform Delay, d1	29.7	11.0			17.9			19.3	20.5			
Progression Factor	1.36	0.71			1.00			1.00	1.00			
Incremental Delay, d2	1.3	0.7			0.8			1.4	4.7			
Delay (s)	41.5	8.5			18.7			20.7	25.2			
Level of Service	D	A			B			C	C			
Approach Delay (s)		11.9			18.7			23.4			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.942
Loss Time (sec): 16 Average Delay (sec/veh): 59.5
Optimal Cycle: OPTIMIZED Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	1 1	0	1 0	2 0	1
Volume Module:												
Base Vol:	128	305	420	90	321	10	11	659	297	299	466	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	128	305	420	90	321	10	11	659	297	299	466	34
Added Vol:	0	0	26	26	0	0	0	96	0	15	56	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	128	305	446	116	321	10	11	755	297	314	522	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	136	324	474	123	341	11	12	803	316	334	555	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	136	324	474	123	341	11	12	803	316	334	555	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.05	1.00	1.05	1.00
FinalVolume:	136	341	474	127	359	11	12	843	332	334	583	52
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	1.44	0.56	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3491	109	1700	2584	1016	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.08	0.09	0.26	0.04	0.10	0.10	0.01	0.33	0.33	0.20	0.16	0.03
Crit Moves:			****	****				****		****		
Green/Cycle:	0.15	0.27	0.27	0.08	0.19	0.19	0.17	0.33	0.33	0.20	0.36	0.36
Volume/Cap:	0.53	0.35	0.98	0.52	0.53	0.53	0.04	0.98	0.98	0.98	0.45	0.08
Delay/Veh:	53.0	38.7	83.7	59.6	47.9	47.9	45.0	65.0	65.0	95.9	32.0	27.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.0	38.7	83.7	59.6	47.9	47.9	45.0	65.0	65.0	95.9	32.0	27.4
LOS by Move:	D	D	F	E	D	D	D	E	E	F	C	C
HCM2kAvgQ:	6	6	24	3	7	7	0	29	29	19	9	1

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.874
Loss Time (sec): 16 Average Delay (sec/veh): 45.8
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	128	305	420	90	321	10	11	659	297	299	466	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	128	305	420	90	321	10	11	659	297	299	466	34
Added Vol:	0	0	26	26	0	0	0	96	0	15	56	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	128	305	446	116	321	10	11	755	297	314	522	49
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	136	324	474	123	341	11	12	803	316	334	555	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	136	324	474	123	341	11	12	803	316	334	555	52
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	136	341	474	127	359	11	12	843	316	334	583	52
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3491	109	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.08	0.09	0.26	0.04	0.10	0.10	0.01	0.23	0.18	0.20	0.16	0.03
Crit Moves:			****	****				****		****		
Green/Cycle:	0.19	0.28	0.28	0.10	0.19	0.19	0.18	0.25	0.25	0.21	0.28	0.28
Volume/Cap:	0.43	0.34	0.94	0.40	0.53	0.53	0.04	0.94	0.70	0.94	0.57	0.10
Delay/Veh:	36.8	28.8	60.6	43.0	37.1	37.1	34.3	53.8	39.1	71.0	31.4	26.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.8	28.8	60.6	43.0	37.1	37.1	34.3	53.8	39.1	71.0	31.4	26.5
LOS by Move:	D	C	E	D	D	D	C	D	D	E	C	C
HCM2kAvgQ:	4	4	19	2	6	6	0	17	10	15	8	1

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	0	Critical Vol./Cap.(X):	0.814
Loss Time (sec):	0	Average Delay (sec/veh):	25.1
Optimal Cycle:	0	Level Of Service:	D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Stop Sign				Stop Sign				Stop Sign				Stop Sign			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	1 0	1	1 0		1 0	1	1 0		0 0	1!	0 0		0 0	1!	0 0	
Volume Module:																
Base Vol:	37	536	61		149	324	79		244	68	37		47	63	138	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	37	536	61		149	324	79		244	68	37		47	63	138	
Added Vol:	0	26	0		0	15	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	37	562	61		149	339	79		244	68	37		47	63	138	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	39	593	64		157	358	83		257	72	39		50	66	146	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	39	593	64		157	358	83		257	72	39		50	66	146	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
FinalVolume:	39	593	64		157	358	83		257	72	39		50	66	146	
Saturation Flow Module:																
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	1.00	1.80	0.20		1.00	1.62	0.38		0.70	0.19	0.11		0.19	0.25	0.56	
Final Sat.:	418	811	89		409	713	169		316	88	48		82	110	242	
Capacity Analysis Module:																
Vol/Sat:	0.09	0.73	0.72		0.38	0.50	0.49		0.81	0.81	0.81		0.60	0.60	0.60	
Crit Moves:		****				****				****					****	
Delay/Veh:	12.1	28.8	28.1		16.4	18.2	17.6		35.3	35.3	35.3		21.0	21.0	21.0	
Delay Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	12.1	28.8	28.1		16.4	18.2	17.6		35.3	35.3	35.3		21.0	21.0	21.0	
LOS by Move:	B	D	D		C	C	C		E	E	E		C	C	C	
ApproachDel:		27.8				17.7				35.3				21.0		
Delay Adj:		1.00				1.00				1.00				1.00		
ApprAdjDel:		27.8				17.7				35.3				21.0		
LOS by Appr:		D				C				E				C		
AllWayAvgQ:	0.1	2.3	2.2		0.6	0.9	0.9		3.1	3.1	3.1		1.2	1.2	1.2	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.621
Loss Time (sec):	12	Average Delay (sec/veh):	19.8
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	37	536	61	149	324	79	244	68	37	47	63	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	536	61	149	324	79	244	68	37	47	63	138
Added Vol:	0	26	0	0	15	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	562	61	149	339	79	244	68	37	47	63	138
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	39	593	64	157	358	83	257	72	39	50	66	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	593	64	157	358	83	257	72	39	50	66	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	39	622	68	157	375	88	257	72	39	50	66	146
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.80	0.20	1.00	1.62	0.38	0.71	0.19	0.10	0.20	0.25	0.55
Final Sat.:	1700	3248	352	1700	2920	680	1209	337	183	337	452	991
Capacity Analysis Module:												
Vol/Sat:	0.02	0.19	0.19	0.09	0.13	0.13	0.21	0.21	0.21	0.15	0.15	0.15
Crit Moves:		****		****				****				
Green/Cycle:	0.23	0.30	0.30	0.17	0.23	0.23	0.33	0.33	0.33	0.33	0.33	0.33
Volume/Cap:	0.10	0.64	0.64	0.55	0.55	0.55	0.64	0.64	0.64	0.44	0.44	0.44
Delay/Veh:	18.2	19.5	19.5	25.4	21.0	21.0	19.3	19.3	19.3	16.2	16.2	16.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.2	19.5	19.5	25.4	21.0	21.0	19.3	19.3	19.3	16.2	16.2	16.2
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
HCM2kAvgQ:	1	7	7	4	5	5	7	7	7	4	4	4

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec):	60	Critical Vol./Cap.(X):	0.491
Loss Time (sec):	12	Average Delay (sec/veh):	16.4
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	19	7	1	76	9	168	282	696	20	5	506	69
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	7	1	76	9	168	282	696	20	5	506	69
Added Vol:	0	0	0	9	0	0	0	149	0	0	87	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	7	1	85	9	168	282	845	20	5	593	74
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	21	8	1	96	10	189	318	953	23	6	669	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	8	1	96	10	189	318	953	23	6	669	83
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	21	8	1	96	10	189	327	1000	24	6	702	88
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.87	0.13	1.00	1.00	1.00	2.00	1.95	0.05	1.00	1.78	0.22
Final Sat.:	1700	1575	225	1700	1800	1800	3200	3517	83	1700	3201	399
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.06	0.01	0.11	0.10	0.28	0.28	0.00	0.22	0.22
Crit Moves:						****		****		****		
Green/Cycle:	0.17	0.17	0.17	0.17	0.17	0.17	0.27	0.46	0.46	0.17	0.36	0.36
Volume/Cap:	0.07	0.03	0.03	0.33	0.03	0.62	0.38	0.62	0.62	0.02	0.61	0.61
Delay/Veh:	21.0	20.8	20.8	22.5	20.8	26.7	18.0	12.8	12.8	20.9	16.8	16.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.0	20.8	20.8	22.5	20.8	26.7	18.0	12.8	12.8	20.9	16.8	16.8
LOS by Move:	C	C	C	C	C	C	B	B	B	C	B	B
HCM2kAvgQ:	0	0	0	2	0	4	3	8	8	0	7	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: C[17.6]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0			22	0			102	212		375		0	0		313		12
Growth Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	0	0			22	0			102	212		375		0	0		313		12
Added Vol:	0	0	0			9	0			0	0		158		0	0		92		5
PasserByVol:	0	0	0			0	0			0	0		0		0	0		0		0
Initial Fut:	0	0	0			31	0			102	212		533		0	0		405		17
User Adj:	1.00	1.00	1.00			1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.87	0.87	0.87			0.87	0.87			0.87	0.87		0.87		0.87	0.87		0.87		0.87
PHF Volume:	0	0	0			36	0			117	243		611		0	0		464		19
Reduct Vol:	0	0	0			0	0			0	0		0		0	0		0		0
FinalVolume:	0	0	0			36	0			117	243		611		0	0		464		19
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	xxxxx			6.8	xxxx			6.9	4.1	xxxx	xxxxx		xxxxx	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx			3.5	xxxx			3.3	2.2	xxxx	xxxxx		xxxxx	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	xxxxx			1265	xxxx			242	483	xxxx	xxxxx		xxxx	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx			164	xxxx			765	1090	xxxx	xxxxx		xxxx	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx	xxxxx			136	xxxx			765	1090	xxxx	xxxxx		xxxx	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx	xxxx			0.26	xxxx			0.15	0.22	xxxx	xxxx		xxxx	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx			1.0	xxxx			0.5	0.9	xxxx	xxxxx		xxxx	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx	xxxxx			40.6	xxxx			10.5	9.2	xxxx	xxxxx		xxxxx	xxxx		xxxx		xxxxx
LOS by Move:	*	*	*			E	*			B	A	*	*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx			xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx			xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*	*			*	*			*	*	*	*		*	*		*		*
ApproachDel:	xxxxxx					17.6					xxxxxx					xxxxxx				
ApproachLOS:	*					C					*					*				

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions - Post Current/Planned Construction
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.368
Loss Time (sec): 12 Average Delay (sec/veh): 13.9
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		22	0	102		212	375	0		0	313	12	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		22	0	102		212	375	0		0	313	12	
Added Vol:	0	0	0		9	0	0		0	158	0		0	92	5	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		31	0	102		212	533	0		0	405	17	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.87	0.87	0.87		0.87	0.87	0.87		0.87	0.87	0.87		0.87	0.87	0.87	
PHF Volume:	0	0	0		36	0	117		243	611	0		0	464	19	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		36	0	117		243	611	0		0	464	19	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		36	0	117		243	641	0		0	487	20	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.92	0.08	
Final Sat.:	0	0	0		1700	0	1800		1700	3600	0		0	3455	145	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.02	0.00	0.06		0.14	0.18	0.00		0.00	0.14	0.14	
Crit Moves:					****				****					****		
Green/Cycle:	0.00	0.00	0.00		0.18	0.00	0.18		0.33	0.65	0.00		0.00	0.32	0.32	
Volume/Cap:	0.00	0.00	0.00		0.12	0.00	0.37		0.44	0.27	0.00		0.00	0.44	0.44	
Delay/Veh:	0.0	0.0	0.0		24.4	0.0	26.1		19.0	5.2	0.0		0.0	18.9	18.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		24.4	0.0	26.1		19.0	5.2	0.0		0.0	18.9	18.9	
LOS by Move:	A	A	A		C	A	C		B	A	A		A	B	B	
HCM2kAvgQ:	0	0	0		1	0	3		5	3	0		0	5	5	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: A[9.9]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	397	0	0	325	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	397	0	0	325	0
Added Vol:	0	0	0	2	0	66	114	53	0	0	31	4
PasserByVol:	0	0	0	0	0	-18	-31	31	0	0	18	0
Initial Fut:	0	0	0	2	0	48	83	481	0	0	374	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	2	0	52	90	523	0	0	407	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	2	0	52	90	523	0	0	407	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1112	1112	205	411	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	233	211	840	1159	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	219	194	840	1159	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	320	293	xxxxx	342	305	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	0.00	0.06	0.08	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	794	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				9.9		xxxxxx			xxxxxx		
ApproachLOS:	*				A			*			*	

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Existing plus Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: A[9.8]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	397	0	0	325	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	397	0	0	325	0
Added Vol:	0	0	0	3	0	31	53	2	0	0	4	5
PasserByVol:	0	0	0	0	0	18	31	0	0	0	0	0
Initial Fut:	0	0	0	3	0	49	84	399	0	0	329	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	3	0	53	91	434	0	0	358	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	3	0	53	91	434	0	0	358	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	977	977	182	363	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	281	253	866	1207	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	264	234	866	1207	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	360	328	xxxxx	383	340	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.01	0.00	0.06	0.08	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	807	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				9.8		xxxxxx			xxxxxx		
ApproachLOS:	*				A		*			*		

Note: Queue reported is the number of cars per lane.

APPENDIX 5.2:

EXISTING PLUS PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC DL	DATE	08/02/14
Jurisdiction: City of Highlands				CHK DL	DATE	08/02/14
Major Street: Greenspot Road				Critical Approach Speed (Major)		55 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **10,410** vpd

Minor Street Future ADT = **659** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …… [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **10,410**	*1* **659**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **10,410**	*1* **659**	14,400	10,080 *	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	A / B				
	39% / 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC DL	DATE	08/02/14
Jurisdiction: City of Highlands				CHK DL	DATE	08/02/14
Major Street: Greenspot Road				Critical Approach Speed (Major)		55 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **9,224** vpd

Minor Street Future ADT = **660** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …… [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **9,224**	*1* **660**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **9,224**	*1* **660**	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A / B				
	39% / 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 5.3:

EXISTING PLUS PROJECT CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	204	546	763	871	153	85
v/c Ratio	0.15	0.60	0.83	0.34	0.63	0.24
Control Delay	16.2	9.0	23.6	2.8	41.0	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	9.0	23.6	2.8	41.0	4.4
Queue Length 50th (ft)	30	47	91	37	62	0
Queue Length 95th (ft)	51	138	m217	m49	#129	19
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1391	923	981	2601	269	375
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.59	0.78	0.33	0.57	0.23

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	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	47	327	1505	459	341
v/c Ratio	0.30	0.16	0.57	0.95	0.47
Control Delay	19.9	11.0	13.6	62.1	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	11.0	13.6	62.1	5.5
Queue Length 50th (ft)	22	67	145	~222	0
Queue Length 95th (ft)	m26	37	189	#411	61
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2631	482	731
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	0.12	0.14	0.57	0.95	0.47

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	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	583	618	433	664	358	73
v/c Ratio	0.45	0.60	0.73	0.30	0.82	0.14
Control Delay	19.3	4.5	28.0	3.7	41.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	4.5	28.0	3.7	41.6	2.0
Queue Length 50th (ft)	99	0	82	16	141	0
Queue Length 95th (ft)	140	64	129	31	#268	10
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1380	1059	632	2213	477	569
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.58	0.69	0.30	0.75	0.13

Intersection Summary

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

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	95	822	957	381	595
v/c Ratio	0.47	0.45	0.48	0.62	0.80
Control Delay	44.5	8.2	15.6	28.3	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	8.2	15.6	28.3	26.4
Queue Length 50th (ft)	42	36	92	132	150
Queue Length 95th (ft)	m82	54	109	#322	#408
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2093	613	743
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	0.36	0.46	0.62	0.80

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.

APPENDIX 6.1:

OPENING YEAR (2018) WITHOUT PROJECT CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	451	565	1175	1153	0	0	0	0	370	1	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	504	601	1288	1288	0	0	0	0	394	1	151
RTOR Reduction (vph)	0	0	275	0	0	0	0	0	0	0	0	107
Lane Group Flow (vph)	0	504	326	1288	1288	0	0	0	0	0	395	44
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		17.7	17.7	27.8	49.5						10.0	10.0
Effective Green, g (s)		17.7	17.7	27.8	49.5						10.0	10.0
Actuated g/C Ratio		0.25	0.25	0.40	0.71						0.14	0.14
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		910	447	1272	2545						257	257
v/s Ratio Prot		0.14		c0.40	0.36							
v/s Ratio Perm			c0.18								0.22	0.02
v/c Ratio		0.55	0.73	1.01	0.51						1.54	0.17
Uniform Delay, d1		22.7	24.0	21.1	4.7						30.0	26.4
Progression Factor		1.00	1.00	0.69	0.78						1.00	1.00
Incremental Delay, d2		2.4	10.0	11.0	0.1						260.2	0.1
Delay (s)		25.1	34.0	25.5	3.7						290.2	26.5
Level of Service		C	C	C	A						F	C
Approach Delay (s)		30.0			14.6			0.0			217.3	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	771	0	0	1867	535	461	0	636	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5370			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5370			1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	55	890	0	0	2257	588	507	0	699	0	0	0
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	134	0	0	0
Lane Group Flow (vph)	55	890	0	0	2795	0	0	507	565	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	4.8	44.5			35.7			15.0	15.0			
Effective Green, g (s)	4.8	44.5			35.7			15.0	15.0			
Actuated g/C Ratio	0.07	0.64			0.51			0.21	0.21			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	116	2288			2738			385	385			
v/s Ratio Prot	0.03	c0.25			c0.52							
v/s Ratio Perm								0.28	c0.31			
v/c Ratio	0.47	0.39			1.02			1.32	1.47			
Uniform Delay, d1	31.4	6.2			17.1			27.5	27.5			
Progression Factor	0.94	0.90			1.00			1.00	1.00			
Incremental Delay, d2	0.5	0.2			22.6			159.9	224.6			
Delay (s)	29.9	5.8			39.8			187.4	252.1			
Level of Service	C	A			D			F	F			
Approach Delay (s)		7.2			39.8			224.9			0.0	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	78.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.948
Loss Time (sec):	16	Average Delay (sec/veh):	57.8
Optimal Cycle: OPTIMIZED		Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	207	246	355	121	409	12	133	602	142	458	1601	194
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	207	246	355	121	409	12	133	602	142	458	1601	194
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	220	262	378	129	435	13	141	640	151	487	1703	206
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	220	262	378	129	435	13	141	640	151	487	1703	206
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	220	275	378	133	457	13	141	672	151	487	1788	206
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3497	103	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.13	0.08	0.21	0.04	0.13	0.13	0.08	0.19	0.08	0.29	0.50	0.11
Crit Moves:			****	****			****				****	
Green/Cycle:	0.14	0.21	0.21	0.08	0.15	0.15	0.08	0.23	0.23	0.36	0.50	0.50
Volume/Cap:	0.90	0.36	0.99	0.54	0.90	0.90	0.99	0.81	0.36	0.81	0.99	0.23
Delay/Veh:	86.8	43.9	93.5	60.2	72.9	72.9	130.6	53.0	42.4	45.6	50.0	18.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	86.8	43.9	93.5	60.2	72.9	72.9	130.6	53.0	42.4	45.6	50.0	18.3
LOS by Move:	F	D	F	E	E	E	F	D	D	D	D	B
HCM2kAvgQ:	12	5	20	4	12	12	10	15	5	20	42	4

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.571
Loss Time (sec):	12	Average Delay (sec/veh):	20.1
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	32	282	17	129	459	182	177	72	63	98	67	141
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	282	17	129	459	182	177	72	63	98	67	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	38	335	20	153	545	216	210	86	75	116	80	167
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	335	20	153	545	216	210	86	75	116	80	167
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	352	21	153	572	227	210	86	75	116	80	167
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.89	0.11	1.00	1.43	0.57	0.58	0.22	0.20	0.33	0.21	0.46
Final Sat.:	1700	3395	205	1700	2578	1022	988	402	352	566	387	814
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.10	0.09	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21
Crit Moves:	****				****			****				
Green/Cycle:	0.17	0.25	0.25	0.25	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31
Volume/Cap:	0.13	0.42	0.42	0.37	0.69	0.69	0.69	0.69	0.69	0.66	0.66	0.66
Delay/Veh:	21.5	19.4	19.4	19.3	19.4	19.4	21.8	21.8	21.8	21.1	21.1	21.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.5	19.4	19.4	19.3	19.4	19.4	21.8	21.8	21.8	21.1	21.1	21.1
LOS by Move:	C	B	B	B	B	B	C	C	C	C	C	C
HCM2kAvgQ:	1	3	3	3	8	8	8	8	8	7	7	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 110 Critical Vol./Cap.(X): 0.912
Loss Time (sec): 12 Average Delay (sec/veh): 31.8
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1	0 1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	19	23	1	68	5	378	197	702	12	0	1546	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	23	1	68	5	378	197	702	12	0	1546	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	20	24	1	72	5	403	210	748	13	0	1646	142
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	24	1	72	5	403	210	748	13	0	1646	142
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	20	24	1	72	5	403	216	785	13	0	1729	149
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	1.00	2.00	1.97	0.03	1.00	1.84	0.16
Final Sat.:	1700	1725	75	1700	1800	1800	3200	3539	61	1700	3315	285
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.04	0.00	0.22	0.07	0.22	0.22	0.00	0.52	0.52
Crit Moves:						****	****				****	
Green/Cycle:	0.24	0.24	0.24	0.24	0.24	0.24	0.09	0.65	0.65	0.00	0.56	0.56
Volume/Cap:	0.05	0.06	0.06	0.18	0.01	0.93	0.74	0.34	0.34	0.00	0.93	0.93
Delay/Veh:	32.2	32.3	32.3	33.4	31.9	67.8	58.6	8.7	8.7	0.0	30.7	30.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.2	32.3	32.3	33.4	31.9	67.8	58.6	8.7	8.7	0.0	30.7	30.7
LOS by Move:	C	C	C	C	C	E	E	A	A	A	C	C
HCM2kAvgQ:	1	1	1	2	0	18	6	6	6	0	34	34

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.826
Loss Time (sec): 12 Average Delay (sec/veh): 20.7
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	31	0	262	175	499	0	0	1187	57
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	31	0	262	175	499	0	0	1187	57
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	35	0	293	196	559	0	0	1329	64
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	35	0	293	196	559	0	0	1329	64
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	35	0	293	196	587	0	0	1396	67
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.91	0.09
Final Sat.:	0	0	0	1700	0	1800	1700	3600	0	0	3435	165
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.16	0.12	0.16	0.00	0.00	0.41	0.41
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.20	0.00	0.20	0.14	0.63	0.00	0.00	0.49	0.49
Volume/Cap:	0.00	0.00	0.00	0.10	0.00	0.83	0.81	0.26	0.00	0.00	0.83	0.83
Delay/Veh:	0.0	0.0	0.0	23.2	0.0	42.2	46.8	5.7	0.0	0.0	18.9	18.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	23.2	0.0	42.2	46.8	5.7	0.0	0.0	18.9	18.9
LOS by Move:	A	A	A	C	A	D	D	A	A	A	B	B
HCM2kAvgQ:	0	0	0	1	0	9	7	3	0	0	16	16

Note: Queue reported is the number of cars per lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1106	630	914	1179	0	0	0	0	877	9	147
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	1235	670	1002	1317	0	0	0	0	933	10	156
RTOR Reduction (vph)	0	0	368	0	0	0	0	0	0	0	0	93
Lane Group Flow (vph)	0	1235	302	1002	1317	0	0	0	0	0	943	63
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		24.5	24.5	13.0	41.5						18.0	18.0
Effective Green, g (s)		24.5	24.5	13.0	41.5						18.0	18.0
Actuated g/C Ratio		0.35	0.35	0.19	0.59						0.26	0.26
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1260	619	595	2134						462	462
v/s Ratio Prot		c0.34		c0.31	0.37							
v/s Ratio Perm			0.17								0.52	0.04
v/c Ratio		0.98	0.49	1.68	0.62						2.04	0.14
Uniform Delay, d1		22.5	17.8	28.5	9.1						26.0	20.0
Progression Factor		1.00	1.00	0.89	0.51						1.00	1.00
Incremental Delay, d2		21.0	2.7	308.5	0.1						476.0	0.0
Delay (s)		43.5	20.6	333.9	4.8						502.0	20.1
Level of Service		D	C	F	A						F	C
Approach Delay (s)		35.5			147.0			0.0			433.6	
Approach LOS		D			F			A			F	

Intersection Summary			
HCM 2000 Control Delay	166.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	237.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1882	0	0	1691	701	402	1	1291	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5360			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5360			1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	2037	0	0	1918	723	414	1	1331	0	0	0
RTOR Reduction (vph)	0	0	0	0	79	0	0	0	79	0	0	0
Lane Group Flow (vph)	103	2037	0	0	2562	0	0	415	1252	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	7.7	44.5			32.8			15.0	15.0			
Effective Green, g (s)	7.7	44.5			32.8			15.0	15.0			
Actuated g/C Ratio	0.11	0.64			0.47			0.21	0.21			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	186	2288			2511			385	385			
v/s Ratio Prot	0.06	c0.57			c0.48							
v/s Ratio Perm								0.23	c0.70			
v/c Ratio	0.55	0.89			1.02			1.08	3.25			
Uniform Delay, d1	29.5	10.7			18.6			27.5	27.5			
Progression Factor	1.35	0.77			1.00			1.00	1.00			
Incremental Delay, d2	0.2	0.6			23.3			68.3	1019.7			
Delay (s)	40.0	8.8			41.9			95.8	1047.2			
Level of Service	D	A			D			F	F			
Approach Delay (s)		10.3			41.9			821.0			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	240.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	237.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.263
Loss Time (sec): 16 Average Delay (sec/veh): 118.4
Optimal Cycle: OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	316	399	491	298	459	52	171	1561	453	369	1033	207
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	316	399	491	298	459	52	171	1561	453	369	1033	207
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	336	424	522	317	488	55	182	1661	482	393	1099	220
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	336	424	522	317	488	55	182	1661	482	393	1099	220
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	336	446	522	327	513	58	182	1744	482	393	1154	220
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.80	0.20	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3234	366	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.20	0.12	0.29	0.10	0.16	0.16	0.11	0.48	0.27	0.23	0.32	0.12
Crit Moves:			****	****				****		****		
Green/Cycle:	0.17	0.23	0.23	0.08	0.14	0.14	0.14	0.38	0.38	0.18	0.42	0.42
Volume/Cap:	1.15	0.54	1.26	1.26	1.15	1.15	0.75	1.26	0.70	1.26	0.75	0.29
Delay/Veh:	152.3	44.7	186.5	205.3	144	143.6	66.3	164	36.9	194.7	33.9	24.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	152.3	44.7	186.5	205.3	144	143.6	66.3	164	36.9	194.7	33.9	24.7
LOS by Move:	F	D	F	F	F	F	E	F	D	F	C	C
HCM2kAvgQ:	23	8	36	14	19	19	9	58	17	29	20	6

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.735
Loss Time (sec):	12	Average Delay (sec/veh):	22.5
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	48	687	66	184	475	91	264	88	46	51	72	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	687	66	184	475	91	264	88	46	51	72	160
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	725	70	194	501	96	278	93	49	54	76	169
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	725	70	194	501	96	278	93	49	54	76	169
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	761	73	194	526	101	278	93	49	54	76	169
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.68	0.32	0.68	0.21	0.11	0.19	0.25	0.56
Final Sat.:	1700	3284	316	1700	3021	579	1149	383	200	321	453	1007
Capacity Analysis Module:												
Vol/Sat:	0.03	0.23	0.23	0.11	0.17	0.17	0.24	0.24	0.24	0.17	0.17	0.17
Crit Moves:		****		****				****				
Green/Cycle:	0.23	0.31	0.31	0.17	0.24	0.24	0.32	0.32	0.32	0.32	0.32	0.32
Volume/Cap:	0.13	0.75	0.75	0.69	0.72	0.72	0.75	0.75	0.75	0.52	0.52	0.52
Delay/Veh:	18.3	21.5	21.5	30.3	23.6	23.6	23.6	23.6	23.6	17.3	17.3	17.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.3	21.5	21.5	30.3	23.6	23.6	23.6	23.6	23.6	17.3	17.3	17.3
LOS by Move:	B	C	C	C	C	C	C	C	C	B	B	B
HCM2kAvgQ:	1	9	9	5	7	7	9	9	9	5	5	5

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 100 Critical Vol./Cap.(X): 0.805
Loss Time (sec): 12 Average Delay (sec/veh): 27.1
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	24	8	1	135	10	232	353	1677	25	5	1181	112
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	8	1	135	10	232	353	1677	25	5	1181	112
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	27	9	1	152	11	262	398	1891	28	6	1331	126
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	9	1	152	11	262	398	1891	28	6	1331	126
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	27	9	1	152	11	262	410	1985	30	6	1398	133
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.89	0.11	1.00	1.00	1.00	2.00	1.97	0.03	1.00	1.83	0.17
Final Sat.:	1700	1600	200	1700	1800	1800	3200	3547	53	1700	3288	312
Capacity Analysis Module:												
Vol/Sat:	0.02	0.01	0.01	0.09	0.01	0.15	0.13	0.56	0.56	0.00	0.43	0.43
Crit Moves:						****		****		****		
Green/Cycle:	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.62	0.62	0.10	0.55	0.55
Volume/Cap:	0.10	0.04	0.04	0.56	0.04	0.90	0.77	0.90	0.90	0.03	0.77	0.77
Delay/Veh:	35.9	35.5	35.5	41.2	35.5	70.6	46.6	22.1	22.1	40.7	19.3	19.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.9	35.5	35.5	41.2	35.5	70.6	46.6	22.1	22.1	40.7	19.3	19.3
LOS by Move:	D	D	D	D	D	E	D	C	C	D	B	B
HCM2kAvgQ:	1	0	0	5	0	11	9	31	31	0	20	20

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 70 Critical Vol./Cap.(X): 0.686
Loss Time (sec): 12 Average Delay (sec/veh): 15.2
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	74	0	148	266	1345	0	0	972	43
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	74	0	148	266	1345	0	0	972	43
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	0	0	0	85	0	170	305	1541	0	0	1113	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	85	0	170	305	1541	0	0	1113	49
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	85	0	170	305	1618	0	0	1169	52
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.92	0.08
Final Sat.:	0	0	0	1700	0	1800	1700	3600	0	0	3447	153
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.00	0.09	0.18	0.45	0.00	0.00	0.34	0.34
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.14	0.00	0.14	0.24	0.69	0.00	0.00	0.45	0.45
Volume/Cap:	0.00	0.00	0.00	0.35	0.00	0.66	0.76	0.66	0.00	0.00	0.76	0.76
Delay/Veh:	0.0	0.0	0.0	27.9	0.0	34.6	32.8	6.9	0.0	0.0	18.2	18.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	27.9	0.0	34.6	32.8	6.9	0.0	0.0	18.2	18.2
LOS by Move:	A	A	A	C	A	C	C	A	A	A	B	B
HCM2kAvgQ:	0	0	0	2	0	5	8	11	0	0	13	13

Note: Queue reported is the number of cars per lane.

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APPENDIX 6.2:

OPENING YEAR (2018) WITH PROJECT CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	459	565	1198	1176	0	0	0	0	378	1	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	513	601	1313	1314	0	0	0	0	402	1	151
RTOR Reduction (vph)	0	0	274	0	0	0	0	0	0	0	0	107
Lane Group Flow (vph)	0	513	327	1313	1314	0	0	0	0	0	403	44
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		17.8	17.8	27.7	49.5						10.0	10.0
Effective Green, g (s)		17.8	17.8	27.7	49.5						10.0	10.0
Actuated g/C Ratio		0.25	0.25	0.40	0.71						0.14	0.14
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		915	450	1267	2545						257	257
v/s Ratio Prot		0.14		c0.41	0.36							
v/s Ratio Perm			c0.18								0.22	0.02
v/c Ratio		0.56	0.73	1.04	0.52						1.57	0.17
Uniform Delay, d1		22.7	23.9	21.1	4.7						30.0	26.4
Progression Factor		1.00	1.00	0.69	0.78						1.00	1.00
Incremental Delay, d2		2.5	9.8	19.4	0.1						273.7	0.1
Delay (s)		25.2	33.7	33.9	3.7						303.7	26.5
Level of Service		C	C	C	A						F	C
Approach Delay (s)		29.8			18.8			0.0			228.1	
Approach LOS		C			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	787	0	0	1914	558	461	0	649	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5369			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5369			1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	55	908	0	0	2314	613	507	0	713	0	0	0
RTOR Reduction (vph)	0	0	0	0	51	0	0	0	128	0	0	0
Lane Group Flow (vph)	55	908	0	0	2876	0	0	507	585	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	4.8	44.5			35.7			15.0	15.0			
Effective Green, g (s)	4.8	44.5			35.7			15.0	15.0			
Actuated g/C Ratio	0.07	0.64			0.51			0.21	0.21			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	116	2288			2738			385	385			
v/s Ratio Prot	0.03	c0.25			c0.54							
v/s Ratio Perm								0.28	c0.32			
v/c Ratio	0.47	0.40			1.05			1.32	1.52			
Uniform Delay, d1	31.4	6.2			17.1			27.5	27.5			
Progression Factor	0.94	0.91			1.00			1.00	1.00			
Incremental Delay, d2	0.5	0.2			32.2			159.9	246.6			
Delay (s)	29.9	5.9			49.4			187.4	274.1			
Level of Service	C	A			D			F	F			
Approach Delay (s)		7.3			49.4			238.1			0.0	
Approach LOS		A			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	86.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.981
Loss Time (sec):	16	Average Delay (sec/veh):	62.8
Optimal Cycle: OPTIMIZED		Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	207	246	355	121	409	12	133	602	142	458	1601	194
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	207	246	355	121	409	12	133	602	142	458	1601	194
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	207	246	363	129	409	12	133	631	142	497	1671	217
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	220	262	386	137	435	13	141	671	151	529	1778	231
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	220	262	386	137	435	13	141	671	151	529	1778	231
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	220	275	386	141	457	13	141	705	151	529	1867	231
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.94	0.06	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3497	103	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.13	0.08	0.21	0.04	0.13	0.13	0.08	0.20	0.08	0.31	0.52	0.13
Crit Moves:			****	****			****				****	
Green/Cycle:	0.14	0.21	0.21	0.08	0.14	0.14	0.08	0.23	0.23	0.36	0.51	0.51
Volume/Cap:	0.91	0.36	1.02	0.57	0.91	0.91	1.02	0.86	0.37	0.86	1.02	0.25
Delay/Veh:	88.6	44.2	102.9	61.2	74.2	74.2	141.6	57.3	42.9	50.1	58.3	18.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	88.6	44.2	102.9	61.2	74.2	74.2	141.6	57.3	42.9	50.1	58.3	18.2
LOS by Move:	F	D	F	E	E	E	F	E	D	D	E	B
HCM2kAvgQ:	12	5	21	4	12	12	10	16	5	23	46	5

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.588
Loss Time (sec):	12	Average Delay (sec/veh):	20.5
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	32	282	17	129	459	182	177	72	63	98	67	141
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	282	17	129	459	182	177	72	63	98	67	141
Added Vol:	0	8	0	0	23	16	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	290	17	129	482	198	177	72	63	98	67	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	38	344	20	153	572	235	210	86	75	116	80	167
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	344	20	153	572	235	210	86	75	116	80	167
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	38	362	21	153	601	247	210	86	75	116	80	167
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.89	0.11	1.00	1.42	0.58	0.58	0.22	0.20	0.33	0.21	0.46
Final Sat.:	1700	3401	199	1700	2552	1048	988	402	352	566	387	814
Capacity Analysis Module:												
Vol/Sat:	0.02	0.11	0.11	0.09	0.24	0.24	0.21	0.21	0.21	0.21	0.21	0.21
Crit Moves:	****				****			****				
Green/Cycle:	0.17	0.25	0.25	0.25	0.33	0.33	0.30	0.30	0.30	0.30	0.30	0.30
Volume/Cap:	0.13	0.43	0.43	0.36	0.71	0.71	0.71	0.71	0.71	0.68	0.68	0.68
Delay/Veh:	21.5	19.2	19.2	19.1	19.4	19.4	23.1	23.1	23.1	22.2	22.2	22.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	21.5	19.2	19.2	19.1	19.4	19.4	23.1	23.1	23.1	22.2	22.2	22.2
LOS by Move:	C	B	B	B	B	B	C	C	C	C	C	C
HCM2kAvgQ:	1	3	3	3	8	8	8	8	8	7	7	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 125 Critical Vol./Cap.(X): 0.947
Loss Time (sec): 12 Average Delay (sec/veh): 36.8
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T	- R		L - T	- R		L - T	- R		L - T	- R	
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1	0 1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	19	23	1	68	5	378	197	702	12	0	1546	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	23	1	68	5	378	197	702	12	0	1546	133
Added Vol:	0	0	0	3	0	0	0	45	0	0	132	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	23	1	71	5	378	197	747	12	0	1678	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	20	24	1	76	5	403	210	796	13	0	1787	150
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	24	1	76	5	403	210	796	13	0	1787	150
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	20	24	1	76	5	403	216	835	13	0	1876	158
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	1.00	2.00	1.97	0.03	1.00	1.84	0.16
Final Sat.:	1700	1725	75	1700	1800	1800	3200	3543	57	1700	3321	279
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.04	0.00	0.22	0.07	0.24	0.24	0.00	0.57	0.57
Crit Moves:						****	****				****	
Green/Cycle:	0.23	0.23	0.23	0.23	0.23	0.23	0.08	0.67	0.67	0.00	0.59	0.59
Volume/Cap:	0.05	0.06	0.06	0.19	0.01	0.96	0.84	0.35	0.35	0.00	0.96	0.96
Delay/Veh:	37.2	37.3	37.3	38.6	36.8	80.2	78.5	9.0	9.0	0.0	35.3	35.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.2	37.3	37.3	38.6	36.8	80.2	78.5	9.0	9.0	0.0	35.3	35.3
LOS by Move:	D	D	D	D	D	F	E	A	A	A	D	D
HCM2kAvgQ:	1	1	1	2	0	20	7	7	7	0	42	42

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 75 Critical Vol./Cap.(X): 0.873
Loss Time (sec): 12 Average Delay (sec/veh): 23.2
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		31	0	262		175	499	0		0	1187	57	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		31	0	262		175	499	0		0	1187	57	
Added Vol:	0	0	0		3	0	0		0	48	0		0	140	8	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		34	0	262		175	547	0		0	1327	65	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	0	0	0		38	0	293		196	613	0		0	1486	73	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		38	0	293		196	613	0		0	1486	73	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		38	0	293		196	643	0		0	1560	76	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.91	0.09	
Final Sat.:	0	0	0		1700	0	1800		1700	3600	0		0	3432	168	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.02	0.00	0.16		0.12	0.18	0.00		0.00	0.45	0.45	
Crit Moves:							****		****					****		
Green/Cycle:	0.00	0.00	0.00		0.19	0.00	0.19		0.13	0.65	0.00		0.00	0.52	0.52	
Volume/Cap:	0.00	0.00	0.00		0.12	0.00	0.87		0.86	0.27	0.00		0.00	0.87	0.87	
Delay/Veh:	0.0	0.0	0.0		25.6	0.0	51.2		59.2	5.5	0.0		0.0	20.7	20.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		25.6	0.0	51.2		59.2	5.5	0.0		0.0	20.7	20.7	
LOS by Move:	A	A	A		C	A	D		E	A	A		A	C	C	
HCM2kAvgQ:	0	0	0		1	0	10		8	3	0		0	20	20	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: C[16.5]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	1 0	1 0	0	0 0	1 1	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	530	0	0	1244	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	530	0	0	1244	0
Added Vol:	0	0	0	3	0	101	34	16	0	0	47	1
PasserByVol:	0	0	0	1	0	-27	-9	9	0	0	27	0
Initial Fut:	0	0	0	4	0	74	25	555	0	0	1318	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	4	0	80	27	603	0	0	1433	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	4	0	80	27	603	0	0	1433	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	2091	2091	717	1434	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	58	53	433	480	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	56	50	433	480	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	210	132	xxxxx	161	145	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.19	0.06	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	13.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	398	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	16.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				16.5		xxxxxx			xxxxxx		
ApproachLOS:	*				C		*			*		

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: C[15.8]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	1 0	1 0	0	0 0	1 1	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	530	0	0	1244	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	530	0	0	1244	0
Added Vol:	0	0	0	5	0	47	16	3	0	0	1	2
PasserByVol:	0	0	0	-1	0	-27	9	1	0	0	0	0
Initial Fut:	0	0	0	4	0	20	25	534	0	0	1245	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	4	0	22	27	580	0	0	1353	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	4	0	22	27	580	0	0	1353	2
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1989	1989	678	1355	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	68	62	456	514	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	65	58	456	514	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	249	144	xxxxx	175	158	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.02	0.00	0.05	0.05	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	359	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	15.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	C	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				15.8		xxxxxx			xxxxxx		
ApproachLOS:	*				C		*			*		

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1132	630	940	1194	0	0	0	0	903	9	147
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00						1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00						1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00						1.00	1.00
Frt		1.00	1.00	1.00	1.00						1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (prot)		3600	1770	3204	3600						1800	1800
Flt Permitted		1.00	1.00	1.00	1.00						1.00	1.00
Satd. Flow (perm)		3600	1770	3204	3600						1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	105%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	1264	670	1030	1334	0	0	0	0	961	10	156
RTOR Reduction (vph)	0	0	360	0	0	0	0	0	0	0	0	93
Lane Group Flow (vph)	0	1264	310	1030	1334	0	0	0	0	0	971	63
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		24.5	24.5	13.0	41.5						18.0	18.0
Effective Green, g (s)		24.5	24.5	13.0	41.5						18.0	18.0
Actuated g/C Ratio		0.35	0.35	0.19	0.59						0.26	0.26
Clearance Time (s)		5.5	5.5	4.0	5.5						5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1260	619	595	2134						462	462
v/s Ratio Prot		c0.35		c0.32	0.37							
v/s Ratio Perm			0.18								0.54	0.04
v/c Ratio		1.00	0.50	1.73	0.63						2.10	0.14
Uniform Delay, d1		22.8	17.9	28.5	9.2						26.0	20.0
Progression Factor		1.00	1.00	0.89	0.51						1.00	1.00
Incremental Delay, d2		26.1	2.9	329.6	0.1						503.1	0.0
Delay (s)		48.9	20.8	355.0	4.8						529.1	20.1
Level of Service		D	C	F	A						F	C
Approach Delay (s)		39.1			157.4			0.0			458.6	
Approach LOS		D			F			A			F	

Intersection Summary			
HCM 2000 Control Delay	177.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	242.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1935	0	0	1732	716	402	1	1335	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5			5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00			1.00	1.00			
Frpb, ped/bikes	1.00	1.00			0.99			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			1.00			1.00	1.00			
Flt Protected	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	1692	3600			5360			1800	1800			
Flt Permitted	1.00	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1692	3600			5360			1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	105%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	2095	0	0	1964	738	414	1	1376	0	0	0
RTOR Reduction (vph)	0	0	0	0	79	0	0	0	79	0	0	0
Lane Group Flow (vph)	103	2095	0	0	2623	0	0	415	1297	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases							8		8			
Actuated Green, G (s)	7.7	44.5			32.8			15.0	15.0			
Effective Green, g (s)	7.7	44.5			32.8			15.0	15.0			
Actuated g/C Ratio	0.11	0.64			0.47			0.21	0.21			
Clearance Time (s)	4.0	5.5			5.5			5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)	186	2288			2511			385	385			
v/s Ratio Prot	0.06	c0.58			c0.49							
v/s Ratio Perm								0.23	c0.72			
v/c Ratio	0.55	0.92			1.04			1.08	3.37			
Uniform Delay, d1	29.5	11.1			18.6			27.5	27.5			
Progression Factor	1.35	0.78			1.00			1.00	1.00			
Incremental Delay, d2	0.2	0.8			30.9			68.3	1072.2			
Delay (s)	39.9	9.4			49.5			95.8	1099.7			
Level of Service	D	A			D			F	F			
Approach Delay (s)		10.8			49.5			867.1			0.0	
Approach LOS		B			D			F			A	

Intersection Summary			
HCM 2000 Control Delay	255.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	242.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	1.335
Loss Time (sec):	16	Average Delay (sec/veh):	133.7
Optimal Cycle: OPTIMIZED		Level Of Service:	F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	1 1	0	1 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	316	399	491	298	459	52	171	1561	453	369	1033	207
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	316	399	491	298	459	52	171	1561	453	369	1033	207
Added Vol:	0	0	26	26	0	0	0	96	0	15	56	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	316	399	517	324	459	52	171	1657	453	384	1089	222
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	336	424	550	345	488	55	182	1763	482	409	1159	236
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	336	424	550	345	488	55	182	1763	482	409	1159	236
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.05	1.00	1.05	1.00	1.00	1.05	1.00
FinalVolume:	336	446	550	355	513	58	182	1851	482	409	1216	236
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.80	0.20	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3234	366	1700	3600	1800	1700	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.20	0.12	0.31	0.11	0.16	0.16	0.11	0.51	0.27	0.24	0.34	0.13
Crit Moves:			****	****				****		****		
Green/Cycle:	0.17	0.23	0.23	0.08	0.14	0.14	0.14	0.39	0.39	0.18	0.43	0.43
Volume/Cap:	1.14	0.54	1.34	1.34	1.14	1.14	0.79	1.34	0.70	1.34	0.79	0.31
Delay/Veh:	150.3	44.9	216.8	233.8	142	141.6	70.7	196	36.7	224.8	34.8	24.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	150.3	44.9	216.8	233.8	142	141.6	70.7	196	36.7	224.8	34.8	24.6
LOS by Move:	F	D	F	F	F	F	E	F	D	F	C	C
HCM2kAvgQ:	23	8	40	16	19	19	9	66	17	32	22	6

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	60	Critical Vol./Cap.(X):	0.745
Loss Time (sec):	12	Average Delay (sec/veh):	22.7
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	48	687	66	184	475	91	264	88	46	51	72	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	48	687	66	184	475	91	264	88	46	51	72	160
Added Vol:	0	26	0	0	15	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	48	713	66	184	490	91	264	88	46	51	72	160
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	51	752	70	194	517	96	278	93	49	54	76	169
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	752	70	194	517	96	278	93	49	54	76	169
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	51	790	73	194	543	101	278	93	49	54	76	169
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	1.83	0.17	1.00	1.69	0.31	0.68	0.21	0.11	0.19	0.25	0.56
Final Sat.:	1700	3295	305	1700	3036	564	1149	383	200	321	453	1007
Capacity Analysis Module:												
Vol/Sat:	0.03	0.24	0.24	0.11	0.18	0.18	0.24	0.24	0.24	0.17	0.17	0.17
Crit Moves:		****		****				****				
Green/Cycle:	0.23	0.31	0.31	0.17	0.25	0.25	0.32	0.32	0.32	0.32	0.32	0.32
Volume/Cap:	0.13	0.76	0.76	0.69	0.72	0.72	0.76	0.76	0.76	0.53	0.53	0.53
Delay/Veh:	18.4	21.6	21.6	30.3	23.4	23.4	24.5	24.5	24.5	17.7	17.7	17.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.4	21.6	21.6	30.3	23.4	23.4	24.5	24.5	24.5	17.7	17.7	17.7
LOS by Move:	B	C	C	C	C	C	C	C	C	B	B	B
HCM2kAvgQ:	1	9	9	5	7	7	9	9	9	5	5	5

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 115 Critical Vol./Cap.(X): 0.846
Loss Time (sec): 12 Average Delay (sec/veh): 30.6
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	24	8	1	135	10	232	353	1677	25	5	1181	112
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	8	1	135	10	232	353	1677	25	5	1181	112
Added Vol:	0	0	0	9	0	0	0	149	0	0	87	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	8	1	144	10	232	353	1826	25	5	1268	117
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	27	9	1	162	11	262	398	2059	28	6	1430	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	9	1	162	11	262	398	2059	28	6	1430	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	27	9	1	162	11	262	410	2162	30	6	1501	139
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00
Lanes:	1.00	0.89	0.11	1.00	1.00	1.00	2.00	1.97	0.03	1.00	1.83	0.17
Final Sat.:	1700	1600	200	1700	1800	1800	3200	3551	49	1700	3296	304
Capacity Analysis Module:												
Vol/Sat:	0.02	0.01	0.01	0.10	0.01	0.15	0.13	0.61	0.61	0.00	0.46	0.46
Crit Moves:						****		****		****		
Green/Cycle:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.65	0.65	0.09	0.58	0.58
Volume/Cap:	0.10	0.04	0.04	0.61	0.04	0.93	0.79	0.93	0.93	0.04	0.79	0.79
Delay/Veh:	41.8	41.3	41.3	49.5	41.3	84.0	54.2	25.2	25.2	48.2	21.0	21.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.8	41.3	41.3	49.5	41.3	84.0	54.2	25.2	25.2	48.2	21.0	21.0
LOS by Move:	D	D	D	D	D	F	D	C	C	D	C	C
HCM2kAvgQ:	1	0	0	7	0	13	10	39	39	0	24	24

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 75 Critical Vol./Cap.(X): 0.722
Loss Time (sec): 12 Average Delay (sec/veh): 16.0
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	74	0	148	266	1345	0	0	972	43
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	74	0	148	266	1345	0	0	972	43
Added Vol:	0	0	0	9	0	0	0	158	0	0	92	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	83	0	148	266	1503	0	0	1064	48
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	0	0	0	95	0	170	305	1722	0	0	1219	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	95	0	170	305	1722	0	0	1219	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	95	0	170	305	1808	0	0	1280	58
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.91	0.09
Final Sat.:	0	0	0	1700	0	1800	1700	3600	0	0	3445	155
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.09	0.18	0.50	0.00	0.00	0.37	0.37
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.13	0.00	0.13	0.23	0.71	0.00	0.00	0.48	0.48
Volume/Cap:	0.00	0.00	0.00	0.42	0.00	0.71	0.78	0.71	0.00	0.00	0.78	0.78
Delay/Veh:	0.0	0.0	0.0	31.1	0.0	40.4	36.7	7.4	0.0	0.0	18.7	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	31.1	0.0	40.4	36.7	7.4	0.0	0.0	18.7	18.7
LOS by Move:	A	A	A	C	A	D	D	A	A	A	B	B
HCM2kAvgQ:	0	0	0	3	0	5	9	13	0	0	15	15

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[14.6]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	0 0	0	0 0	1! 0	0	1 0	1 0	0	0 0	1 1	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	1419	0	0	1015	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	1419	0	0	1015	0
Added Vol:	0	0	0	2	0	66	114	53	0	0	31	4
PasserByVol:	0	0	0	0	0	-18	-31	31	0	0	18	0
Initial Fut:	0	0	0	2	0	48	83	1503	0	0	1064	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	2	0	52	90	1634	0	0	1157	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	2	0	52	90	1634	0	0	1157	4
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	2973	2973	580	1161	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	16	14	518	609	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	14	12	518	609	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	69	68	xxxxx	85	77	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.10	0.15	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	430	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	14.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				14.6		xxxxxx			xxxxxx		
ApproachLOS:	*				B		*			*		

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: B[14.9]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 1 1 0		
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	1419	0	0	1015	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	1419	0	0	1015	0
Added Vol:	0	0	0	3	0	31	53	2	0	0	4	5
PasserByVol:	0	0	0	0	0	18	31	0	0	0	0	0
Initial Fut:	0	0	0	3	0	49	84	1421	0	0	1019	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	3	0	53	91	1545	0	0	1108	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	3	0	53	91	1545	0	0	1108	5
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	2838	2838	557	1113	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	20	18	534	635	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	17	15	534	635	xxxx	xxxxx	xxxx	xxxx	xxxxx
Total Cap:	77	76	xxxxx	94	85	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.10	0.14	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	420	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	14.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			14.9			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

APPENDIX 6.3:

OPENING YEAR (2018) WITH PROJECT CONDITIONS WARRANT ANALYSIS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM

TRAFFIC CONDITIONS **2018 WP**

CALC DL DATE 08/02/14

CHK DL DATE 08/02/14

Jurisdiction: **City of Highlands**

Major Street: **Greenspot Road** Critical Approach Speed (Major) 55 mph

Minor Street: **Driveway 1** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **46,500** vpd Minor Street Future ADT = **659** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **46,500**	*1* **659**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **46,500**	*1* **659**	14,400	10,080 *	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 39% / **B** 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2018 WP
				CALC DL	DATE	08/02/14
Jurisdiction: City of Highlands				CHK DL	DATE	08/02/14
Major Street: Greenspot Road				Critical Approach Speed (Major)		55 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **29,405** vpd

Minor Street Future ADT = **660** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….…… [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **29,405**	*1* **660**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **29,405**	*1* **660**	14,400	10,080 *	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 39% / **B** 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 6.4:

OPENING YEAR (2018) WITHOUT PROJECT CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	504	601	1288	1288	395	151
v/c Ratio	0.55	0.83	1.01	0.51	1.54	0.41
Control Delay	24.2	19.5	31.8	3.8	287.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	19.5	31.8	3.8	287.0	12.1
Queue Length 50th (ft)	94	91	~224	82	~244	10
Queue Length 95th (ft)	117	189	m#388	m84	#401	57
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1260	858	1272	2545	257	364
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.70	1.01	0.51	1.54	0.41

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	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	55	890	2845	507	699
v/c Ratio	0.33	0.39	0.98	1.32	1.35
Control Delay	29.7	5.9	31.3	187.4	190.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	5.9	31.3	187.4	190.6
Queue Length 50th (ft)	20	94	~458	~288	~343
Queue Length 95th (ft)	m30	m95	#579	#462	#542
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2911	385	519
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	0.14	0.39	0.98	1.32	1.35

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	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1235	670	1002	1317	943	156
v/c Ratio	0.98	0.68	1.68	0.62	2.04	0.28
Control Delay	45.5	7.5	331.9	4.9	497.2	8.0
Queue Delay	0.7	0.0	0.0	0.3	0.2	0.0
Total Delay	46.2	7.5	331.9	5.2	497.5	8.0
Queue Length 50th (ft)	258	30	~371	63	~653	10
Queue Length 95th (ft)	#392	123	m#366	m25	#866	52
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1260	987	595	2134	462	555
Starvation Cap Reductn	0	0	0	275	0	0
Spillback Cap Reductn	5	0	0	0	12	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.68	1.68	0.71	2.10	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	103	2037	2641	415	1331
v/c Ratio	0.49	0.89	1.00	1.08	2.86
Control Delay	38.3	9.8	37.2	98.5	860.2
Queue Delay	0.0	0.4	0.0	0.0	0.0
Total Delay	38.3	10.2	37.2	98.5	860.2
Queue Length 50th (ft)	53	155	~409	~204	~993
Queue Length 95th (ft)	m40	m125	#542	#364	#1233
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2653	385	465
Starvation Cap Reductn	0	40	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.91	1.00	1.08	2.86

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 6.5:

OPENING YEAR (2018) WITH PROJECT CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	513	601	1313	1314	403	151
v/c Ratio	0.56	0.83	1.03	0.52	1.57	0.41
Control Delay	24.3	19.4	39.4	3.8	300.1	12.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	24.3	19.4	39.4	4.0	300.1	12.1
Queue Length 50th (ft)	96	91	~258	84	~252	10
Queue Length 95th (ft)	120	189	m#386	m84	#410	57
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1260	858	1269	2545	257	364
Starvation Cap Reductn	0	0	0	349	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.70	1.03	0.60	1.57	0.41

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	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	55	908	2927	507	713
v/c Ratio	0.33	0.40	1.01	1.32	1.39
Control Delay	29.5	6.0	37.7	187.4	209.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	6.0	37.7	187.4	209.2
Queue Length 50th (ft)	20	96	~484	~288	~362
Queue Length 95th (ft)	m30	m96	#605	#462	#562
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2911	385	513
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	0.14	0.40	1.01	1.32	1.39

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	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1264	670	1030	1334	971	156
v/c Ratio	1.00	0.68	1.73	0.63	2.10	0.28
Control Delay	51.0	7.9	352.7	5.0	523.9	8.0
Queue Delay	1.0	0.0	0.0	0.3	0.4	0.0
Total Delay	52.0	7.9	352.7	5.3	524.3	8.0
Queue Length 50th (ft)	~269	34	~386	65	~678	10
Queue Length 95th (ft)	#406	131	m#371	m25	#893	52
Internal Link Dist (ft)	1421			431	1327	
Turn Bay Length (ft)		140	200			160
Base Capacity (vph)	1260	979	595	2134	462	555
Starvation Cap Reductn	0	0	0	275	0	0
Spillback Cap Reductn	5	0	0	0	19	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.68	1.73	0.72	2.19	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	103	2095	2702	415	1376
v/c Ratio	0.49	0.92	1.02	1.08	2.96
Control Delay	38.2	10.6	43.2	98.5	903.3
Queue Delay	0.0	0.6	0.0	0.0	0.0
Total Delay	38.2	11.2	43.2	98.5	903.3
Queue Length 50th (ft)	53	162	~429	~204	~1035
Queue Length 95th (ft)	m39	m125	#562	#364	#1278
Internal Link Dist (ft)		431	1498	1268	
Turn Bay Length (ft)	95				670
Base Capacity (vph)	386	2288	2653	385	465
Starvation Cap Reductn	0	39	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.93	1.02	1.08	2.96

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 6.6:

OPENING YEAR (2018) WITHOUT PROJECT CONDITIONS LOS, WITH IMPROVEMENTS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	451	565	1175	1153	0	0	0	0	370	1	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00					*1.00	*1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		5400	1769	3204	3600					1800	1800	1800
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		5400	1769	3204	3600					1800	1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	528	601	1288	1288	0	0	0	0	394	1	151
RTOR Reduction (vph)	0	0	179	0	0	0	0	0	0	0	0	99
Lane Group Flow (vph)	0	528	422	1288	1288	0	0	0	0	197	198	52
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		22.2	22.2	33.6	59.8					9.7	9.7	9.7
Effective Green, g (s)		22.2	22.2	33.6	59.8					9.7	9.7	9.7
Actuated g/C Ratio		0.28	0.28	0.42	0.75					0.12	0.12	0.12
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1498	490	1345	2691					218	218	218
v/s Ratio Prot		0.10		c0.40	0.36							
v/s Ratio Perm			c0.24							0.11	0.11	0.03
v/c Ratio		0.35	0.86	0.96	0.48					0.90	0.91	0.24
Uniform Delay, d1		23.1	27.4	22.5	4.0					34.7	34.7	31.8
Progression Factor		1.00	1.00	0.63	0.42					1.00	1.00	1.00
Incremental Delay, d2		0.7	17.7	12.4	0.5					35.1	35.9	0.2
Delay (s)		23.8	45.1	26.7	2.1					69.8	70.6	32.0
Level of Service		C	D	C	A					E	E	C
Approach Delay (s)		35.2			14.4			0.0			59.6	
Approach LOS		D			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	771	0	0	1867	535	461	0	636	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00	*1.00	*0.94	*1.00	*1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1692	5400			7200	1749	1692	1800	1800			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1692	5400			7200	1749	1692	1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	55	932	0	0	2257	588	507	0	699	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	295	0	105	105	0	0	0
Lane Group Flow (vph)	55	932	0	0	2257	293	416	294	286	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	5.0	48.8			39.8	39.8	20.7	20.7	20.7			
Effective Green, g (s)	5.0	48.8			39.8	39.8	20.7	20.7	20.7			
Actuated g/C Ratio	0.06	0.61			0.50	0.50	0.26	0.26	0.26			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	105	3294			3582	870	437	465	465			
v/s Ratio Prot	c0.03	0.17			c0.31							
v/s Ratio Perm						0.17	c0.25	0.16	0.16			
v/c Ratio	0.52	0.28			0.63	0.34	0.95	0.63	0.62			
Uniform Delay, d1	36.3	7.4			14.7	12.1	29.2	26.3	26.1			
Progression Factor	0.45	1.03			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.8	0.2			0.9	1.0	30.7	2.1	1.7			
Delay (s)	18.1	7.8			15.6	13.2	59.9	28.4	27.9			
Level of Service	B	A			B	B	E	C	C			
Approach Delay (s)		8.3			15.1			39.1			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	115	Critical Vol./Cap.(X):	0.972
Loss Time (sec):	16	Average Delay (sec/veh):	46.3
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	2 0	1	1 0	3 0	1	2 0	2 0	1
Volume Module:												
Base Vol:	207	246	355	121	409	12	133	602	142	458	1601	194
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	207	246	355	121	409	12	133	602	142	458	1601	194
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	220	262	378	129	435	13	141	640	151	487	1703	206
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	220	262	378	129	435	13	141	640	151	487	1703	206
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.00	1.00	1.10	1.00	1.03	1.05	1.00
FinalVolume:	220	275	378	133	457	13	141	704	151	502	1788	206
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3600	1800	1700	5400	1800	3200	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.13	0.08	0.21	0.04	0.13	0.01	0.08	0.13	0.08	0.16	0.50	0.11
Crit Moves:	****				****		****				****	
Green/Cycle:	0.13	0.13	0.46	0.13	0.13	0.13	0.09	0.27	0.27	0.33	0.51	0.51
Volume/Cap:	0.97	0.58	0.46	0.31	0.97	0.05	0.96	0.48	0.31	0.48	0.97	0.22
Delay/Veh:	101.7	48.7	21.8	45.7	84.3	43.9	113.2	35.4	33.7	31.3	42.5	15.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	101.7	48.7	21.8	45.7	84.3	43.9	113.2	35.4	33.7	31.3	42.5	15.7
LOS by Move:	F	D	C	D	F	D	F	D	C	C	D	B
HCM2kAvgQ:	12	5	9	3	12	0	9	7	4	8	37	4

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1106	630	914	1179	0	0	0	0	877	9	147
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00					*1.00	*1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		5400	1766	3204	3600					1800	1800	1800
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		5400	1766	3204	3600					1800	1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	1294	670	1002	1317	0	0	0	0	933	10	156
RTOR Reduction (vph)	0	0	365	0	0	0	0	0	0	0	0	64
Lane Group Flow (vph)	0	1294	305	1002	1317	0	0	0	0	476	467	92
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		26.5	26.5	32.0	62.5					27.0	27.0	27.0
Effective Green, g (s)		26.5	26.5	32.0	62.5					27.0	27.0	27.0
Actuated g/C Ratio		0.26	0.26	0.32	0.62					0.27	0.27	0.27
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1431	467	1025	2250					486	486	486
v/s Ratio Prot		c0.24		c0.31	0.37							
v/s Ratio Perm			0.17							c0.26	0.26	0.05
v/c Ratio		0.90	0.65	0.98	0.59					0.98	0.96	0.19
Uniform Delay, d1		35.5	32.7	33.6	11.1					36.2	36.0	28.1
Progression Factor		1.00	1.00	0.79	0.37					1.00	1.00	1.00
Incremental Delay, d2		9.7	6.9	18.3	0.8					34.9	30.7	0.1
Delay (s)		45.2	39.6	45.0	4.9					71.2	66.7	28.2
Level of Service		D	D	D	A					E	E	C
Approach Delay (s)		43.3			22.2			0.0			63.2	
Approach LOS		D			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1882	0	0	1691	701	402	1	1291	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00	*1.00	*0.94	*1.00	*1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1692	5400			7200	1746	1692	1800	1800			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1692	5400			7200	1746	1692	1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	2134	0	0	1918	723	414	1	1331	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	457	0	2	43	0	0	0
Lane Group Flow (vph)	103	2134	0	0	1918	266	373	692	636	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	9.3	50.1			36.8	36.8	39.4	39.4	39.4			
Effective Green, g (s)	9.3	50.1			36.8	36.8	39.4	39.4	39.4			
Actuated g/C Ratio	0.09	0.50			0.37	0.37	0.39	0.39	0.39			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	157	2705			2649	642	666	709	709			
v/s Ratio Prot	0.06	c0.40			0.27							
v/s Ratio Perm						0.15	0.22	0.38	0.35			
v/c Ratio	0.66	0.79			0.72	0.41	0.56	0.98	0.90			
Uniform Delay, d1	43.8	20.6			27.2	23.6	23.6	29.8	28.4			
Progression Factor	1.15	0.10			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.7	0.9			1.8	2.0	0.6	27.6	13.7			
Delay (s)	53.1	3.0			29.0	25.5	24.2	57.4	42.1			
Level of Service	D	A			C	C	C	E	D			
Approach Delay (s)		5.3			28.0			44.4			0.0	
Approach LOS		A			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) Without Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	95	Critical Vol./Cap.(X):	0.968
Loss Time (sec):	16	Average Delay (sec/veh):	47.0
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	10	10	10		10	10	10		10	10	10		10	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	1	0 2	0	1	2	0 2	0	1	1	0 3	0	1	2	0 2	0	1
Volume Module:																
Base Vol:	316	399	491		298	459	52		171	1561	453		369	1033	207	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	316	399	491		298	459	52		171	1561	453		369	1033	207	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94	
PHF Volume:	336	424	522		317	488	55		182	1661	482		393	1099	220	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	336	424	522		317	488	55		182	1661	482		393	1099	220	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.05	1.00		1.03	1.05	1.00		1.00	1.10	1.00		1.03	1.05	1.00	
FinalVolume:	336	446	522		327	513	55		182	1827	482		404	1154	220	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.89	1.00	1.00		0.94	1.00	1.00		0.89	1.00	1.00	
Lanes:	1.00	2.00	1.00		2.00	2.00	1.00		1.00	3.00	1.00		2.00	2.00	1.00	
Final Sat.:	1700	3600	1800		3200	3600	1800		1700	5400	1800		3200	3600	1800	
Capacity Analysis Module:																
Vol/Sat:	0.20	0.12	0.29		0.10	0.14	0.03		0.11	0.34	0.27		0.13	0.32	0.12	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.20	0.21	0.34		0.14	0.15	0.15		0.12	0.35	0.35		0.13	0.36	0.36	
Volume/Cap:	0.97	0.58	0.84		0.74	0.97	0.21		0.89	0.97	0.77		0.97	0.89	0.34	
Delay/Veh:	77.1	34.6	38.9		46.0	71.2	36.0		75.9	44.3	33.1		76.7	36.7	22.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	77.1	34.6	38.9		46.0	71.2	36.0		75.9	44.3	33.1		76.7	36.7	22.5	
LOS by Move:	E	C	D		D	E	D		E	D	C		E	D	C	
HCM2kAvgQ:	15	7	17		7	12	2		9	23	14		11	19	5	

Note: Queue reported is the number of cars per lane.

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APPENDIX 6.7:

OPENING YEAR (2018) WITH PROJECT CONDITIONS LOS, WITH IMPROVEMENTS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	459	565	1198	1176	0	0	0	0	378	1	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00					*1.00	*1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		5400	1769	3204	3600					1800	1800	1800
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		5400	1769	3204	3600					1800	1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	537	601	1313	1314	0	0	0	0	402	1	151
RTOR Reduction (vph)	0	0	180	0	0	0	0	0	0	0	0	96
Lane Group Flow (vph)	0	537	421	1313	1314	0	0	0	0	201	202	55
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		21.7	21.7	33.9	59.6					9.9	9.9	9.9
Effective Green, g (s)		21.7	21.7	33.9	59.6					9.9	9.9	9.9
Actuated g/C Ratio		0.27	0.27	0.42	0.75					0.12	0.12	0.12
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1464	479	1357	2682					222	222	222
v/s Ratio Prot		0.10		c0.41	0.36							
v/s Ratio Perm			c0.24							0.11	0.11	0.03
v/c Ratio		0.37	0.88	0.97	0.49					0.91	0.91	0.25
Uniform Delay, d1		23.6	27.9	22.5	4.1					34.6	34.6	31.7
Progression Factor		1.00	1.00	0.62	0.41					1.00	1.00	1.00
Incremental Delay, d2		0.7	20.0	13.7	0.5					34.9	35.7	0.2
Delay (s)		24.3	47.9	27.6	2.1					69.5	70.3	31.9
Level of Service		C	D	C	A					E	E	C
Approach Delay (s)		36.7			14.9			0.0			59.6	
Approach LOS		D			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	787	0	0	1914	558	461	0	649	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00	*1.00	*0.94	*1.00	*1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1692	5400			7200	1749	1692	1800	1800			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1692	5400			7200	1749	1692	1800	1800			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	55	951	0	0	2314	613	507	0	713	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	310	0	100	100	0	0	0
Lane Group Flow (vph)	55	951	0	0	2314	303	426	302	292	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	5.0	48.5			39.5	39.5	21.0	21.0	21.0			
Effective Green, g (s)	5.0	48.5			39.5	39.5	21.0	21.0	21.0			
Actuated g/C Ratio	0.06	0.61			0.49	0.49	0.26	0.26	0.26			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	105	3273			3555	863	444	472	472			
v/s Ratio Prot	c0.03	0.18			c0.32							
v/s Ratio Perm						0.17	c0.25	0.17	0.16			
v/c Ratio	0.52	0.29			0.65	0.35	0.96	0.64	0.62			
Uniform Delay, d1	36.3	7.5			15.1	12.4	29.1	26.2	26.0			
Progression Factor	0.46	1.06			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.8	0.2			0.9	1.1	31.8	2.2	1.7			
Delay (s)	18.5	8.1			16.0	13.5	60.9	28.4	27.7			
Level of Service	B	A			B	B	E	C	C			
Approach Delay (s)		8.7			15.5			39.5			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 120 Critical Vol./Cap.(X): 0.990
Loss Time (sec): 16 Average Delay (sec/veh): 49.4
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	2 0	2 0	1	1 0	3 0	1	2 0	2 0	1
Volume Module:												
Base Vol:	207	246	355	121	409	12	133	602	142	458	1601	194
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	207	246	355	121	409	12	133	602	142	458	1601	194
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	207	246	363	129	409	12	133	631	142	497	1671	217
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	220	262	386	137	435	13	141	671	151	529	1778	231
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	220	262	386	137	435	13	141	671	151	529	1778	231
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.00	1.03	1.05	1.00	1.00	1.10	1.00	1.03	1.05	1.00
FinalVolume:	220	275	386	141	457	13	141	738	151	545	1867	231
Saturation Flow Module:												
Sat/Lane:	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Adjustment:	0.94	1.00	1.00	0.89	1.00	1.00	0.94	1.00	1.00	0.89	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00
Final Sat.:	1700	3600	1800	3200	3600	1800	1700	5400	1800	3200	3600	1800
Capacity Analysis Module:												
Vol/Sat:	0.13	0.08	0.21	0.04	0.13	0.01	0.08	0.14	0.08	0.17	0.52	0.13
Crit Moves:	****				****		****				****	
Green/Cycle:	0.13	0.13	0.47	0.13	0.13	0.13	0.08	0.27	0.27	0.34	0.52	0.52
Volume/Cap:	0.99	0.59	0.46	0.34	0.99	0.06	0.99	0.51	0.31	0.51	0.99	0.24
Delay/Veh:	109.5	51.2	22.1	48.1	91.4	46.0	127.1	37.3	35.2	32.2	46.7	15.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	109.5	51.2	22.1	48.1	91.4	46.0	127.1	37.3	35.2	32.2	46.7	15.8
LOS by Move:	F	D	C	D	F	D	F	D	D	C	D	B
HCM2kAvgQ:	13	6	10	3	13	0	9	8	4	9	41	5

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.500
Loss Time (sec):	12	Average Delay (sec/veh):	10.7
Optimal Cycle: OPTIMIZED		Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		0	0	0		0	530	0		0	1244	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		0	0	0		0	530	0		0	1244	0	
Added Vol:	0	0	0		3	0	101		34	16	0		0	47	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		3	0	101		34	546	0		0	1291	1	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	
PHF Volume:	0	0	0		3	0	110		37	593	0		0	1403	1	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		3	0	110		37	593	0		0	1403	1	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		3	0	110		37	623	0		0	1473	1	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.99	0.01	
Final Sat.:	0	0	0		1700	0	1800		1700	3600	0		0	3597	3	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.00	0.00	0.06		0.02	0.17	0.00		0.00	0.41	0.41	
Crit Moves:					****				****					****		
Green/Cycle:	0.00	0.00	0.00		0.12	0.00	0.12		0.11	0.74	0.00		0.00	0.63	0.63	
Volume/Cap:	0.00	0.00	0.00		0.02	0.00	0.50		0.20	0.23	0.00		0.00	0.65	0.65	
Delay/Veh:	0.0	0.0	0.0		34.8	0.0	38.7		36.9	3.6	0.0		0.0	10.9	10.9	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		34.8	0.0	38.7		36.9	3.6	0.0		0.0	10.9	10.9	
LOS by Move:	A	A	A		C	A	D		D	A	A		A	B	B	
HCM2kAvgQ:	0	0	0		0	0	4		1	3	0		0	13	13	

Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1132	630	940	1194	0	0	0	0	903	9	147
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	1.00	*0.89	*1.00					*1.00	*1.00	1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		5400	1766	3204	3600					1800	1800	1800
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		5400	1766	3204	3600					1800	1800	1800
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	100%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	1325	670	1030	1334	0	0	0	0	961	10	156
RTOR Reduction (vph)	0	0	360	0	0	0	0	0	0	0	0	64
Lane Group Flow (vph)	0	1325	310	1030	1334	0	0	0	0	480	491	92
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		26.5	26.5	32.0	62.5					27.0	27.0	27.0
Effective Green, g (s)		26.5	26.5	32.0	62.5					27.0	27.0	27.0
Actuated g/C Ratio		0.26	0.26	0.32	0.62					0.27	0.27	0.27
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1431	467	1025	2250					486	486	486
v/s Ratio Prot		c0.25		c0.32	0.37							
v/s Ratio Perm			0.18							0.27	0.27	0.05
v/c Ratio		0.93	0.66	1.00	0.59					0.99	1.01	0.19
Uniform Delay, d1		35.8	32.8	34.0	11.2					36.3	36.5	28.1
Progression Factor		1.00	1.00	0.79	0.37					1.00	1.00	1.00
Incremental Delay, d2		11.7	7.3	24.7	0.8					37.2	43.4	0.1
Delay (s)		47.4	40.0	51.5	4.9					73.5	79.9	28.2
Level of Service		D	D	D	A					E	E	C
Approach Delay (s)		45.0			25.2			0.0			70.0	
Approach LOS		D			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	1935	0	0	1732	716	402	1	1335	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.94	*1.00			*1.00	*1.00	*0.94	*1.00	*1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1692	5400			7200	1746	1692	1800	1800			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1692	5400			7200	1746	1692	1800	1800			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	103	2194	0	0	1964	738	414	1	1376	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	464	0	1	43	0	0	0
Lane Group Flow (vph)	103	2194	0	0	1964	274	373	715	659	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	9.3	50.4			37.1	37.1	39.1	39.1	39.1			
Effective Green, g (s)	9.3	50.4			37.1	37.1	39.1	39.1	39.1			
Actuated g/C Ratio	0.09	0.50			0.37	0.37	0.39	0.39	0.39			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	157	2721			2671	647	661	703	703			
v/s Ratio Prot	0.06	c0.41			0.27							
v/s Ratio Perm						0.16	0.22	0.40	0.37			
v/c Ratio	0.66	0.81			0.74	0.42	0.56	1.02	0.94			
Uniform Delay, d1	43.8	20.7			27.2	23.5	23.8	30.4	29.3			
Progression Factor	1.15	0.11			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.4	0.9			1.8	2.0	0.7	38.2	19.7			
Delay (s)	52.9	3.1			29.0	25.5	24.5	68.7	48.9			
Level of Service	D	A			C	C	C	E	D			
Approach Delay (s)		5.3			28.1			51.7			0.0	
Approach LOS		A			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.989
Loss Time (sec):	16	Average Delay (sec/veh):	51.2
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Protected				Protected				Protected			
Rights:	Ovl				Include				Include				Include			
Min. Green:	10	10	10		10	10	10		10	10	10		10	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	1	0 2	0	1	2	0 2	0	1	1	0 3	0	1	2	0 2	0	1
Volume Module:																
Base Vol:	316	399	491		298	459	52		171	1561	453		369	1033	207	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	316	399	491		298	459	52		171	1561	453		369	1033	207	
Added Vol:	0	0	26		26	0	0		0	96	0		15	56	15	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	316	399	517		324	459	52		171	1657	453		384	1089	222	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94	
PHF Volume:	336	424	550		345	488	55		182	1763	482		409	1159	236	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	336	424	550		345	488	55		182	1763	482		409	1159	236	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.05	1.00		1.03	1.05	1.00		1.00	1.10	1.00		1.03	1.05	1.00	
FinalVolume:	336	446	550		355	513	55		182	1939	482		421	1216	236	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.89	1.00	1.00		0.94	1.00	1.00		0.89	1.00	1.00	
Lanes:	1.00	2.00	1.00		2.00	2.00	1.00		1.00	3.00	1.00		2.00	2.00	1.00	
Final Sat.:	1700	3600	1800		3200	3600	1800		1700	5400	1800		3200	3600	1800	
Capacity Analysis Module:																
Vol/Sat:	0.20	0.12	0.31		0.11	0.14	0.03		0.11	0.36	0.27		0.13	0.34	0.13	
Crit Moves:	****					****				****			****			
Green/Cycle:	0.20	0.21	0.34		0.13	0.14	0.14		0.12	0.36	0.36		0.13	0.38	0.38	
Volume/Cap:	0.99	0.59	0.89		0.83	0.99	0.21		0.90	0.99	0.74		0.99	0.90	0.35	
Delay/Veh:	85.6	36.8	46.1		54.9	79.3	38.2		79.6	49.4	32.1		83.9	37.5	22.7	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	85.6	36.8	46.1		54.9	79.3	38.2		79.6	49.4	32.1		83.9	37.5	22.7	
LOS by Move:	F	D	D		D	E	D		E	D	C		F	D	C	
HCM2kAvgQ:	16	7	20		8	13	2		9	26	14		12	21	5	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Opening Year Cumulative (2018) With Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Cycle (sec):	70	Critical Vol./Cap.(X):	0.491
Loss Time (sec):	12	Average Delay (sec/veh):	10.3
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Permitted			
Rights:		Include				Include				Include				Include		
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																
Base Vol:	0	0	0		0	0	0		0	1419	0		0	1015	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		0	0	0		0	1419	0		0	1015	0	
Added Vol:	0	0	0		2	0	66		114	53	0		0	31	4	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		2	0	66		114	1472	0		0	1046	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	
PHF Volume:	0	0	0		2	0	72		124	1600	0		0	1137	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		2	0	72		124	1600	0		0	1137	4	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		2	0	72		124	1680	0		0	1194	5	
Saturation Flow Module:																
Sat/Lane:	1800	1800	1800		1800	1800	1800		1800	1800	1800		1800	1800	1800	
Adjustment:	0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00		0.94	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.99	0.01	
Final Sat.:	0	0	0		1700	0	1800		1700	3600	0		0	3586	14	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.00	0.00	0.04		0.07	0.47	0.00		0.00	0.33	0.33	
Crit Moves:					****				****					****		
Green/Cycle:	0.00	0.00	0.00		0.14	0.00	0.14		0.14	0.69	0.00		0.00	0.54	0.54	
Volume/Cap:	0.00	0.00	0.00		0.01	0.00	0.28		0.51	0.68	0.00		0.00	0.61	0.61	
Delay/Veh:	0.0	0.0	0.0		25.8	0.0	27.4		29.5	7.3	0.0		0.0	11.5	11.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		25.8	0.0	27.4		29.5	7.3	0.0		0.0	11.5	11.5	
LOS by Move:	A	A	A		C	A	C		C	A	A		A	B	B	
HCM2kAvgQ:	0	0	0		0	0	2		3	12	0		0	10	10	

Note: Queue reported is the number of cars per lane.

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APPENDIX 7.1:

CITY OF HIGHLAND MASTER PLAN IMPROVEMENTS

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TARGET
CORINA PLAZA
WEBSTER ST
ORANGE ST
GREENSPOT RD
GREENSPOT ROAD
GREENSPOT RD
GREENSPOT RD
ACCESS "D"
ACCESS "D"
ACCESS "A"
ACCESS "B"
ACCESS "C"
WALMART
SCE SUB-STATION
BOULDER AVENUE
UNIVERSAL MINI STORAGE
LA FITNESS
STAPLES
LOWES
5th STREET
5th STREET
5th STREET
5TH ST/GREENSPOT RD
SR-210
SR-210
SR-210
SR-210
SR-210
SR-210
PALM AVENUE
3rd STREET

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APPENDIX 7.2:

HORIZON YEAR (2035) WITHOUT PROJECT CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	495	513	1598	1307	0	0	0	0	587	1	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	*0.95	*0.89	*1.00					0.95	*1.00	*1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		7600	4012	3382	3800					1805	1900	1900
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		7600	4012	3382	3800					1805	1900	1900
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	113%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	579	617	1751	1460	0	0	0	0	624	1	191
RTOR Reduction (vph)	0	0	479	0	0	0	0	0	0	0	2	65
Lane Group Flow (vph)	0	579	138	1751	1460	0	0	0	0	324	318	107
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		15.6	15.6	60.9	80.5					19.0	19.0	19.0
Effective Green, g (s)		15.6	15.6	60.9	80.5					19.0	19.0	19.0
Actuated g/C Ratio		0.14	0.14	0.55	0.73					0.17	0.17	0.17
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1077	568	1872	2780					311	328	328
v/s Ratio Prot		0.08		c0.52	c0.38							
v/s Ratio Perm			0.03							c0.18	0.17	0.06
v/c Ratio		0.54	0.24	0.94	0.53					1.04	0.97	0.33
Uniform Delay, d1		43.8	42.0	22.7	6.4					45.5	45.2	39.9
Progression Factor		1.00	1.00	0.50	0.42					1.00	1.00	1.00
Incremental Delay, d2		1.9	1.0	7.2	0.5					62.3	41.5	0.2
Delay (s)		45.8	43.0	18.6	3.2					107.8	86.7	40.1
Level of Service		D	D	B	A					F	F	D
Approach Delay (s)		44.3			11.6			0.0			85.3	
Approach LOS		D			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1021	0	0	2487	791	418	2	747	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.95	*1.00			*1.00	*1.00	0.95	*1.00	*0.95			
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1805	5700			7600	1864	1805	1900	3610			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1805	5700			7600	1864	1805	1900	3610			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	113%	100%	100%	100%
Adj. Flow (vph)	66	1221	0	0	2974	860	454	2	918	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	283	0	0	121	0	0	0
Lane Group Flow (vph)	66	1221	0	0	2974	577	227	229	797	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	7.5	72.0			60.5	60.5	27.5	27.5	27.5			
Effective Green, g (s)	7.5	72.0			60.5	60.5	27.5	27.5	27.5			
Actuated g/C Ratio	0.07	0.65			0.55	0.55	0.25	0.25	0.25			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	123	3730			4180	1025	451	475	902			
v/s Ratio Prot	c0.04	0.21			c0.39							
v/s Ratio Perm						0.31	0.13	0.12	c0.22			
v/c Ratio	0.54	0.33			0.71	0.56	0.50	0.48	0.88			
Uniform Delay, d1	49.6	8.4			18.3	16.1	35.4	35.2	39.7			
Progression Factor	0.55	1.45			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.7	0.2			1.1	2.2	0.3	0.3	10.0			
Delay (s)	29.2	12.3			19.4	18.4	35.7	35.5	49.7			
Level of Service	C	B			B	B	D	D	D			
Approach Delay (s)		13.1			19.1			45.0			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.912
Loss Time (sec): 16 Average Delay (sec/veh): 51.3
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	150	507	432	134	355	10	18	751	165	462	2477	443
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	507	432	134	355	10	18	751	165	462	2477	443
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	160	539	460	143	378	11	19	799	176	491	2635	471
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	539	460	143	378	11	19	799	176	491	2635	471
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	164	566	460	147	397	11	20	879	176	506	2899	471
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3400	3800	1900	3400	3800	1900	3400	5700	1900	3400	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.05	0.15	0.24	0.04	0.10	0.01	0.01	0.15	0.09	0.15	0.51	0.25
Crit Moves:			****	****			****				****	
Green/Cycle:	0.13	0.23	0.23	0.08	0.18	0.18	0.08	0.29	0.29	0.28	0.49	0.49
Volume/Cap:	0.37	0.64	1.04	0.56	0.58	0.03	0.08	0.53	0.32	0.53	1.04	0.51
Delay/Veh:	53.8	48.5	102.7	66.3	52.6	44.3	56.3	40.0	37.6	41.9	53.7	19.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.8	48.5	102.7	66.3	52.6	44.3	56.3	40.0	37.6	41.9	53.7	19.5
LOS by Move:	D	D	F	E	D	D	E	D	D	D	D	B
HCM2kAvgQ:	3	10	25	4	8	0	0	9	5	9	48	10

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec): 85 Critical Vol./Cap.(X): 0.805
Loss Time (sec): 12 Average Delay (sec/veh): 30.6
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	82	290	20	190	590	450	340	132	85	120	181	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	82	290	20	190	590	450	340	132	85	120	181	160
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	89	315	22	207	641	489	370	143	92	130	197	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	315	22	207	641	489	370	143	92	130	197	174
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	89	331	23	207	673	514	370	143	92	130	197	174
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	1.87	0.13	1.00	1.13	0.87	0.62	0.23	0.15	0.27	0.39	0.34
Final Sat.:	1800	3555	245	1800	2156	1644	1122	436	280	488	735	650
Capacity Analysis Module:												
Vol/Sat:	0.05	0.09	0.09	0.11	0.31	0.31	0.33	0.33	0.33	0.27	0.27	0.27
Crit Moves:	****				****			****				
Green/Cycle:	0.12	0.24	0.24	0.24	0.36	0.36	0.38	0.38	0.38	0.38	0.38	0.38
Volume/Cap:	0.42	0.39	0.39	0.48	0.87	0.87	0.87	0.87	0.87	0.70	0.70	0.70
Delay/Veh:	36.2	27.4	27.4	28.6	31.3	31.3	35.4	35.4	35.4	25.5	25.5	25.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.2	27.4	27.4	28.6	31.3	31.3	35.4	35.4	35.4	25.5	25.5	25.5
LOS by Move:	D	C	C	C	C	C	D	D	D	C	C	C
HCM2kAvgQ:	3	4	4	5	18	18	18	18	18	12	12	12

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

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Intersection #5 Church Street / Greenspot Road

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Cycle (sec): 130 Critical Vol./Cap.(X): 1.211
Loss Time (sec): 12 Average Delay (sec/veh): 98.5
Optimal Cycle: OPTIMIZED Level Of Service: F

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	58	25	1	78	6	449	251	941	20	5	2460	146
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	25	1	78	6	449	251	941	20	5	2460	146
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	62	27	1	83	6	478	267	1002	21	5	2620	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	62	27	1	83	6	478	267	1002	21	5	2620	155
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	62	27	1	83	6	478	275	1052	22	5	2751	163
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	1.00	2.00	1.96	0.04	1.00	1.89	0.11
Final Sat.:	1800	1827	73	1800	1900	1900	3400	3721	79	1800	3587	213
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.01	0.05	0.00	0.25	0.08	0.28	0.28	0.00	0.77	0.77
Crit Moves:						****	****				****	
Green/Cycle:	0.21	0.21	0.21	0.21	0.21	0.21	0.08	0.55	0.55	0.15	0.63	0.63
Volume/Cap:	0.17	0.07	0.07	0.22	0.02	1.23	1.05	0.51	0.51	0.02	1.23	1.23
Delay/Veh:	43.5	42.0	42.0	44.4	41.3	174.1	130.2	13.2	13.2	47.2	118	118.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.5	42.0	42.0	44.4	41.3	174.1	130.2	13.2	13.2	47.2	118	118.1
LOS by Move:	D	D	D	D	D	F	F	B	B	D	F	F
HCM2kAvgQ:	2	1	1	3	0	32	10	9	9	0	91	91

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Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 110 Critical Vol./Cap.(X): 0.958
Loss Time (sec): 12 Average Delay (sec/veh): 33.9
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	98	0	329	168	779	0	0	1956	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	98	0	329	168	779	0	0	1956	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	103	0	346	177	820	0	0	2059	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	103	0	346	177	820	0	0	2059	137
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	103	0	346	177	820	0	0	2059	137
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1900	0	1900	1900	3800	0	0	3563	237
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.00	0.18	0.09	0.22	0.00	0.00	0.58	0.58
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.19	0.00	0.19	0.10	0.70	0.00	0.00	0.60	0.60
Volume/Cap:	0.00	0.00	0.00	0.29	0.00	0.96	0.96	0.31	0.00	0.00	0.96	0.96
Delay/Veh:	0.0	0.0	0.0	38.6	0.0	80.3	103.2	6.4	0.0	0.0	31.1	31.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	38.6	0.0	80.3	103.2	6.4	0.0	0.0	31.1	31.1
LOS by Move:	A	A	A	D	A	F	F	A	A	A	C	C
HCM2kAvgQ:	0	0	0	3	0	16	10	5	0	0	41	41

Note: Queue reported is the number of cars per lane.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1443	691	1186	1053	0	0	0	0	1284	10	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	13	12	12	12	12	12	16	16	16
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	*1.00	*1.00	*1.00					*1.00	*1.00	*1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		7600	4218	3927	3800					2153	2153	2153
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		7600	4218	3927	3800					2153	2153	2153
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1535	735	1262	1120	0	0	0	0	1366	11	154
RTOR Reduction (vph)	0	0	567	0	0	0	0	0	0	0	1	51
Lane Group Flow (vph)	0	1535	168	1262	1120	0	0	0	0	697	694	88
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		29.7	29.7	42.8	76.5					43.0	43.0	43.0
Effective Green, g (s)		29.7	29.7	42.8	76.5					43.0	43.0	43.0
Actuated g/C Ratio		0.23	0.23	0.33	0.59					0.33	0.33	0.33
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1736	963	1292	2236					712	712	712
v/s Ratio Prot		c0.20		c0.32	0.29					c0.32	0.32	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.88	0.17	0.98	0.50					0.98	0.98	0.12
Uniform Delay, d1		48.5	40.3	43.1	15.6					43.1	43.0	30.4
Progression Factor		1.00	1.00	0.79	0.66					1.00	1.00	1.00
Incremental Delay, d2		7.0	0.4	18.0	0.7					28.1	27.3	0.0
Delay (s)		55.5	40.7	52.0	11.0					71.1	70.3	30.4
Level of Service		E	D	D	B					E	E	C
Approach Delay (s)		50.7			32.7			0.0			67.0	
Approach LOS		D			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	2579	0	0	1800	974	439	2	635	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.95	*1.00			*1.00	*1.00	0.95	*1.00	*0.95			
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1805	5700			7600	1862	1805	1900	3610			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1805	5700			7600	1862	1805	1900	3610			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	113%	100%	100%	100%
Adj. Flow (vph)	153	2925	0	0	2041	1004	453	2	740	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	357	0	0	42	0	0	0
Lane Group Flow (vph)	153	2925	0	0	2041	647	226	229	698	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	14.3	89.7			71.4	71.4	29.8	29.8	29.8			
Effective Green, g (s)	14.3	89.7			71.4	71.4	29.8	29.8	29.8			
Actuated g/C Ratio	0.11	0.69			0.55	0.55	0.23	0.23	0.23			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	198	3933			4174	1022	413	435	827			
v/s Ratio Prot	0.08	c0.51			0.27							
v/s Ratio Perm						0.35	0.13	0.12	c0.19			
v/c Ratio	0.77	0.74			0.49	0.63	0.55	0.53	0.84			
Uniform Delay, d1	56.3	12.8			18.1	20.2	44.2	43.9	47.9			
Progression Factor	0.76	2.32			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	7.7	0.6			0.4	3.0	0.8	0.5	7.5			
Delay (s)	50.5	30.3			18.5	23.2	45.0	44.4	55.4			
Level of Service	D	C			B	C	D	D	E			
Approach Delay (s)		31.3			20.0			51.3			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.168
Loss Time (sec): 16 Average Delay (sec/veh): 85.9
Optimal Cycle: OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	203	470	528	451	471	13	63	2251	354	375	1340	295
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	470	528	451	471	13	63	2251	354	375	1340	295
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	216	500	562	480	501	14	67	2395	377	399	1426	314
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	216	500	562	480	501	14	67	2395	377	399	1426	314
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	222	525	562	494	526	14	69	2634	377	411	1568	314
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3400	3800	1900	3400	3800	1900	3400	5700	1900	3400	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.07	0.14	0.30	0.15	0.14	0.01	0.02	0.46	0.20	0.12	0.28	0.17
Crit Moves:			****	****				****		****		
Green/Cycle:	0.13	0.25	0.25	0.12	0.24	0.24	0.11	0.40	0.40	0.10	0.39	0.39
Volume/Cap:	0.49	0.55	1.17	1.17	0.57	0.03	0.19	1.17	0.50	1.17	0.71	0.42
Delay/Veh:	55.7	44.3	144.5	155.1	45.8	37.7	53.8	116	29.0	160.1	32.1	28.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	55.7	44.3	144.5	155.1	45.8	37.7	53.8	116	29.0	160.1	32.1	28.0
LOS by Move:	E	D	F	F	D	D	D	F	C	F	C	C
HCM2kAvgQ:	5	9	35	19	9	0	1	53	10	16	17	8

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec): 95 Critical Vol./Cap.(X): 1.010
Loss Time (sec): 12 Average Delay (sec/veh): 52.4
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	85	890	90	350	790	170	370	232	83	56	103	176
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	890	90	350	790	170	370	232	83	56	103	176
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	90	939	95	369	833	179	390	245	88	59	109	186
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	90	939	95	369	833	179	390	245	88	59	109	186
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	90	986	100	369	875	188	390	245	88	59	109	186
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.65	0.35	0.55	0.33	0.12	0.17	0.30	0.53
Final Sat.:	1800	3451	349	1800	3127	673	996	625	224	315	579	989
Capacity Analysis Module:												
Vol/Sat:	0.05	0.29	0.29	0.21	0.28	0.28	0.39	0.39	0.39	0.19	0.19	0.19
Crit Moves:		****		****				****				
Green/Cycle:	0.13	0.28	0.28	0.20	0.35	0.35	0.39	0.39	0.39	0.39	0.39	0.39
Volume/Cap:	0.38	1.01	1.01	1.01	0.79	0.79	1.01	1.01	1.01	0.48	0.48	0.48
Delay/Veh:	38.6	64.0	64.0	87.5	30.9	30.9	65.2	65.2	65.2	22.4	22.4	22.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	38.6	64.0	64.0	87.5	30.9	30.9	65.2	65.2	65.2	22.4	22.4	22.4
LOS by Move:	D	E	E	F	C	C	E	E	E	C	C	C
HCM2kAvgQ:	3	23	23	18	16	16	30	30	30	8	8	8

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.079
Loss Time (sec): 12 Average Delay (sec/veh): 68.0
Optimal Cycle: OPTIMIZED Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	24	16	7	165	15	318	418	2581	59	7	1523	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	16	7	165	15	318	418	2581	59	7	1523	138
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	26	17	8	179	16	346	454	2805	64	8	1655	150
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	17	8	179	16	346	454	2805	64	8	1655	150
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	26	17	8	179	16	346	468	2946	67	8	1738	158
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.70	0.30	1.00	1.00	1.00	2.00	1.96	0.04	1.00	1.83	0.17
Final Sat.:	1800	1322	578	1800	1900	1900	3400	3715	85	1800	3484	316
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.10	0.01	0.18	0.14	0.79	0.79	0.00	0.50	0.50
Crit Moves:						****		****		****		
Green/Cycle:	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.68	0.68	0.08	0.59	0.59
Volume/Cap:	0.09	0.08	0.08	0.64	0.06	1.17	0.85	1.17	1.17	0.05	0.85	0.85
Delay/Veh:	47.8	47.6	47.6	62.4	47.2	162.9	67.5	89.9	89.9	56.4	17.2	17.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.8	47.6	47.6	62.4	47.2	162.9	67.5	89.9	89.9	56.4	17.2	17.2
LOS by Move:	D	D	D	E	D	F	E	F	F	E	B	B
HCM2kAvgQ:	1	1	1	8	1	23	13	88	88	0	26	26

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 90 Critical Vol./Cap.(X): 0.857
Loss Time (sec): 12 Average Delay (sec/veh): 17.3
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	153	0	155	252	2261	0	0	1272	97
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	153	0	155	252	2261	0	0	1272	97
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	161	0	163	265	2380	0	0	1339	102
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	161	0	163	265	2380	0	0	1339	102
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.00	1.00	1.05	1.05
FinalVolume:	0	0	0	161	0	163	265	2499	0	0	1406	107
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.86	0.14
Final Sat.:	0	0	0	1900	0	1900	1900	3800	0	0	3531	269
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.08	0.00	0.09	0.14	0.66	0.00	0.00	0.40	0.40
Crit Moves:				****				****		****		
Green/Cycle:	0.00	0.00	0.00	0.11	0.00	0.11	0.20	0.76	0.00	0.00	0.56	0.56
Volume/Cap:	0.00	0.00	0.00	0.76	0.00	0.77	0.71	0.87	0.00	0.00	0.71	0.71
Delay/Veh:	0.0	0.0	0.0	53.9	0.0	55.0	40.1	11.0	0.0	0.0	15.7	15.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	53.9	0.0	55.0	40.1	11.0	0.0	0.0	15.7	15.7
LOS by Move:	A	A	A	D	A	D	D	B	A	A	B	B
HCM2kAvgQ:	0	0	0	6	0	6	8	28	0	0	16	16

Note: Queue reported is the number of cars per lane.

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APPENDIX 7.3:

HORIZON YEAR (2035) WITH PROJECT CONDITIONS INTERSECTION WORKSHEETS

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	503	513	1621	1330	0	0	0	0	595	1	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	12	12	12	12	12	12	12
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	*0.95	*0.89	*1.00					0.95	*1.00	*1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		7600	4012	3382	3800					1805	1900	1900
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		7600	4012	3382	3800					1805	1900	1900
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor (vph)	100%	110%	113%	103%	105%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	0	589	617	1776	1486	0	0	0	0	633	1	191
RTOR Reduction (vph)	0	0	502	0	0	0	0	0	0	0	2	65
Lane Group Flow (vph)	0	589	115	1776	1486	0	0	0	0	329	322	107
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		15.7	15.7	59.8	79.5					20.0	20.0	20.0
Effective Green, g (s)		15.7	15.7	59.8	79.5					20.0	20.0	20.0
Actuated g/C Ratio		0.14	0.14	0.54	0.72					0.18	0.18	0.18
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1084	572	1838	2746					328	345	345
v/s Ratio Prot		0.08		c0.53	c0.39							
v/s Ratio Perm			0.03							c0.18	0.17	0.06
v/c Ratio		0.54	0.20	0.97	0.54					1.00	0.93	0.31
Uniform Delay, d1		43.8	41.6	24.1	6.9					45.0	44.4	39.0
Progression Factor		1.00	1.00	0.50	0.42					1.00	1.00	1.00
Incremental Delay, d2		2.0	0.8	10.9	0.6					50.5	31.4	0.2
Delay (s)		45.8	42.4	23.0	3.5					95.5	75.8	39.2
Level of Service		D	D	C	A					F	E	D
Approach Delay (s)		44.1			14.1			0.0			76.0	
Approach LOS		D			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1037	0	0	2534	814	418	2	760	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.95	*1.00			*1.00	*1.00	0.95	*1.00	*0.95			
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1805	5700			7600	1864	1805	1900	3610			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1805	5700			7600	1864	1805	1900	3610			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	113%	100%	100%	100%
Adj. Flow (vph)	66	1240	0	0	3030	885	454	2	933	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	288	0	0	116	0	0	0
Lane Group Flow (vph)	66	1240	0	0	3030	597	227	229	817	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	7.5	71.7			60.2	60.2	27.8	27.8	27.8			
Effective Green, g (s)	7.5	71.7			60.2	60.2	27.8	27.8	27.8			
Actuated g/C Ratio	0.07	0.65			0.55	0.55	0.25	0.25	0.25			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	123	3715			4159	1020	456	480	912			
v/s Ratio Prot	c0.04	0.22			c0.40							
v/s Ratio Perm						0.32	0.13	0.12	c0.23			
v/c Ratio	0.54	0.33			0.73	0.59	0.50	0.48	0.90			
Uniform Delay, d1	49.6	8.5			18.7	16.6	35.1	34.9	39.7			
Progression Factor	0.56	1.50			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.7	0.2			1.2	2.5	0.3	0.3	11.0			
Delay (s)	29.5	13.0			19.9	19.0	35.4	35.2	50.7			
Level of Service	C	B			B	B	D	D	D			
Approach Delay (s)		13.8			19.7			45.7			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.936
Loss Time (sec): 16 Average Delay (sec/veh): 55.9
Optimal Cycle: OPTIMIZED Level Of Service: E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	150	507	432	134	355	10	18	751	165	462	2477	443
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	507	432	134	355	10	18	751	165	462	2477	443
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	150	507	440	142	355	10	18	780	165	501	2547	466
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	160	539	468	151	378	11	19	830	176	533	2710	496
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	539	468	151	378	11	19	830	176	533	2710	496
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	164	566	468	156	397	11	20	913	176	549	2981	496
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3400	3800	1900	3400	3800	1900	3400	5700	1900	3400	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.05	0.15	0.25	0.05	0.10	0.01	0.01	0.16	0.09	0.16	0.52	0.26
Crit Moves:			****	****			****				****	
Green/Cycle:	0.13	0.23	0.23	0.08	0.18	0.18	0.08	0.28	0.28	0.29	0.49	0.49
Volume/Cap:	0.37	0.64	1.06	0.59	0.59	0.03	0.08	0.57	0.33	0.57	1.06	0.53
Delay/Veh:	53.9	48.7	110.8	67.6	52.8	44.4	56.3	41.2	38.4	41.9	62.8	19.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.9	48.7	110.8	67.6	52.8	44.4	56.3	41.2	38.4	41.9	62.8	19.9
LOS by Move:	D	D	F	E	D	D	E	D	D	D	E	B
HCM2kAvgQ:	3	10	27	4	8	0	0	10	5	10	51	11

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	85	Critical Vol./Cap.(X):	0.819
Loss Time (sec):	12	Average Delay (sec/veh):	31.5
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	82	290	20	190	590	450	340	132	85	120	181	160
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	82	290	20	190	590	450	340	132	85	120	181	160
Added Vol:	0	8	0	0	23	16	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	82	298	20	190	613	466	340	132	85	120	181	160
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	89	324	22	207	666	507	370	143	92	130	197	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	324	22	207	666	507	370	143	92	130	197	174
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	89	340	23	207	700	532	370	143	92	130	197	174
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	1.87	0.13	1.00	1.14	0.86	0.62	0.23	0.15	0.27	0.39	0.34
Final Sat.:	1800	3561	239	1800	2159	1641	1122	436	280	488	735	650
Capacity Analysis Module:												
Vol/Sat:	0.05	0.10	0.10	0.11	0.32	0.32	0.33	0.33	0.33	0.27	0.27	0.27
Crit Moves:	****				****			****				
Green/Cycle:	0.12	0.24	0.24	0.24	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Volume/Cap:	0.42	0.39	0.39	0.47	0.88	0.88	0.88	0.88	0.88	0.72	0.72	0.72
Delay/Veh:	36.2	27.2	27.2	28.4	32.0	32.0	37.6	37.6	37.6	26.3	26.3	26.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	36.2	27.2	27.2	28.4	32.0	32.0	37.6	37.6	37.6	26.3	26.3	26.3
LOS by Move:	D	C	C	C	C	C	D	D	D	C	C	C
HCM2kAvgQ:	3	4	4	5	19	19	19	19	19	13	13	13

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.257
Loss Time (sec): 12 Average Delay (sec/veh): 112.6
Optimal Cycle: OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	58	25	1	78	6	449	251	941	20	5	2460	146
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	25	1	78	6	449	251	941	20	5	2460	146
Added Vol:	0	0	0	3	0	0	0	45	0	0	132	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	58	25	1	81	6	449	251	986	20	5	2592	154
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	62	27	1	86	6	478	267	1050	21	5	2760	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	62	27	1	86	6	478	267	1050	21	5	2760	164
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	62	27	1	86	6	478	275	1103	22	5	2898	172
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	1.00	2.00	1.96	0.04	1.00	1.89	0.11
Final Sat.:	1800	1827	73	1800	1900	1900	3400	3724	76	1800	3587	213
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.01	0.05	0.00	0.25	0.08	0.30	0.30	0.00	0.81	0.81
Crit Moves:						****	****				****	
Green/Cycle:	0.20	0.20	0.20	0.20	0.20	0.20	0.08	0.56	0.56	0.15	0.63	0.63
Volume/Cap:	0.17	0.07	0.07	0.24	0.02	1.28	1.05	0.52	0.52	0.02	1.28	1.28
Delay/Veh:	44.4	42.9	42.9	45.6	42.1	195.4	130.2	12.4	12.4	47.6	139	139.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	42.9	42.9	45.6	42.1	195.4	130.2	12.4	12.4	47.6	139	139.0
LOS by Move:	D	D	D	D	D	F	F	B	B	D	F	F
HCM2kAvgQ:	2	1	1	3	0	34	10	9	9	0	101	101

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.985
Loss Time (sec): 12 Average Delay (sec/veh): 40.6
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	10	0	10	10	10	0	0	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	98	0	329	168	779	0	0	1956	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	98	0	329	168	779	0	0	1956	130
Added Vol:	0	0	0	3	0	0	0	48	0	0	140	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	101	0	329	168	827	0	0	2096	138
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	106	0	346	177	871	0	0	2206	145
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	106	0	346	177	871	0	0	2206	145
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	106	0	346	177	871	0	0	2206	145
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1900	0	1900	1900	3800	0	0	3565	235
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.18	0.09	0.23	0.00	0.00	0.62	0.62
Crit Moves:						****	****				****	
Green/Cycle:	0.00	0.00	0.00	0.19	0.00	0.19	0.09	0.72	0.00	0.00	0.63	0.63
Volume/Cap:	0.00	0.00	0.00	0.30	0.00	0.99	0.99	0.32	0.00	0.00	0.99	0.99
Delay/Veh:	0.0	0.0	0.0	46.2	0.0	96.6	121.4	6.6	0.0	0.0	38.6	38.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	46.2	0.0	96.6	121.4	6.6	0.0	0.0	38.6	38.6
LOS by Move:	A	A	A	D	A	F	F	A	A	A	D	D
HCM2kAvgQ:	0	0	0	4	0	19	11	6	0	0	52	52

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D[34.7]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	1!	0	0		1	0	1	0	0		0	0	1	1	0	
Volume Module:																								
Base Vol:	0	0	0	0	0	0	0	877	0	0	2086	0												
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Initial Bse:	0	0	0	0	0	0	0	877	0	0	2086	0												
Added Vol:	0	0	0	3	0	101	34	16	0	0	47	1												
PasserByVol:	0	0	0	1	0	-27	-9	0	0	0	27	0												
Initial Fut:	0	0	0	4	0	74	25	893	0	0	2160	1												
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92												
PHF Volume:	0	0	0	4	0	80	27	971	0	0	2348	1												
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0												
FinalVolume:	0	0	0	4	0	80	27	971	0	0	2348	1												
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx	3373	3373	1174	2349	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Potent Cap.:	xxxx	xxxx	xxxxx	9	8	236	212	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Move Cap.:	xxxx	xxxx	xxxxx	8	7	236	212	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Total Cap:	85	35	xxxxx	58	53	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Volume/Cap:	xxxx	xxxx	xxxx	0.07	0.00	0.34	0.13	xxxx	xxxx	xxxx	xxxx	xxxx												
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	24.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	*	*	*	*	*	*	C	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	204	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	1.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	34.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	*	*	*	D	*	*	*	*	*	*	*												
ApproachDel:	xxxxxx				34.7		xxxxxx				xxxxxx													
ApproachLOS:	*				D		*				*													

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D[32.0]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	1!	0	0		1	0	1	0	0		0	0	1	1	0	
Volume Module:																								
Base Vol:	0	0	0	0	0	0	0	877	0	0	2086	0												
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Initial Bse:	0	0	0	0	0	0	0	877	0	0	2086	0												
Added Vol:	0	0	0	5	0	47	16	3	0	0	1	2												
PasserByVol:	0	0	0	-1	0	27	9	1	0	0	0	0												
Initial Fut:	0	0	0	4	0	74	25	881	0	0	2087	2												
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92												
PHF Volume:	0	0	0	4	0	80	27	958	0	0	2268	2												
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0												
FinalVolume:	0	0	0	4	0	80	27	958	0	0	2268	2												
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx	3282	3282	1135	2271	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Potent Cap.:	xxxx	xxxx	xxxxx	10	9	248	228	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Move Cap.:	xxxx	xxxx	xxxxx	9	8	248	228	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Total Cap:	92	40	xxxxx	64	58	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Volume/Cap:	xxxx	xxxx	xxxx	0.07	0.00	0.32	0.12	xxxx	xxxx	xxxx	xxxx	xxxx												
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	22.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	*	*	*	*	*	*	C	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	216	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	1.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	32.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	*	*	*	D	*	*	*	*	*	*	*												
ApproachDel:	xxxxxx				32.0		xxxxxx				xxxxxx													
ApproachLOS:	*				D		*				*													

Note: Queue reported is the number of cars per lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1469	691	1212	1068	0	0	0	0	1310	10	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	13	12	12	12	12	12	16	16	16
Total Lost time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Lane Util. Factor		*1.00	*1.00	*1.00	*1.00					*1.00	*1.00	*1.00
Frpb, ped/bikes		1.00	0.98	1.00	1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Frt		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Flt Protected		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (prot)		7600	4218	3927	3800					2153	2153	2153
Flt Permitted		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Satd. Flow (perm)		7600	4218	3927	3800					2153	2153	2153
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1563	735	1289	1136	0	0	0	0	1394	11	154
RTOR Reduction (vph)	0	0	568	0	0	0	0	0	0	0	1	50
Lane Group Flow (vph)	0	1563	167	1289	1136	0	0	0	0	711	708	89
Confl. Peds. (#/hr)			5			5						
Turn Type		NA	Perm	Prot	NA					Split	NA	Perm
Protected Phases		2		1	6					4	4	
Permitted Phases			2									4
Actuated Green, G (s)		29.5	29.5	43.0	76.5					43.0	43.0	43.0
Effective Green, g (s)		29.5	29.5	43.0	76.5					43.0	43.0	43.0
Actuated g/C Ratio		0.23	0.23	0.33	0.59					0.33	0.33	0.33
Clearance Time (s)		5.5	5.5	4.0	5.5					5.0	5.0	5.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1724	957	1298	2236					712	712	712
v/s Ratio Prot		c0.21		c0.33	0.30					c0.33	0.33	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.91	0.17	0.99	0.51					1.00	0.99	0.12
Uniform Delay, d1		48.9	40.4	43.4	15.7					43.5	43.4	30.4
Progression Factor		1.00	1.00	0.77	0.60					1.00	1.00	1.00
Incremental Delay, d2		8.4	0.4	21.6	0.7					33.1	32.2	0.0
Delay (s)		57.3	40.8	55.0	10.1					76.6	75.6	30.4
Level of Service		E	D	E	B					E	E	C
Approach Delay (s)		52.1			34.0			0.0			72.0	
Approach LOS		D			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	50.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	156.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	2632	0	0	1841	989	439	2	679	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Lane Util. Factor	*0.95	*1.00			*1.00	*1.00	0.95	*1.00	*0.95			
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Flt Protected	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (prot)	1805	5700			7600	1862	1805	1900	3610			
Flt Permitted	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Satd. Flow (perm)	1805	5700			7600	1862	1805	1900	3610			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	110%	100%	100%	110%	100%	100%	100%	113%	100%	100%	100%
Adj. Flow (vph)	153	2985	0	0	2088	1020	453	2	791	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	365	0	0	42	0	0	0
Lane Group Flow (vph)	153	2985	0	0	2088	655	226	229	749	0	0	0
Confl. Peds. (#/hr)			5			5						
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	14.3	88.5			70.2	70.2	31.0	31.0	31.0			
Effective Green, g (s)	14.3	88.5			70.2	70.2	31.0	31.0	31.0			
Actuated g/C Ratio	0.11	0.68			0.54	0.54	0.24	0.24	0.24			
Clearance Time (s)	4.0	5.5			5.5	5.5	5.0	5.0	5.0			
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lane Grp Cap (vph)	198	3880			4104	1005	430	453	860			
v/s Ratio Prot	0.08	c0.52			0.27							
v/s Ratio Perm						0.35	0.13	0.12	c0.21			
v/c Ratio	0.77	0.77			0.51	0.65	0.53	0.51	0.87			
Uniform Delay, d1	56.3	13.9			19.0	21.2	43.1	42.9	47.6			
Progression Factor	0.74	2.21			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	7.1	0.7			0.5	3.3	0.5	0.3	9.3			
Delay (s)	48.7	31.3			19.4	24.5	43.6	43.2	56.9			
Level of Service	D	C			B	C	D	D	E			
Approach Delay (s)		32.2			21.1			52.0			0.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	156.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.222
Loss Time (sec): 16 Average Delay (sec/veh): 98.7
Optimal Cycle: OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	203	470	528	451	471	13	63	2251	354	375	1340	295
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	470	528	451	471	13	63	2251	354	375	1340	295
Added Vol:	0	0	26	26	0	0	0	96	0	15	56	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	203	470	554	477	471	13	63	2347	354	390	1396	310
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	216	500	589	507	501	14	67	2497	377	415	1485	330
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	216	500	589	507	501	14	67	2497	377	415	1485	330
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	222	525	589	523	526	14	69	2746	377	427	1634	330
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3400	3800	1900	3400	3800	1900	3400	5700	1900	3400	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.07	0.14	0.31	0.15	0.14	0.01	0.02	0.48	0.20	0.13	0.29	0.17
Crit Moves:			****	****				****		****		
Green/Cycle:	0.14	0.25	0.25	0.13	0.24	0.24	0.11	0.39	0.39	0.10	0.39	0.39
Volume/Cap:	0.48	0.54	1.22	1.22	0.57	0.03	0.19	1.22	0.50	1.22	0.73	0.44
Delay/Veh:	55.5	44.2	165.8	176.1	45.6	37.5	54.3	140	29.2	181.2	32.6	28.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	55.5	44.2	165.8	176.1	45.6	37.5	54.3	140	29.2	181.2	32.6	28.2
LOS by Move:	E	D	F	F	D	D	D	F	C	F	C	C
HCM2kAvgQ:	5	9	39	21	9	0	1	58	10	17	18	8

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Orange Street / Pioneer Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	1.011
Loss Time (sec):	12	Average Delay (sec/veh):	53.7
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	1	1 0	1 0	1	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	85	890	90	350	790	170	370	232	83	56	103	176
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	85	890	90	350	790	170	370	232	83	56	103	176
Added Vol:	0	26	0	0	15	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	85	916	90	350	805	170	370	232	83	56	103	176
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	90	966	95	369	849	179	390	245	88	59	109	186
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	90	966	95	369	849	179	390	245	88	59	109	186
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.05	1.05	1.00	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	90	1015	100	369	892	188	390	245	88	59	109	186
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	1.82	0.18	1.00	1.65	0.35	0.55	0.33	0.12	0.17	0.30	0.53
Final Sat.:	1800	3460	340	1800	3137	663	996	625	224	315	579	989
Capacity Analysis Module:												
Vol/Sat:	0.05	0.29	0.29	0.21	0.28	0.28	0.39	0.39	0.39	0.19	0.19	0.19
Crit Moves:		****		****				****				
Green/Cycle:	0.13	0.29	0.29	0.20	0.36	0.36	0.39	0.39	0.39	0.39	0.39	0.39
Volume/Cap:	0.39	1.01	1.01	1.01	0.78	0.78	1.01	1.01	1.01	0.48	0.48	0.48
Delay/Veh:	41.1	65.5	65.5	89.9	31.1	31.1	67.2	67.2	67.2	23.6	23.6	23.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.1	65.5	65.5	89.9	31.1	31.1	67.2	67.2	67.2	23.6	23.6	23.6
LOS by Move:	D	E	E	F	C	C	E	E	E	C	C	C
HCM2kAvgQ:	3	24	24	18	16	16	31	31	31	8	8	8

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 1.128
Loss Time (sec): 12 Average Delay (sec/veh): 81.0
Optimal Cycle: OPTIMIZED Level Of Service: F

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	1	2 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	24	16	7	165	15	318	418	2581	59	7	1523	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	16	7	165	15	318	418	2581	59	7	1523	138
Added Vol:	0	0	0	9	0	0	0	149	0	0	87	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	16	7	174	15	318	418	2730	59	7	1610	143
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	26	17	8	189	16	346	454	2967	64	8	1750	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	17	8	189	16	346	454	2967	64	8	1750	155
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.05	1.00	1.05	1.05
FinalVolume:	26	17	8	189	16	346	468	3116	67	8	1838	163
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.70	0.30	1.00	1.00	1.00	2.00	1.96	0.04	1.00	1.84	0.16
Final Sat.:	1800	1322	578	1800	1900	1900	3400	3720	80	1800	3490	310
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.11	0.01	0.18	0.14	0.84	0.84	0.00	0.53	0.53
Crit Moves:						****		****		****		
Green/Cycle:	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.68	0.68	0.08	0.60	0.60
Volume/Cap:	0.10	0.09	0.09	0.71	0.06	1.23	0.87	1.23	1.23	0.05	0.87	0.87
Delay/Veh:	48.6	48.4	48.4	67.5	48.0	184.9	71.3	113	112.6	56.4	17.4	17.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.6	48.4	48.4	67.5	48.0	184.9	71.3	113	112.6	56.4	17.4	17.4
LOS by Move:	D	D	D	E	D	F	E	F	F	E	B	B
HCM2kAvgQ:	1	1	1	9	1	24	13	99	99	0	29	29

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 Weaver Street / Greenspot Road

Cycle (sec): 95 Critical Vol./Cap.(X): 0.908
Loss Time (sec): 12 Average Delay (sec/veh): 19.7
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		153	0	155		252	2261	0		0	1272	97	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		153	0	155		252	2261	0		0	1272	97	
Added Vol:	0	0	0		9	0	0		0	158	0		0	92	5	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		162	0	155		252	2419	0		0	1364	102	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95	
PHF Volume:	0	0	0		171	0	163		265	2546	0		0	1436	107	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		171	0	163		265	2546	0		0	1436	107	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		171	0	163		265	2674	0		0	1508	113	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.86	0.14	
Final Sat.:	0	0	0		1900	0	1900		1900	3800	0		0	3536	264	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.09	0.00	0.09		0.14	0.70	0.00		0.00	0.43	0.43	
Crit Moves:					****					****			****			
Green/Cycle:	0.00	0.00	0.00		0.11	0.00	0.11		0.19	0.77	0.00		0.00	0.58	0.58	
Volume/Cap:	0.00	0.00	0.00		0.85	0.00	0.82		0.74	0.92	0.00		0.00	0.74	0.74	
Delay/Veh:	0.0	0.0	0.0		69.8	0.0	63.8		44.0	13.7	0.0		0.0	16.0	16.0	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		69.8	0.0	63.8		44.0	13.7	0.0		0.0	16.0	16.0	
LOS by Move:	A	A	A		E	A	E		D	B	A		A	B	B	
HCM2kAvgQ:	0	0	0		8	0	7		9	35	0		0	18	18	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: C[23.2]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	1!	0	0		1	0	1	0	0		0	0	1	1	0	
Volume Module:																								
Base Vol:	0	0	0	0	0	0	0	2414	0	0	1369	0												
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Initial Bse:	0	0	0	0	0	0	0	2414	0	0	1369	0												
Added Vol:	0	0	0	2	0	66	114	53	0	0	31	4												
PasserByVol:	0	0	0	0	0	-18	-31	31	0	0	18	0												
Initial Fut:	0	0	0	2	0	48	83	2498	0	0	1418	4												
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92												
PHF Volume:	0	0	0	2	0	52	90	2715	0	0	1541	4												
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0												
FinalVolume:	0	0	0	2	0	52	90	2715	0	0	1541	4												
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx	4439	4439	773	1546	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Potent Cap.:	xxxx	xxxx	xxxxx	2	1	402	435	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Move Cap.:	xxxx	xxxx	xxxxx	1	1	402	435	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Total Cap:	16	20	xxxxx	25	23	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Volume/Cap:	xxxx	xxxx	xxxx	0.09	0.00	0.13	0.21	xxxx	xxxx	xxxx	xxxx	xxxx												
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	15.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	*	*	*	*	*	*	C	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	252	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	23.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	*	*	*	C	*	*	*	*	*	*	*												
ApproachDel:	xxxxxx				23.2		xxxxxx				xxxxxx													
ApproachLOS:	*				C		*				*													

Note: Queue reported is the number of cars per lane.

Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #8 Driveway 2 / Greenspot Road

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: D[25.5]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Stop Sign						Stop Sign						Uncontrolled						Uncontrolled					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	0	0		0	0	1!	0	0		1	0	1	0	0		0	0	1	1	0	
Volume Module:																								
Base Vol:	0	0	0	0	0	0	0	2414	0	0	1369	0												
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
Initial Bse:	0	0	0	0	0	0	0	2414	0	0	1369	0												
Added Vol:	0	0	0	3	0	31	53	2	0	0	4	5												
PasserByVol:	0	0	0	0	0	18	31	0	0	0	0	0												
Initial Fut:	0	0	0	3	0	49	84	2416	0	0	1373	5												
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92												
PHF Volume:	0	0	0	3	0	53	91	2626	0	0	1492	5												
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0												
FinalVolume:	0	0	0	3	0	53	91	2626	0	0	1492	5												
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx	4304	4304	749	1498	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Potent Cap.:	xxxx	xxxx	xxxxx	2	2	415	454	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Move Cap.:	xxxx	xxxx	xxxxx	2	1	415	454	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Total Cap:	18	22	xxxxx	28	25	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Volume/Cap:	xxxx	xxxx	xxxx	0.12	0.00	0.13	0.20	xxxx	xxxx	xxxx	xxxx	xxxx												
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	14.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	*	*	*	*	*	*	B	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	231	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	25.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	*	*	*	D	*	*	*	*	*	*	*												
ApproachDel:	xxxxxx				25.5		xxxxxx				xxxxxx													
ApproachLOS:	*				D		*				*													

Note: Queue reported is the number of cars per lane.

APPENDIX 7.4:

HORIZON YEAR (2035) WITH PROJECT CONDITIONS WARRANT ANALYSIS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

___	___	___	___		TRAFFIC CONDITIONS		**2035 WP**
DIST	CO	RTE	PM	CALC	DL	DATE	08/02/14
Jurisdiction:	**City of Highlands**			CHK	DL	DATE	08/02/14
Major Street:	**Greenspot Road**				Critical Approach Speed (Major)		55 mph
Minor Street:	**Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **46,500** vpd Minor Street Future ADT = **659** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **46,500**	*1* **659**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **46,500**	*1* **659**	14,400	10,080 *	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 39% / **B** 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS		2035 WP
				CALC	DL	DATE	08/02/14
Jurisdiction:	City of Highlands			CHK	DL	DATE	08/02/14
Major Street:	Greenspot Road				Critical Approach Speed (Major)		55 mph
Minor Street:	Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **45,314** vpd

Minor Street Future ADT = **660** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …… [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **45,314**	*1* **660**	9,600	6,720 *	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **45,314**	*1* **660**	14,400	10,080 *	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 39% / **B** 78%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 7.5:

HORIZON YEAR (2035) WITHOUT PROJECT CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	579	617	1751	1460	324	320	172
v/c Ratio	0.54	0.59	0.94	0.53	1.04	0.97	0.44
Control Delay	45.3	8.0	21.5	3.3	107.3	89.1	25.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	45.3	8.0	21.5	3.3	107.3	89.1	25.7
Queue Length 50th (ft)	97	19	634	77	~261	226	58
Queue Length 95th (ft)	114	65	#912	86	#446	#405	125
Internal Link Dist (ft)	1421			431		1327	
Turn Bay Length (ft)		285			425		200
Base Capacity (vph)	1554	1264	1872	2780	311	329	393
Starvation Cap Reductn	0	0	0	223	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.49	0.94	0.57	1.04	0.97	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.

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	66	1221	2974	860	227	229	918
v/c Ratio	0.48	0.33	0.70	0.65	0.50	0.48	0.90
Control Delay	35.2	12.6	20.0	7.3	39.4	38.7	45.1
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	35.2	12.6	20.1	7.3	39.4	38.7	45.1
Queue Length 50th (ft)	36	299	389	88	142	136	273
Queue Length 95th (ft)	m49	m312	459	242	223	211	#363
Internal Link Dist (ft)		431	1498			1268	
Turn Bay Length (ft)				200			400
Base Capacity (vph)	262	3732	4239	1317	475	500	1070
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	320	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.33	0.76	0.65	0.48	0.46	0.86

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	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1535	735	1262	1120	697	695	139
v/c Ratio	0.88	0.48	0.98	0.50	0.98	0.98	0.18
Control Delay	55.6	3.9	53.4	11.1	72.2	71.5	15.2
Queue Delay	0.0	0.0	0.4	0.1	44.6	45.1	0.0
Total Delay	55.6	3.9	53.8	11.1	116.8	116.6	15.2
Queue Length 50th (ft)	315	0	535	92	580	577	37
Queue Length 95th (ft)	355	47	#638	132	#835	#834	85
Internal Link Dist (ft)	1421			431		1327	
Turn Bay Length (ft)		285			425		200
Base Capacity (vph)	1738	1531	1298	2236	712	712	763
Starvation Cap Reductn	0	0	4	210	0	0	0
Spillback Cap Reductn	0	0	0	0	381	381	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.48	0.98	0.55	2.11	2.10	0.18

Intersection Summary

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

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	153	2925	2041	1004	226	229	740
v/c Ratio	0.77	0.74	0.49	0.73	0.55	0.53	0.85
Control Delay	55.1	31.9	19.3	8.1	48.9	48.0	54.2
Queue Delay	0.0	47.2	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	79.2	19.3	8.1	48.9	48.0	54.2
Queue Length 50th (ft)	127	756	265	103	175	168	291
Queue Length 95th (ft)	m146	m614	312	294	258	247	360
Internal Link Dist (ft)		431	1498			1268	
Turn Bay Length (ft)				200			400
Base Capacity (vph)	236	3934	4175	1380	459	483	959
Starvation Cap Reductn	0	1814	0	0	0	0	0
Spillback Cap Reductn	0	0	314	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	1.38	0.53	0.73	0.49	0.47	0.77

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 7.6:

HORIZON YEAR (2035) WITH PROJECT CONDITIONS FREEWAY OFF-RAMP QUEUES

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Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	589	617	1776	1486	329	324	172
v/c Ratio	0.54	0.59	0.95	0.53	1.06	0.98	0.44
Control Delay	45.3	8.0	22.9	3.2	111.6	92.0	25.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	45.3	8.0	22.9	3.3	111.6	92.0	25.7
Queue Length 50th (ft)	99	20	651	77	~268	229	58
Queue Length 95th (ft)	116	66	#934	87	#455	#413	125
Internal Link Dist (ft)	1421			431		1327	
Turn Bay Length (ft)		285			425		200
Base Capacity (vph)	1554	1263	1869	2780	311	329	393
Starvation Cap Reductn	0	0	0	221	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.49	0.95	0.58	1.06	0.98	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.

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	66	1240	3030	885	227	229	933
v/c Ratio	0.48	0.33	0.72	0.67	0.50	0.48	0.91
Control Delay	35.1	12.9	20.5	7.9	39.1	38.4	46.6
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	35.1	12.9	20.6	7.9	39.1	38.4	46.6
Queue Length 50th (ft)	36	304	402	101	142	136	283
Queue Length 95th (ft)	m49	m315	473	265	223	211	#392
Internal Link Dist (ft)		431	1498			1268	
Turn Bay Length (ft)				200			400
Base Capacity (vph)	262	3717	4220	1317	475	500	1065
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	320	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.33	0.78	0.67	0.48	0.46	0.88

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	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1563	735	1289	1136	711	709	139
v/c Ratio	0.91	0.48	0.99	0.51	1.00	1.00	0.18
Control Delay	57.5	3.9	55.9	10.2	76.9	76.1	15.3
Queue Delay	0.0	0.0	0.7	0.0	38.8	39.5	0.0
Total Delay	57.5	3.9	56.6	10.3	115.8	115.6	15.3
Queue Length 50th (ft)	322	0	387	95	597	594	37
Queue Length 95th (ft)	363	47	#662	132	#861	#858	86
Internal Link Dist (ft)	1421			431		1327	
Turn Bay Length (ft)		285			425		200
Base Capacity (vph)	1724	1525	1298	2236	712	712	762
Starvation Cap Reductn	0	0	4	119	0	0	0
Spillback Cap Reductn	0	0	0	0	321	321	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.48	1.00	0.54	1.82	1.81	0.18

Intersection Summary

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

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	153	2985	2088	1020	226	229	791
v/c Ratio	0.77	0.77	0.51	0.75	0.53	0.51	0.88
Control Delay	53.0	32.6	20.2	8.8	47.5	46.7	55.8
Queue Delay	0.0	47.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	79.6	20.2	8.8	47.5	46.7	55.8
Queue Length 50th (ft)	127	689	286	127	171	164	310
Queue Length 95th (ft)	m145	m624	321	318	258	247	391
Internal Link Dist (ft)		431	1498			1268	
Turn Bay Length (ft)				200			400
Base Capacity (vph)	236	3883	4101	1369	459	483	960
Starvation Cap Reductn	0	1555	0	0	0	0	0
Spillback Cap Reductn	0	0	184	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	1.28	0.53	0.75	0.49	0.47	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

APPENDIX 7.7:

HORIZON YEAR (2035) WITHOUT PROJECT CONDITIONS LOS, WITH IMPROVEMENTS

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.800
Loss Time (sec):	16	Average Delay (sec/veh):	33.0
Optimal Cycle: OPTIMIZED		Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	150	507	432	134	355	10	18	751	165	462	2477	443
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	507	432	134	355	10	18	751	165	462	2477	443
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	160	539	460	143	378	11	19	799	176	491	2635	471
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	539	460	143	378	11	19	799	176	491	2635	471
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	164	566	460	147	397	11	20	879	176	506	2899	471
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3800	3800	1900	3800	3800	1900	3800	5700	1900	3800	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.04	0.15	0.24	0.04	0.10	0.01	0.01	0.15	0.09	0.13	0.51	0.25
Crit Moves:		****		****			****				****	
Green/Cycle:	0.10	0.16	0.46	0.08	0.14	0.14	0.08	0.34	0.34	0.29	0.56	0.56
Volume/Cap:	0.42	0.91	0.53	0.50	0.75	0.04	0.07	0.45	0.27	0.45	0.91	0.44
Delay/Veh:	58.1	73.0	23.0	63.7	63.4	48.8	56.1	32.5	30.6	38.2	22.1	12.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.1	73.0	23.0	63.7	63.4	48.8	56.1	32.5	30.6	38.2	22.1	12.5
LOS by Move:	E	E	C	E	E	D	E	C	C	D	C	B
HCM2kAvgQ:	3	14	11	3	9	0	0	8	4	8	34	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.897
Loss Time (sec): 12 Average Delay (sec/veh): 19.4
Optimal Cycle: OPTIMIZED Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	2	2 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	58	25	1	78	6	449	251	941	20	5	2460	146
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	25	1	78	6	449	251	941	20	5	2460	146
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	62	27	1	83	6	478	267	1002	21	5	2620	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	62	27	1	83	6	478	267	1002	21	5	2620	155
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	62	27	1	83	6	478	267	1002	21	5	2620	155
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1800	1827	73	1800	1900	3800	3400	3800	1900	1800	3800	1900
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.01	0.05	0.00	0.13	0.08	0.26	0.01	0.00	0.69	0.08
Crit Moves:				****			****				****	
Green/Cycle:	0.08	0.08	0.08	0.08	0.08	0.16	0.09	0.64	0.64	0.19	0.75	0.75
Volume/Cap:	0.45	0.19	0.19	0.60	0.04	0.78	0.92	0.41	0.02	0.02	0.92	0.11
Delay/Veh:	67.4	59.1	59.1	75.8	56.1	61.5	95.7	5.7	3.9	43.1	6.9	0.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	67.4	59.1	59.1	75.8	56.1	61.5	95.7	5.7	3.9	43.1	6.9	0.3
LOS by Move:	E	E	E	E	E	E	F	A	A	D	A	A
HCM2kAvgQ:	3	1	1	4	0	11	9	5	0	0	11	0

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec):	105	Critical Vol./Cap.(X):	0.983
Loss Time (sec):	16	Average Delay (sec/veh):	44.4
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	203	470	528	451	471	13	63	2251	354	375	1340	295
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	470	528	451	471	13	63	2251	354	375	1340	295
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	214	495	556	475	496	14	66	2369	373	395	1411	311
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	214	495	556	475	496	14	66	2369	373	395	1411	311
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	214	495	556	475	496	14	66	2369	373	395	1411	311
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3800	3800	1900	3800	3800	1900	3800	5700	1900	3800	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.29	0.12	0.13	0.01	0.02	0.42	0.20	0.10	0.25	0.16
Crit Moves:			****	****				****		****		
Green/Cycle:	0.13	0.19	0.30	0.13	0.18	0.18	0.15	0.42	0.42	0.11	0.38	0.38
Volume/Cap:	0.42	0.68	0.98	0.98	0.71	0.04	0.12	0.98	0.46	0.98	0.65	0.43
Delay/Veh:	44.2	44.4	70.0	82.7	46.1	35.4	39.3	40.7	20.8	87.7	25.9	23.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.2	44.4	70.0	82.7	46.1	35.4	39.3	40.7	20.8	87.7	25.9	23.8
LOS by Move:	D	D	E	F	D	D	D	D	C	F	C	C
HCM2kAvgQ:	3	8	24	12	9	0	1	32	7	10	12	6

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) Without Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.928
Loss Time (sec): 12 Average Delay (sec/veh): 24.8
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	2	2 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	24	16	7	165	15	318	418	2581	59	7	1523	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	16	7	165	15	318	418	2581	59	7	1523	138
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	26	17	8	179	16	346	454	2805	64	8	1655	150
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	17	8	179	16	346	454	2805	64	8	1655	150
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	17	8	179	16	346	454	2805	64	8	1655	150
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.70	0.30	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1800	1322	578	1800	1900	3800	3400	3800	1900	1800	3800	1900
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.10	0.01	0.09	0.13	0.74	0.03	0.00	0.44	0.08
Crit Moves:				****				****		****		
Green/Cycle:	0.10	0.10	0.10	0.10	0.10	0.29	0.19	0.73	0.73	0.08	0.62	0.62
Volume/Cap:	0.15	0.13	0.13	1.01	0.09	0.32	0.70	1.01	0.05	0.05	0.70	0.13
Delay/Veh:	55.3	55.0	55.0	128.3	54.2	36.7	55.6	21.0	0.6	56.4	10.6	5.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	55.3	55.0	55.0	128.3	54.2	36.7	55.6	21.0	0.6	56.4	10.6	5.6
LOS by Move:	E	D	D	F	D	D	E	C	A	E	B	A
HCM2kAvgQ:	1	1	1	12	1	5	10	65	0	0	15	1

Note: Queue reported is the number of cars per lane.

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APPENDIX 7.8:

HORIZON YEAR (2035) WITH PROJECT CONDITIONS LOS, WITH IMPROVEMENTS

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.819
Loss Time (sec): 16 Average Delay (sec/veh): 33.8
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	150	507	432	134	355	10	18	751	165	462	2477	443
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	150	507	432	134	355	10	18	751	165	462	2477	443
Added Vol:	0	0	8	8	0	0	0	29	0	39	70	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	150	507	440	142	355	10	18	780	165	501	2547	466
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	160	539	468	151	378	11	19	830	176	533	2710	496
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	160	539	468	151	378	11	19	830	176	533	2710	496
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.03	1.05	1.00	1.03	1.05	1.00	1.03	1.10	1.00	1.03	1.10	1.00
FinalVolume:	164	566	468	156	397	11	20	913	176	549	2981	496
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3800	3800	1900	3800	3800	1900	3800	5700	1900	3800	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.04	0.15	0.25	0.04	0.10	0.01	0.01	0.16	0.09	0.14	0.52	0.26
Crit Moves:		****		****			****				****	
Green/Cycle:	0.10	0.16	0.46	0.08	0.14	0.14	0.08	0.34	0.34	0.30	0.56	0.56
Volume/Cap:	0.43	0.93	0.53	0.53	0.76	0.04	0.07	0.48	0.27	0.48	0.93	0.46
Delay/Veh:	58.4	76.5	22.6	64.5	64.3	49.0	56.1	33.4	31.2	37.7	23.3	12.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.4	76.5	22.6	64.5	64.3	49.0	56.1	33.4	31.2	37.7	23.3	12.5
LOS by Move:	E	E	C	E	E	D	E	C	C	D	C	B
HCM2kAvgQ:	3	15	11	4	9	0	0	9	4	8	37	8

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.940
Loss Time (sec): 12 Average Delay (sec/veh): 21.9
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	2	2 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	58	25	1	78	6	449	251	941	20	5	2460	146
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	58	25	1	78	6	449	251	941	20	5	2460	146
Added Vol:	0	0	0	3	0	0	0	45	0	0	132	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	58	25	1	81	6	449	251	986	20	5	2592	154
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	62	27	1	86	6	478	267	1050	21	5	2760	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	62	27	1	86	6	478	267	1050	21	5	2760	164
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	62	27	1	86	6	478	267	1050	21	5	2760	164
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.96	0.04	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1800	1827	73	1800	1900	3800	3400	3800	1900	1800	3800	1900
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.01	0.05	0.00	0.13	0.08	0.28	0.01	0.00	0.73	0.09
Crit Moves:				****			****				****	
Green/Cycle:	0.08	0.08	0.08	0.08	0.08	0.16	0.08	0.65	0.65	0.18	0.75	0.75
Volume/Cap:	0.45	0.19	0.19	0.62	0.04	0.80	0.97	0.43	0.02	0.02	0.97	0.12
Delay/Veh:	67.4	59.1	59.1	77.5	56.1	63.2	106.4	5.4	3.6	43.8	11.1	0.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	67.4	59.1	59.1	77.5	56.1	63.2	106.4	5.4	3.6	43.8	11.1	0.2
LOS by Move:	E	E	E	E	E	E	F	A	A	D	B	A
HCM2kAvgQ:	3	1	1	5	0	11	9	5	0	0	12	0

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.731
Loss Time (sec):	12	Average Delay (sec/veh):	5.7
Optimal Cycle: OPTIMIZED		Level Of Service:	A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		0	0	0		0	877	0		0	2086	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		0	0	0		0	877	0		0	2086	0	
Added Vol:	0	0	0		3	0	101		34	16	0		0	47	1	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		3	0	101		34	893	0		0	2133	1	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	
PHF Volume:	0	0	0		3	0	110		37	971	0		0	2318	1	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		3	0	110		37	971	0		0	2318	1	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		3	0	110		37	1019	0		0	2434	1	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.99	0.01	
Final Sat.:	0	0	0		1800	0	1900		1800	3800	0		0	3798	2	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.00	0.00	0.06		0.02	0.27	0.00		0.00	0.64	0.64	
Crit Moves:					****				****					****		
Green/Cycle:	0.00	0.00	0.00		0.08	0.00	0.08		0.08	0.83	0.00		0.00	0.75	0.75	
Volume/Cap:	0.00	0.00	0.00		0.02	0.00	0.73		0.27	0.32	0.00		0.00	0.85	0.85	
Delay/Veh:	0.0	0.0	0.0		55.5	0.0	85.2		61.2	0.3	0.0		0.0	3.5	3.5	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		55.5	0.0	85.2		61.2	0.3	0.0		0.0	3.5	3.5	
LOS by Move:	A	A	A		E	A	F		E	A	A		A	A	A	
HCM2kAvgQ:	0	0	0		0	0	6		2	0	0		0	5	5	

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Boulder Avenue / Greenspot Road

Cycle (sec): 130 Critical Vol./Cap.(X): 0.995
Loss Time (sec): 16 Average Delay (sec/veh): 51.0
Optimal Cycle: OPTIMIZED Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	2 0	1	2 0	2 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	203	470	528	451	471	13	63	2251	354	375	1340	295
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	470	528	451	471	13	63	2251	354	375	1340	295
Added Vol:	0	0	26	26	0	0	0	96	0	15	56	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	203	470	554	477	471	13	63	2347	354	390	1396	310
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	214	495	583	502	496	14	66	2471	373	411	1469	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	214	495	583	502	496	14	66	2471	373	411	1469	326
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	214	495	583	502	496	14	66	2471	373	411	1469	326
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3800	3800	1900	3800	3800	1900	3800	5700	1900	3800	5700	1900
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.31	0.13	0.13	0.01	0.02	0.43	0.20	0.11	0.26	0.17
Crit Moves:			****	****				****		****		
Green/Cycle:	0.12	0.20	0.31	0.13	0.21	0.21	0.13	0.44	0.44	0.11	0.42	0.42
Volume/Cap:	0.46	0.65	0.99	0.99	0.62	0.03	0.14	0.99	0.45	0.99	0.62	0.41
Delay/Veh:	56.1	52.1	79.9	95.2	50.4	41.1	51.3	48.1	23.8	101.0	27.0	24.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	56.1	52.1	79.9	95.2	50.4	41.1	51.3	48.1	23.8	101.0	27.0	24.7
LOS by Move:	E	D	E	F	D	D	D	D	C	F	C	C
HCM2kAvgQ:	4	10	29	15	9	0	1	39	8	12	13	7

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Church Street / Greenspot Road

Cycle (sec): 140 Critical Vol./Cap.(X): 0.974
Loss Time (sec): 12 Average Delay (sec/veh): 31.9
Optimal Cycle: OPTIMIZED Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0 1	0	1 0	1 0	2	2 0	2 0	1	1 0	2 0	1
Volume Module:												
Base Vol:	24	16	7	165	15	318	418	2581	59	7	1523	138
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	24	16	7	165	15	318	418	2581	59	7	1523	138
Added Vol:	0	0	0	9	0	0	0	149	0	0	87	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	16	7	174	15	318	418	2730	59	7	1610	143
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	26	17	8	189	16	346	454	2967	64	8	1750	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	17	8	189	16	346	454	2967	64	8	1750	155
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	17	8	189	16	346	454	2967	64	8	1750	155
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	1.00	0.89	1.00	1.00	0.95	1.00	1.00
Lanes:	1.00	0.70	0.30	1.00	1.00	2.00	2.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1800	1322	578	1800	1900	3800	3400	3800	1900	1800	3800	1900
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.11	0.01	0.09	0.13	0.78	0.03	0.00	0.46	0.08
Crit Moves:				****				****		****		
Green/Cycle:	0.10	0.10	0.10	0.10	0.10	0.28	0.18	0.74	0.74	0.07	0.63	0.63
Volume/Cap:	0.14	0.13	0.13	1.05	0.09	0.32	0.73	1.05	0.05	0.06	0.73	0.13
Delay/Veh:	59.2	58.9	58.9	144.3	58.1	40.3	61.3	33.1	0.3	61.5	10.7	5.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	59.2	58.9	58.9	144.3	58.1	40.3	61.3	33.1	0.3	61.5	10.7	5.3
LOS by Move:	E	E	E	F	E	D	E	C	A	E	B	A
HCM2kAvgQ:	1	1	1	13	1	5	11	77	0	0	17	1

Note: Queue reported is the number of cars per lane.

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Mediterra at East Highlands TIA (JN 09245)
Horizon Year (2035) With Project Conditions - WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #7 Driveway 1 / Greenspot Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.818
Loss Time (sec):	12	Average Delay (sec/veh):	6.6
Optimal Cycle: OPTIMIZED		Level Of Service:	A

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Split Phase				Split Phase				Protected				Protected			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		10	0	10		10	10	0		0	10	10	
Y+R:	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	
Lanes:	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0	1	1	0
Volume Module:																				
Base Vol:	0	0	0		0	0	0		0	2414	0		0	1369	0	
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Initial Bse:	0	0	0		0	0	0		0	2414	0		0	1369	0	
Added Vol:	0	0	0		2	0	66		114	53	0		0	31	4	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	0	0		2	0	66		114	2467	0		0	1400	4	
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92		0.92	0.92	0.92	
PHF Volume:	0	0	0		2	0	72		124	2682	0		0	1522	4	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	0	0		2	0	72		124	2682	0		0	1522	4	
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.05	1.00		1.00	1.05	1.05	
FinalVolume:	0	0	0		2	0	72		124	2816	0		0	1598	5	
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900	
Adjustment:	0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00	
Lanes:	0.00	0.00	0.00		1.00	0.00	1.00		1.00	2.00	0.00		0.00	1.99	0.01	
Final Sat.:	0	0	0		1800	0	1900		1800	3800	0		0	3789	11	
Capacity Analysis Module:																
Vol/Sat:	0.00	0.00	0.00		0.00	0.00	0.04		0.07	0.74	0.00		0.00	0.42	0.42	
Crit Moves:					****					****			****			
Green/Cycle:	0.00	0.00	0.00		0.08	0.00	0.08		0.13	0.83	0.00		0.00	0.70	0.70	
Volume/Cap:	0.00	0.00	0.00		0.02	0.00	0.49		0.54	0.89	0.00		0.00	0.60	0.60	
Delay/Veh:	0.0	0.0	0.0		55.7	0.0	68.9		61.7	4.3	0.0		0.0	3.4	3.4	
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0		55.7	0.0	68.9		61.7	4.3	0.0		0.0	3.4	3.4	
LOS by Move:	A	A	A		E	A	E		E	A	A		A	A	A	
HCM2kAvgQ:	0	0	0		0	0	3		5	6	0		0	6	6	

Note: Queue reported is the number of cars per lane.

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APPENDIX 9b

URBAN CROSSROADS

41 Corporate Park | Suite 300 | Irvine, CA 92606 | (949) 660-1994
www.urbanXroads.com

July 9, 2015

Camille Bahri
Sunland Communities, LLC
10575 Oakdale Drive
Rancho Cucamonga, CA 91730

SUBJECT: MEDITERRA AT EAST HIGHLANDS TRIP GENERATION ASSESSMENT

Dear Mr. Camille Bahri:

The firm of Urban Crossroads, Inc. is pleased to submit this Trip Generation Assessment for the proposed Mediterra at East Highlands development ("Project"), which is located north of Greenspot Road in the City of Highland.

PURPOSE

The Mediterra at East Highlands Traffic Impact Analysis (referred to as "Traffic Study"), prepared by Urban Crossroads, Inc. (dated December 29, 2014) had assumed 277 single family detached residential units. It is not uncommon for similar projects to change for planning purposes or as the market conditions change. This Trip Generation Assessment analyzes, the Project with 206 single family residential units (including the existing estate lot) and 110 condominiums for a maximum total of 316 residential units instead of 277 single family residential units. The location of site access driveways remains unchanged from those already evaluated in the Traffic Study.

TRIP GENERATION ASSESSMENT

Consistent with the methodology applied in the Traffic Study, the trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) as presented in ITE's most current edition of Trip Generation (9th Edition, 2012). Trip generation rates used to estimate Project traffic are shown in Table 1, along with a comparison of the Project's trip generation based on the alternate plan to that evaluated in the approved Traffic Study are shown in Table 2. As shown in Table 2, the alternate plan, with 206 single family residential units and 110 condominiums, will result in a reduction of 4 trips in the AM peak hour, 14 trips in the PM peak hour, and a reduction of 37 daily trips when compared with the Project trips that were previously evaluated in the Traffic Study.

Based on the daily rates presented in the ITE Trip Generation Manual, trips generated by each single family detached residential is equivalent to trips generated by 1.6 condominiums. As such, the potential impact associated with the proposed change in land use and the number of dwelling units is anticipated

to be less than significant. If amendments to the Project are considered in the future, the above single family detached residential / condominium unit equivalency can be used to remain at or below the traffic impacts detailed in the referenced Traffic Study.

TABLE 1: PROJECT TRIP GENERATION RATES

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Single Family Detached Res.	DU	210	0.19	0.56	0.75	0.63	0.37	1.00	9.52
Res. Condo / Townhouse	TSF	230	0.07	0.37	0.44	0.35	0.17	0.52	5.81

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).
[2] DU = Dwelling Units

TABLE 2: PROJECT TRIP GENERATION SUMMARY

	Land Use[1]	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			
				Inbound	Outbound	Total	Inbound	Outbound	Total	Daily
Alternate Plan	SFDR	206	DU	39	116	154	130	76	206	1,961
	Condos	110	DU	8	41	49	39	19	57	639
Revised Trips (A)				47	156	203	168	95	263	2,600
Traffic Study (B)	*SFDR*	*277*	*DU*	*53*	*155*	*207*	*175*	*102*	*277*	*2,637*
DELTA (A-B)				**-6**	**1**	**-4**	**-6**	**-8**	**-14**	**-37**

[1] SFDR = Single Family Detached Residential
[2] DU = Dwelling Units

If you have any questions, please contact me directly at (949) 660-1994, extension 205.

Respectfully submitted,

URBAN CROSSROADS, INC.

Aric Evatt, PTP
Principal

Pranesh Tarikere, PE
Senior Engineer