Norco Valley Square Project

Draft Environmental Impact Report - Appendices A-M
State Clearinghouse No. 2020039023

prepared by

City of Norco
Planning Department
2870 Clark Avenue
Norco, California 92860
Contact: Steve King, Planning Director

prepared with the assistance of

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

September 2020

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Appendix A

Notice of Preparation and Public Scoping Comments

Notice of Preparation

To: CA State Clearinghouse,
Reviewing Agencies, Organizations
and Interested Parties
(Address)

From: City of Norco
2870 Clark Avenue
Norco, CA 92860
(Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

The City of Norco will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (☐ is ☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Steve King, Planning Director (sking@ci.norco.ca.us) at the address shown above. We will need the name for a contact person in your agency.

Project Title: Norco Valley Square Project

Project Applicant, if any: Frontier Communities, 2151 East Convention Center Way, Ste. 114, Ontario, California 91764

Date March 9, 2020

Signature

Title Planning Director, City of Norco

Telephone 951-270-5662

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Print From

Summary Form for Electronic Document Submittal

Form F

Lead agencies may include 15 hardcopies of this document when submitting electronic copies of Environmental Impact Reports, Negative Declarations, Mitigated Negative Declarations, or Notices of Preparation to the State Clearinghouse (SCH). The SCH also accepts other summaries, such as EIR Executive Summaries prepared pursuant to CEQA Guidelines Section 15123. Please include one copy of the Notice of Completion Form (NOC) with your submission and attach the summary to each electronic copy of the document.

SCH #: _____

Project Title: Norco Valley Square Project

Lead Agency: City of Norco

Contact Name: Steve King, Planning Director

Email: sking@ci.norco.ca.us Phone Number: 951-270-5662

Project Location: City of Norco (*City*) Riverside County (*County*)

Project Description (Proposed actions, location, and/or consequences).

The proposed project entails a mix of multi-family residential units, indoor/outdoor commercial food services with performance stage, and hotel development. The residential portion will be constructed on approximately 11.26 acres on the west portion of the site and includes 320 1-, 2-, and 3-bedroom units configured into 20 three story buildings resulting in a density of 29 dwelling units per acre. An approximately 6,000 SF single-story recreation center with offices, meeting rooms, fitness uses, and a pool and spa are planned near the site entry. There are 196 single car garages, 380 surface spaces, and 256 open spaces on the residential portion (total of 576 spaces for residential use). 64 overflow parking stalls will be shared with the commercial food services. The commercial food services and ancillary uses are located on approximately 3.60 acres on the northeast portion of the site and includes a 8,700 SF commercial food service building and other uses such as enhanced community gathering spaces. 50 parking spaces are reserved exclusively for the food area with another 64 parking spaces shared with the residential use. The hotel is located on approximately 3.56 acres in the southeast portion of the site and consists of 128-key, 4-story building with 133 parking spaces for hotel guests.

Identify the project's significant or potentially significant effects and briefly describe any proposed mitigation measures that would reduce or avoid that effect.

The project's Notice of Preparation is the note to Reviewing Agencies, Organizations and Interested Parties that a project-specific Environmental Impact Report is being prepared for the project. Potential environmental effects of project construction and operations include: aesthetics since the site is mostly vacant; air quality, energy use, and greenhouse gas emissions due to proposed construction and uses; biological and cultural resources due to ground disturbance during construction activities; noise and transportation impacts during proposed construction and uses; project impacts on population and housing, public services, recreational resources, and utilities and service systems; and project impacts to hydrology and water quality. As a result, all CEQA issue areas will be evaluated in the forthcoming EIR, which include the following:

Aesthetics, Light and Glare; Agriculture and Forestry; Air Quality; Biological Resources; Cultural Resources; Energy; Geology and Soils; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources ; Noise; Population and Housing; Public Services; Recreation; Transportation; Tribal Cultural Resources; Utilities and Service Systems; and Wildfire.

Should significant project impacts be identified during EIR analyses, mitigation measures will be developed and included in the EIR to reduce or avoid the significant impact.

If applicable, describe any of the project's areas of controversy known to the Lead Agency, including issues raised by agencies and the public.

No areas of controversy have been raised. A public scoping meeting will be held on Thursday, March 26, 2020 at 5:00 PM, located at Norco City Hall, 2870 Clark Ave, Norco, CA 92860. At this meeting, public agencies, organizations, and members of the public will be able to review the proposed project application materials and provide comments on the scope of the environmental review process.

Provide a list of the responsible or trustee agencies for the project.

Responsible State Agencies include the Santa Ana Regional Water Quality Control Board (Region 8), which regulates water quality in the region; the South Coast Air Quality Management District (SCAQMD), which regulates air quality in the region; and the Western Riverside County Regional Conservation Authority, which administers the Western Riverside County Multiple Species Habitat Conservation Plan. Responsible Federal Agencies may include U.S. Army Corps of Engineers, which oversees the concrete-lined channel adjacent to the project site (off site); the Federal Aviation Administration, which oversees building height clearance for project sites within the airspace of existing aviation facilities; and the Federal Emergency, which oversees the issuance of Conditional Letter of Map Amendment and Letter of Map Amendment to the Flood Insurance Rate Map for project sites located in flood zones. There are no trustee agencies for this project.

NOTICE OF PREPARATION

DATE: March 9, 2020

TO: Reviewing Agencies, Organizations, and Interested Parties

FROM: City of Norco

SUBJECT: Notice of Preparation of an Environmental Impact Report for the Norco Valley Square Project

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NOTICE IS HEREBY GIVEN that the City of Norco is the Lead Agency responsible for preparing an Environmental Impact Report (EIR) to evaluate the potential environmental impacts of the proposed Norco Valley Square project (project). The purpose of this Notice of Preparation (NOP) is to solicit input from those public agencies and interested members of the public as to the scope and content of the environmental information to be included in the EIR (Ref: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375). As specified by the CEQA Guidelines, the NOP will be circulated for a 30-day public review period.

The City welcomes input from agencies and the public during this period regarding the scope and content of information to be included and analyzed in the EIR. Agencies should comment on the elements of the environmental information that are relevant to their statutory responsibility in connection with the project.

REVIEW PERIOD: The public comment period is from March 9, 2020 to April 7, 2020. Please send all written responses, referencing the "Norco Valley Square EIR" and including any comments you may have by 4 p.m. on Tuesday, April 7, 2020 to:

Steve King, Planner Director
City of Norco Planning Department
2870 Clark Avenue
Norco, CA 92860
Email: sking@ci.norco.ca.us

Please include the name and email address of a contact person at your agency along with any submitted comments. Copies of the NOP are available for review online at www.norco.ca.us and at the following locations:

Norco City Hall, City Clerk's Office
2870 Clark Avenue
Norco, CA 92860

Norco Fire Station #47
3902 Hillside Avenue
Norco, CA 92860

Norco Community Library
3240 Hamner Avenue, Suite 101B
Norco, CA 92860

Norco Senior Center
2690 Clark Avenue
Norco, CA 92860

PUBLIC SCOPING MEETING

A public scoping meeting will be held on Thursday, March 26, 2020 at 5:00 PM, located at Norco City Hall, 2870 Clark Ave, Norco, CA 92860. At this meeting, public agencies, organizations, and members of the public will be able to review the proposed project application materials and provide comments on the scope of the environmental review process.

PROJECT LOCATION / DESCRIPTION: The Norco Valley Square project is located in southwestern Riverside County, within the southwestern portion of the City of Norco. The project site encompasses approximately 19.1 acres and is located at the southwest corner of Hamner Avenue and Third Street, within the City of Norco, California. The Assessor Parcel Numbers for the project site include 126-050-002, 126-050-004, and 129-380-010. The property address is 2350 Hamner Avenue, Norco, California 92860. The project site has a General Plan land use designation of Specific Plan (SP) with a Housing Development Overlay (HDO), and a zoning designation of Specific Plan (SP), specifically Norco Auto Mall Specific Plan. Additionally, the site is located within the Corona North USGS 7.5-Minute Quadrangle; Section 12, Township 3 South, Range 7 West, San Bernardino Baseline and Meridian. A vicinity map is provided in Figure 1, Local Vicinity.

The proposed project would result in a mix of multi-family residential units, indoor/outdoor commercial food services with performance stage, and hotel development. The residential portion of the project will be constructed on approximately 11.26 acres on the west portion of the project site and includes 320 one-, two- and three- bedroom units configured into 20 three-story buildings. The project is planned for approximately 280,000 square feet of net rentable square footage, resulting in a density of approximately 29 dwelling units per acre. An approximately 6,000 square foot single-story recreation center with offices, meeting rooms, and fitness uses, including a pool and spa, are planned near the project entry. There are 196 single car garages and 380 surface spaces on the residential property (total of 576 spaces dedicated to the residential use). In addition, 64 overflow parking stalls will be shared with the commercial food services.

The commercial food services and ancillary uses are located on approximately 3.60 acres on the northeast portion of the project site and includes a 8,700 square foot commercial food service building and other uses such as enhanced community gathering spaces. A total of 50 parking spaces are reserved exclusively for the food area, with another 64 parking spaces shared with the residential use.

The Hotel is located on approximately 3.56 acres in the southeast portion of the project site and consists of a 128 key, four story building with 133 parking spaces.

Vehicular access to the project site is provided by a grand drive from Hamner Avenue that will give major access to the residential uses, food hall, and hotel. There also is a secondary access on Third Street, on the north side of the project site. A site plan for the project is provided in Figure 2.

PROJECT APPLICANT: Frontier Communities, 2151 East Convention Center Way, Ste. 114, Ontario, California 91764.

POTENTIAL ENVIRONMENTAL EFFECTS OF THE PROJECT: The following environmental factors may be affected by this project and these topic areas will be evaluated in the EIR:

- Aesthetics
- Agriculture and Forestry
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

PROJECT ALTERNATIVES: Identification of potential alternatives to the Norco Valley Square project will be addressed as part of the EIR. Analysis of a "No Project" alternative is required by law. In addition to the "No Project" Alternative, two additional alternatives will be evaluated. The evaluation of alternatives will provide a comparative analysis of alternatives to the proposed development.

The EIR will identify the degree to which each alternative might reduce one or more of the impacts associated with development of the Norco Valley Square project, whether or not the alternative could result in other or increased impacts, the viability of the alternative, and the degree to which the alternative is consistent with the City and Applicant's goals and objectives.

CUMULATIVE IMPACT ANALYSIS: The EIR will include a discussion of the potentially significant cumulative impacts of the Norco Valley Square project when considered with other past, present, and reasonably foreseeable future projects in the area.

OTHER REQUIRED SECTIONS: The EIR will also include other information typically required for an EIR. These other sections include the following: 1) Introduction; 2) Project Description; 3) Effects Found Not to Be Significant; 4) Environmental Impact Analysis; 5) Growth-Inducing Impacts; 6) Significant Unavoidable Environmental Effects; 7) Significant Irreversible Changes; 8) Consistency with Regional Plans; 9) Discussion and Analysis of Energy Conservation based on Appendix F of CEQA Guidelines; 10) Mitigation Measures; 11) References; and 12) List of Preparers.

Relevant technical reports will be provided as EIR appendices.

Pursuant to Section 15082(a) of the CEQA Guidelines, the City will be the Lead Agency and will prepare an EIR for the project described above. This NOP has been prepared to solicit comments from agencies, organizations, and other interested parties on the proposed project.

SIGNATURE:

TITLE: Steve King, Planning Director – City of Norco

TELEPHONE: 951-270-5662

DATE: March 9, 2020

Figure 1: Local Vicinity

Imagery provided by Microsoft Bing and its licensors © 2020.

Figure 2: Site Plan

FOOD HALL/HOTEL
7.16 ACRES

FOOD HALL	5,000 SF	
COMMUNITY GATHERING		
FARMERS MARKET		
FOOD TRUCKS		
HORSE CORAL PATH		
CHILDREN'S PLAYGROUND		
KIOSKS		
BIKE RENTALS		
LOUNGE WITH FIRE PITS		
ARTIST EXHIBIT AREA		
AMPHITHEATER/PERFORMING STAGE		
BOCE COURT/LAWN GAMES		
HOTEL	*128 KEYS (4 LEVELS)*	
PARKING		
REQUIRED		
FOOD HALL AT 1 PER 100 SF	50	
HOTEL AT 1 PER KEY	128	
TOTAL	178	
PROVIDED		
TOTAL	242	(64 EXTRA TO BE SHARED WITH RESIDENTIAL AS GUEST PARKING)

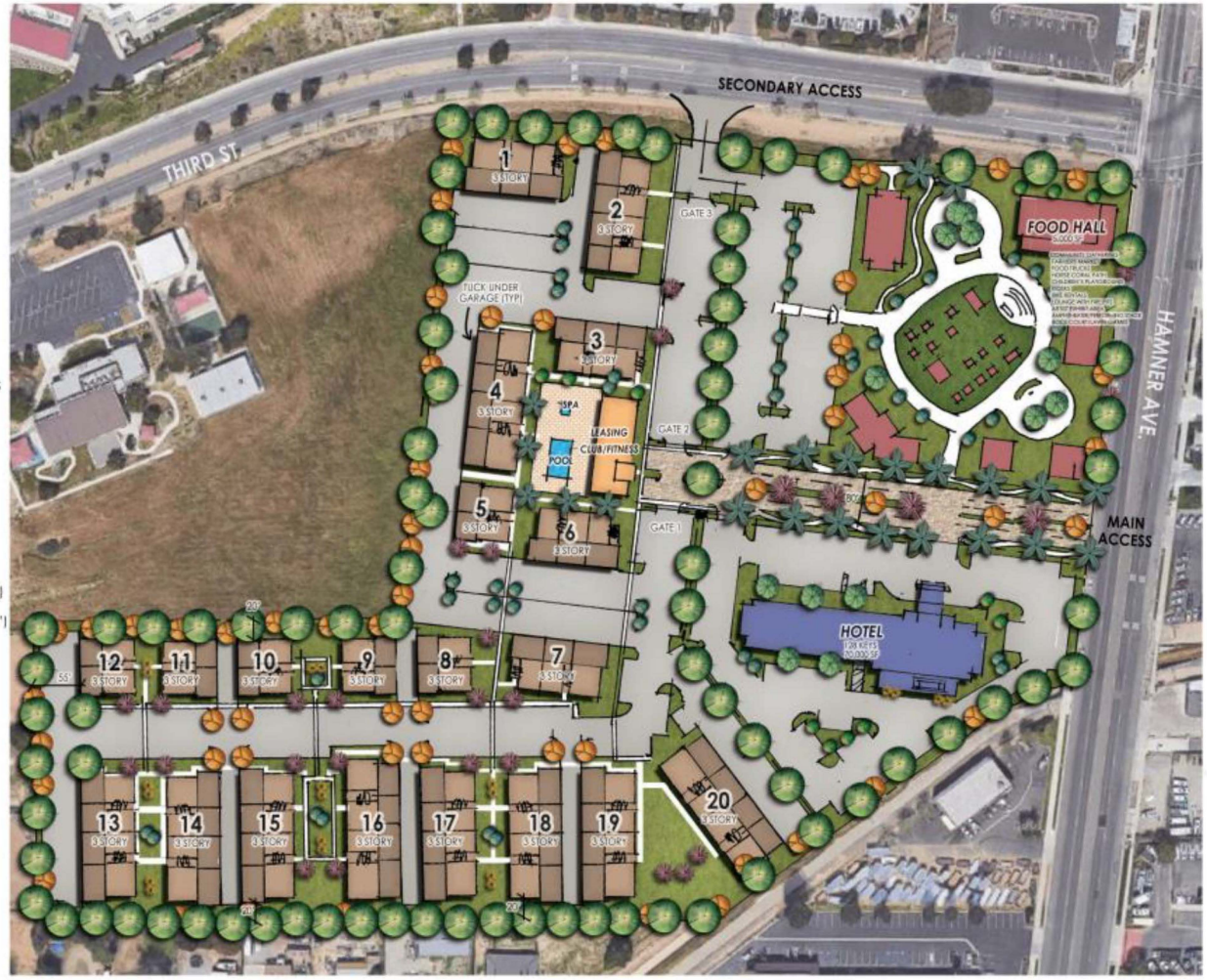
RESIDENTIAL
3 STORY BUILDINGS WITH STAIR ENCLOSURES AND TUCK UNDER SINGLE CAR GARAGES
320 UNITS
11.26 ACRES
28.4 DU/AC
279,650 TOTAL NRSF
873 AVERAGE NRSF
5,500 SF LEASING/CLUB/FITNESS

MIX

A1 1 BEDROOM/1 BATH	70	750 SF	CARRIAGE FLAT (32' X 25')
A2 1 BEDROOM/1 BATH	105	750 SF	STACKED FLAT (24' X 35')
	175	***55%***	***1 BEDROOM***
B1 2 BEDROOM/2 BATH	58	950 SF	CARRIAGE FLAT (42' X 25')
B2 2 BEDROOM/2 BATH	6	1000 SF	END FLAT WRAPPED STAIR
B2 2 BEDROOM/2 BATH	72	1050 SF	END STACKED FLAT 37' X 35')
	136	***43%***	***2 BEDROOM***
C1 3 BEDROOM/3 BATH	9	1300 SF	END STACKED FLAT (42' X 35')
	9	***3% 2 BEDROOM***	
TOTAL	320		

PARKING (PER CITY CODE)		
REQUIRED		
320 UNITS X 2.0 SPACES/DU	640	(2 ROOFED PARKING SPACES/DU)
TOTAL	640	(2.0 SPACES/DU)
PROVIDED		
RESIDENT		
SINGLE CAR GARAGES	191	
CARPORT	129	
OPEN		
ON SITE	256	
RESIDENT TOTAL	576	(1.80 SPACES/DU)
GUEST		
SHARED WITH COMMERCIAL	64	(0.20 SPACES/DU)
TOTAL	640	(2.00 SPACES/DU)

NOTES: 1. STANDARD STALLS ARE 9'X 20'
2. AISLE WIDTHS ARE 25' (FIRE MAY REQUIRE WIDER)
3. 1 CAR GARAGES ARE 10' X 20' CLEAR PROPOSED



HAMNER AVENUE MIXED USE

NORCO, CA

DATE: 09-25-19
JOB NO.: 2019-344

FRONTIER ENTERPRISES
2151 E. CONVENTION CENTER WAY, SUITE 114 ONTARIO, CA 91746

0' 10' 50' 100' 200'
SCALE: 1"=100'-0"

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2020039023

Project Title: Norco Valley Square Project

Lead Agency: City of Norco | Contact Person: Steve King, Planner Director
Mailing Address: 2870 Clark Avenue | Phone: 951-270-5662
City: Norco | Zip: 92860 | County: Riverside County

Project Location: County: Riverside County | City/Nearest Community: City of Norco
Cross Streets: Southwest corner of Hamner Avenue and Third Street | Zip Code: 92860
Longitude/Latitude (degrees, minutes and seconds): 33 ° 54 ′ 55.3 ″ N / 117 ° 33 ′ 43.4 ″ W Total Acres: 18.42
Assessor's Parcel No.: 126-050-002, 126-050-004, and 129-380-010 Section: 12 Twp.: 3 South Range: 7 West Base: San Bernardino
Within 2 Miles: State Hwy #: Interstate 15 Waterways: Lake Norconian, and Riverside County Flood Control Channel
Airports: N/A Railways: N/A Schools: Norco College

Document Type:

CEQA: ☒ NOP ☐ Draft EIR NEPA: ☐ NOI Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ☐ Draft EIS ☐ Other:
☐ Mit Neg Dec Other: ☐ FONSI

Governor's Office of Planning & Research
MAR 09 2020
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☒ Use Permit ☐ Coastal Permit
☐ Community Plan ☒ Site Plan ☐ Land Division (Subdivision, etc.) ☐ Other:

Development Type:

☒ Residential: Units 320 Acres 11.26
☐ Office: Sq.ft. Acres Employees ☐ Transportation: Type
☒ Commercial: Sq.ft. 7,800 Acres 3.60 Employees ☐ Mining: Mineral
☐ Industrial: Sq.ft. Acres Employees ☐ Power: Type MW
☐ Educational: ☐ Waste Treatment: Type MGD
☒ Recreational: 6,000 square foot single-story recreation center ☐ Hazardous Waste: Type
☐ Water Facilities: Type MGD ☒ Other: 128 key, four story hotel building located on 3.56 acres

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☐ Fiscal ☒ Recreation/Parks ☒ Vegetation
☒ Agricultural Land ☒ Flood Plain/Flooding ☒ Schools/Universities ☒ Water Quality
☒ Air Quality ☒ Forest Land/Fire Hazard ☒ Septic Systems ☒ Water Supply/Groundwater
☒ Archeological/Historical ☒ Geologic/Seismic ☒ Sewer Capacity ☒ Wetland/Riparian
☒ Biological Resources ☒ Minerals ☒ Soil Erosion/Compaction/Grading ☒ Growth Inducement
☐ Coastal Zone ☒ Noise ☒ Solid Waste ☒ Land Use
☒ Drainage/Absorption ☒ Population/Housing Balance ☒ Toxic/Hazardous ☒ Cumulative Effects
☐ Economic/Jobs ☒ Public Services/Facilities ☒ Traffic/Circulation ☒ Other: Energy

Present Land Use/Zoning/General Plan Designation:

RV Sales Lot in northeast corner, Remainder Vacant Land / SP (Specific Plan), HDO Overlay / SP (Specific Plan), HDO Overlay, with underlying C-G (Commercial General)

Project Description: *(please use a separate page if necessary)*

The proposed project would result in a mix of multi-family residential units, indoor/outdoor commercial food services with performance stage, and hotel development. The residential portion of the project will be constructed on approximately 11.26 acres on the west portion of the project site and includes 320 one-, two- and three- bedroom units configured into 20 three-story buildings. The project is planned for approximately 280,000 square feet of net rentable square footage, resulting in a density of approximately 29 dwelling units per acre. An approximately 6,000 square foot single-story recreation center with offices, meeting rooms, and fitness uses, including a pool and spa, are planned near the project entry. There are 196 single car garages and 380 surface spaces, plus 256 open spaces on the residential property (total of 576 spaces dedicated to the residential use). In addition, 64 overflow parking stalls will be shared with the commercial food services. The commercial food services and ancillary uses are located on approximately 3.60 acres on the northeast portion of the project site and includes a 8,700 square foot commercial food service building and other uses such as enhanced community gathering spaces. A total of 50 parking spaces are reserved exclusively for the food area, with another 64 parking spaces shared with the residential use. The Hotel is located on approximately 3.56 acres in the southeast portion of the project site and consists of a 128 key, four story building with 133 parking spaces.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X	Air Resources Board	____	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	____	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
X	Caltrans District # 8	____	Public Utilities Commission
____	Caltrans Division of Aeronautics	X	Regional WQCB # 8
____	Caltrans Planning	____	Resources Agency
____	Central Valley Flood Protection Board	____	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
____	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
____	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	X	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
X	Fish & Game Region # 6	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	____	Toxic Substances Control, Department of
____	Forestry and Fire Protection, Department of	X	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	____	Other: ____
____	Housing & Community Development	____	Other: ____
X	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date March 9, 2020 Ending Date April 7, 2020

Lead Agency (Complete if applicable):

Consulting Firm: Rincon Consultants, Inc.
Address: 901 9th Street, Suite 109
City/State/Zip: Redlands, California 92374
Contact: Charles Holcomcbe
Phone: 909-312-2938

Applicant: Frontier Enterprises
Address: 2151 East Convention Center Way, Suite 114
City/State/Zip: Ontario, California 91764
Phone: 909-354-8000

Signature of Lead Agency Representative: ____ **Date:** March 9, 2020

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

NOP Scoping Letters from Agencies and Organizations

- Native American Heritage Commission (NAHC)
- South Coast Air Quality Management District (SCAQMD)
- Riverside County Airport Land Use Commission
- Riverside Transit Agency
- Riverside County Department of Waste Resources
- Riverside Community College District (RCCD)

NATIVE AMERICAN HERITAGE COMMISSION

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EXECUTIVE SECRETARY
Christina Snider
Pomo

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Suite 100
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nahc@nahc.ca.gov
NAHC.ca.gov

March 9, 2020

Steve King, Planner Director
City of Norco
2870 Clark Avenue
Norco, CA 92860

Governor's Office of Planning & Research

MAR 12 2020

STATE CLEARINGHOUSE

Re: 2020039023, Norco Valley Square Project, Riverside County

Dear Mr. King:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states 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. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).

2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.

3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).

4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:

- **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
- **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:

- **a.** If part or all of the APE has been previously surveyed for cultural resources.
- **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
- **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
- **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
- **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA E-MAIL: April 1, 2020
sking@ci.norco.ca.us
Steve King, Director
City of Norco, Planning Department
2870 Clark Avenue
Norco, CA 92860

Notice of Preparation of an Environmental Impact Report for the Proposed Norco Valley Square Project

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. South Coast AQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Environmental Impact Report (EIR). Please send South Coast AQMD a copy of the EIR upon its completion. Note that copies of the EIR that are submitted to the State Clearinghouse are not forwarded to South Coast AQMD. Please forward a copy of the EIR directly to South Coast AQMD at the address shown in the letterhead. **In addition, please send with the EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files[1]. These include emission calculation spreadsheets and modeling input and output files (not PDF files). Without all files and supporting documentation, South Coast AQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

South Coast AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. South Coast AQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from South Coast AQMD's Subscription Services Department by calling (909) 396-3720. More guidance developed since this Handbook is also available on South Coast AQMD's website at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). South Coast AQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

South Coast AQMD has also developed both regional and localized significance thresholds. South Coast AQMD staff requests that the Lead Agency quantify criteria pollutant emissions and compare the results to South Coast AQMD's CEQA regional pollutant emissions significance thresholds to determine air

[1] Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

quality impacts. South Coast AQMD's CEQA regional pollutant emissions significance thresholds can be found here at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, South Coast AQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by South Coast AQMD staff or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the Proposed Project and all air pollutant sources related to the Proposed Project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis.

In the event that the Proposed Project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Guidance[2] on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

Mitigation Measures

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project, including:

[2] In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's Air Quality and Land Use Handbook: A Community Health Perspective. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: https://www.arb.ca.gov/ch/landuse.htm.

- Chapter 11 "Mitigating the Impact of a Project" of South Coast AQMD'S *CEQA Air Quality Handbook* South Coast AQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies
- South Coast AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- South Coast AQMD's Mitigation Monitoring and Reporting Plan (MMRP) for the 2016 Air Quality Management Plan (2016 AQMP) available here (starting on page 86): http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

Alternatives

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a "no project" alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

If implementation of the Proposed Project requires a permit from South Coast AQMD, South Coast AQMD should be identified as a Responsible Agency for the Proposed Project in the EIR. For more information on permits, please visit South Coast AQMD's webpage at: http://www.aqmd.gov/home/permits. Questions on permits can be directed to South Coast AQMD's Engineering and Permitting staff at (909) 396-3385.

Data Sources

South Coast AQMD rules and relevant air quality reports and data are available by calling South Coast AQMD's Public Information Center at (909) 396-2001. Much of the information available through the Public Information Center is also available at South Coast AQMD's webpage at: http://www.aqmd.gov.

South Coast AQMD staff is available to work with the Lead Agency to ensure that project's air quality and health risk impacts are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
RVC200312-03
Control Number

Steve King

From: Rull, Paul <PRull@RIVCO.ORG>
Sent: Tuesday, March 10, 2020 2:56 PM
To: Steve King
Subject: Norco Valley Square Project transmittal ALUC comments

Hi Steve,

Thank you for transmitting the above reference project to ALUC for review. Please note that the proposed project is located outside the airport influence area, and therefore ALUC has no comments at this time. (As a note, please be aware that state law requires ALUC to review projects that's are located within an airport influence area, where the local jurisdictions general plan has not yet been found consistent with the underlying airport land use compatibility plan i.e. City of Norco and Corona Municipal Airport Land Use Compatibility Plan).

If you have any questions, please feel free to contact me.

Paul Rull
ALUC Principal Planner

Riverside County Airport Land Use Commission
4080 Lemon Street, 14th Floor
Riverside, Ca 92501
(951) 955-6893
(951) 955-5177 (fax)
PRULL@RIVCO.ORG
www.rcaluc.org

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County of Riverside California

Steve King

From: Mauricio Alvarez <malvarez@riversidetransit.com>
Sent: Wednesday, March 25, 2020 12:01 PM
To: Steve King
Subject: Norco Valley Square Project

Good Morning Mr. King,

RTA has reviewed the plans you have sent and have two comments:

1. An ADA compliant bus stop on Hamner Ave far side Third St.
2. ADA compliant, connected sidewalk on Third St.

Thank you for considering these comments.

Mauricio Alvarez, MBA
Planning Analyst
Riverside Transit Agency
p: 951.565.5260 | e: malvarez@riversidetransit.com
Website | Facebook | Twitter | Instagram
1825 Third Street, Riverside, CA 92507

RIVERSIDE COUNTY
DEPARTMENT OF
WASTE RESOURCES
Hans W. Kernkamp, General Manager-Chief Engineer

SENT VIA EMAIL ONLY
sking@ci.norco.ca.us

March 30, 2020

Mr. Steve King, Planning Director
City of Norco Planning Department
2870 Clark Avenue
Norco, CA 92860

RE: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Norco Valley Square Project (Project)

Dear Mr. King:

The Riverside County Department of Waste Resources (RCDWR) has reviewed the NOP addressing a DEIR for the Norco Valley Square Project (Project). The Project is for the development of multi-family residential units, indoor/outdoor commercial food services with a performance stage, and a hotel with ancillary uses. The Project is located on the southwest corner of Hamner Avenue and Third Street, at 2350 Hamner Avenue in the City of Norco. The RCDWR offers the following comments for your consideration while preparing the Project's DEIR.

1. Build-out of the Project may have the potential to increase the amount of waste that could adversely affect solid waste facilities. To assess waste impacts, the DEIR should include the projected maximum amount of waste generated from build-out of the Project, using appropriate waste generation factors for the proposed land uses.

   Note- CalRecycle's website may be helpful to determine the Project's waste generation: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

2. The following information can be useful in the analysis of the solid waste impacts:

   a) Solid waste generated within the Project area is collected by Waste Management Inc. (WMI), with the bulk of recyclable waste and green waste delivered to the Moreno Valley Solid Waste Recycling and Transfer Facility (MVTS) for processing. The MVTS is located at 17700 Indian Street in Moreno Valley. It is permitted for a 2,500-tpd operation.

   b) While the El Sobrante landfill is the closest landfill to Project site, the franchise waste hauler could also use the Lamb Canyon and Badlands landfills for disposal of the waste generated from the proposed Project. Descriptions of the local landfills are provided below:

      El Sobrante Landfill:

      The El Sobrante Landfill is located east of Interstate 15 and Temescal Canyon Road to the south of the City of Corona and Cajalco Road at 10910 Dawson Canyon Road. The landfill is owned and operated by USA Waste of California, a subsidiary of Waste Management, Inc., and encompasses 1,322 acres, of which

645 acres are permitted for landfill operation. The El Sobrante Landfill has a total disposal capacity of approximately 209.9 million cubic yards and can receive up to 70,000 tons per week (tpw) of refuse. USA Waste must allot at least 28,000 tpw for County refuse. The landfill's permit allows a maximum of 16,054 tons per day (tpd) of waste to be accepted into the landfill, due to the limits on vehicle trips. If needed, 5,000 tpd must be reserved for County waste, leaving the maximum commitment of Non-County waste at 11,054 tpd. Per the 2018 Annual Report, the landfill had a remaining in-County disposal capacity of approximately 53.8 million tons.[1] In 2018, the El Sobrante Landfill accepted a daily average of 11,031 tons with a period total of approximately 3,386,471 tons. The landfill is expected to reach capacity in approximately 2060.

Lamb Canyon Landfill:

The Lamb Canyon Landfill is located between the City of Beaumont and City of San Jacinto at 16411 Lamb Canyon Road (State Route 79), south of Interstate 10 and north of Highway 74. The landfill is owned and operated by Riverside County. The landfill property encompasses approximately 1,189 acres, of which 703.4 acres encompass the current landfill permit area. Of the 703.4-acre landfill permit area, approximately 144.6 acres are permitted for waste disposal. The landfill is currently permitted to receive 5,000 tpd of MSW for disposal and 500 tpd for beneficial reuse. The site has an estimated total disposal capacity of approximately 20.7 million tons.[2] As of January 1, 2020 (beginning of day), the landfill has a total remaining capacity of approximately 8.7 million tons[3]. The current landfill remaining disposal capacity is estimated to last, at a minimum, until approximately 2029.[4] From January 2019 to December 2019, the Lamb Canyon Landfill accepted a daily average of 1,925 tons with a period total of approximately 591,125 tons. Landfill expansion potential exists at the Lamb Canyon Landfill site.

Badlands Landfill:

The Badlands Landfill is located northeast of the City of Moreno Valley at 31125 Ironwood Avenue and accessed from State Highway 60 at Theodore Avenue. The landfill is owned and operated by Riverside County. The existing landfill encompasses 1,168.3 acres, with a total permitted disturbance area of 278 acres, of which 150 acres are permitted for refuse disposal. The landfill is currently permitted to receive 4,500 tpd of MSW for disposal and 300 tpd for beneficial reuse. The site has an estimated total capacity of approximately 20.5 million tons[5]. As of January 1, 2020 (beginning of day), the landfill had a total remaining disposal capacity of approximately 5.1 million tons.[6] The current landfill remaining disposal capacity is estimated to last, at a minimum, until approximately 2022.[7] From January 2019 to December 2019, the Badlands Landfill accepted a daily average

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[1] 2018 El Sobrante Landfill Annual Report- Based on 134,549,993 tons remaining capacity (40% for in-county waste).
[2] GASB 18_ 2019 – Engineering Estimate for total landfill capacity
[3] GASB 18_2019 & SiteInfo
[4] SWFP # 33-AA-0007
[5] GASB_18_ 2019 – Engineering Estimate for total landfill capacity
[6] GASB_18_2019 & SiteInfo
[7] SWFP # 33-AA-0006

of 2,878 tons with a period total of approximately 886,388 tons. Landfill expansion potential exists at the Badlands Landfill site.

3. To further reduce potential impacts to solid waste services, the RCDWR offers the following suggestions for consideration, which were developed to meet the goals and standards of State legislation and regulations addressing solid waste, including recycling and organics management to help reduce the Project's anticipated solid waste impacts and enhance the County's efforts to comply with the State's mandate of 50% solid waste diversion from landfilling:

   - The use of mulch and/or compost in the development and maintenance of landscaped areas within the project boundaries is recommended. Recycle green waste through either onsite composting of grass, i.e., leaving the grass clippings on the lawn, or sending separated green waste to a composting facility.

   - Consider xeriscaping and the use of drought tolerant low maintenance vegetation in all landscaped areas of the project.

   - Hazardous materials are not accepted at the Riverside County landfills. Any hazardous wastes, including paint, used during construction must be properly disposed of at a licensed facility in accordance with local, state and federal regulations. For further information regarding the determination, transport, and disposal of hazardous waste, please contact the Riverside County Department of Health, Environmental Protection and Oversight Division, at 1.888.722.4234.

   - AB 341 focuses on increased commercial waste recycling as a method to reduce greenhouse gas (GHG) emissions. The regulation requires businesses and organizations that generate four or more cubic yards of waste per week and multifamily units of 5 or more, to recycle. A business shall take at least one of the following actions in order to reuse, recycle, compost, or otherwise divert commercial solid waste from disposal:

     - Source separate recyclable and/or compostable material from solid waste and donate or self-haul the material to recycling facilities.

     - Subscribe to a recycling service with waste hauler.

     - Provide recycling service to tenants (if commercial or multi-family complex).

     - Demonstrate compliance with requirements of California Code of Regulations Title 14.

     - For more information, please visit: http://www.rcwaste.org/business/recycling/mcr

   - AB 1826 requires businesses and multifamily complexes to arrange for organic waste recycling services. Those subject to AB 1826 shall take at least one of the following actions in order to divert organic waste from disposal:

     - Source separate organic material from all other recyclables and donate or self-haul to a permitted organic waste processing facility.

- Enter into a contract or work agreement with gardening or landscaping service provider or refuse hauler to ensure the waste generated from those services meet the requirements of AB 1826.

Thank you for allowing us the opportunity to comment on the NOP. Please continue to include the RCDWR in future transmittals. Please email me at khesterl@rivco.org if you have any questions regarding the above comments.

Sincerely,

Kinika Hesterly
Urban/Regional Planner IV

DM# 254699

Steve King

From: Agah, Hussain <Hussain.Agah@rccd.edu>
Sent: Tuesday, April 7, 2020 7:23 AM
To: Steve King
Cc: Collins, Michael; Mohtasham, Mehran
Subject: RCCD - Norco College - Response to NOP of an EIR for the Norco Valley Square Project
Attachments: RCCD Norco College - NOP for EIR Response Letter - Final_4.7.2020.pdf

Importance: High

Dear Mr. King:

Thank you for providing an opportunity for the Riverside Community College District (RCCD) to review the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Norco Valley Square Project.

See attached letter from RCCD which offers several comments concerning the NOP and EIR for the project and its impacts to the Norco College Campus.

Please confirm the receipt of this email by today. Should you have any question or clarification, feel free to call or email me.

Thank you,

Hussain Agah, MSCE, PMP, CCM, LEED AP BD+C
Associate Vice Chancellor, Facilities Planning & Development
T (951) 222-8871 | **F** (951) 328-3588 | **C** (310) 749-2378
3801 Market Street, 3rd Floor | Riverside, CA 92501
hussain.agah@rccd.edu | www.rccd.edu

RCCD RIVERSIDE COMMUNITY COLLEGE DISTRICT
FACILITIES PLANNING AND DEVELOPMENT
MORENO VALLEY COLLEGE | NORCO COLLEGE | RIVERSIDE CITY COLLEGE

RCCD | RIVERSIDE COMMUNITY COLLEGE DISTRICT

FACILITIES PLANNING AND DEVELOPMENT

Tuesday, April 7, 2020

To: Steven King, Planning Director
City of Norco Planning Department
2870 Clark Avenue, Norco, CA 92860
sking@ci.norco.ca.us

Subject: ***Notice of Preparation of an Environmental Impact Report for the Norco Valley Square Project***

Dear Mr. King:

Thank you for providing an opportunity for the Riverside Community College District (RCCD) to review the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the above-referenced project. The RCCD offers the following comments concerning the NOP and EIR for the project:

1. Given the proximity of the proposed project to Norco College (College) campus boundaries, the RCCD would request that the EIR thoroughly address the project's potential air quality and noise impacts to the College campus as a result of the construction activities associated with the development of the proposed project as well as the operational activities upon completion of construction. Specifically, the RCCD recommends that the City determine air quality and noise impacts to sensitive receptors located at the Veteran's Resource Center. The Veterans Resource Center will be located south of Third Street at 2001 Third Street. Please refer to the Mitigated Negative Declaration (MND) for the Veterans Resource Center, located on the Office of Planning and Research website: https://ceqanet.opr.ca.gov/2019129028/2.

2. The proposed project would be located on the corner of Third Street and Hamner Avenue, and would empty vehicles directly onto Third Street as a secondary egress. Under existing conditions, the only roadway providing access to the College is Third Street with the closest cross street being Hamner Avenue. Therefore, as part of the Traffic Impact Analysis/Traffic Study (TIA) to be prepared for this project, the RCCD is asking that the TIA fully analyze potential environmental/traffic impacts to the intersection of Third Street and Hamner Avenue, and provide adequate mitigation measures.

3. The Norco College Facilities Master Plan Update (FMP) outlines the anticipated growth of the campus resulting from the implementation of facility reconstruction and new development. As such, the FMP predicts enrollment growth to increase by 60% in 2025 and 93% in 2030. Alongside the increase in student enrollment, the anticipated physical space growth of the campus is expected to increase by 118% in 2025 and 177% in 2030. Additionally, RCCD/Norco College is considering on-site student housing in the future. The College's 2030 Educational Master Plan (EMP), supports the FMP's goal of building a comprehensive college by significantly increasing academic capacity and related support services needed. The EMP predicts that an estimated

3801 Market Street, 3rd Floor
Riverside, CA 92501
(951) 222-8200
www.rccd.edu

70,000 residents will be moving into Norco's service area by 2030, which will only increase the need for more facilities and enrollment capacity on campus. From 2010 to 2018, the College's service area grew by 1.5 percent annually and the U.S. Census Bureau estimates that this growth will continue through 2022 at 1.3 percent annually. There is a significant possibility however that these growth rates may be underestimated. Riverside County reports that approximately 10,700 homes have been approved for development in the College service area with an additional 47,000 homes approved adjacent to the service area in the forthcoming Ontario Ranch development, just nine miles from campus. With the Census Bureau's estimate of 3.57 persons per home, it is estimated that 205,989 new residents could move to the area if all the municipally approved homes are sold and occupied. If this growth takes place by 2030, the annual growth would approach 6 percent. With the increase in the service area and the expected growth of the physical campus and student enrollment capacity, it can be expected that future traffic in the area would also increase from more students driving to and from the campus. Therefore, as part of the TIA, the analysis should include an analysis of the cumulative traffic impacts at the intersection of 3rd Street and Hamner Avenue taking into account the College's future growth as outlined in the FMP and EMP.

Please refer to the College's growth estimates outlined in the above-referenced FMP, which can be accessed here:
https://www.rccd.edu/admin/bfs/fpd/Documents/plans/facilities/2019_NC_FMP.pdf

Additionally, RCCD recommends that the City consider future traffic associated with the Veteran's Resource Center in the future cumulative traffic scenario analysis. Refer to the traffic analysis provided in the Veteran's Resource MND link above in comment 1.

If you have any questions regarding our comments, please contact me at your earliest convenience at (951) 222-8871. You may also email me at Hussain.Agah@rccd.edu Thank you for your consideration and we look forward to receiving the draft EIR when it is prepared.

Attachment: March 9, 2020 City of Norco - Notice of Preparation for an Environmental Impact Report for the Norco Valley Square Project

Sincerely,

HUSSAIN AGHA
HUSSAIN AGAH

Hussain Agah
Associate Vice Chancellor, Facilities Planning & Development
Riverside Community College District
(951) 222-8871; Hussain.agah@rccd.edu
3801 Market Street, 3rd Floor
Riverside, CA 92501

NOTICE OF PREPARATION

DATE: March 9, 2020

TO: Reviewing Agencies, Organizations, and Interested Parties

FROM: City of Norco

SUBJECT: Notice of Preparation of an Environmental Impact Report for the Norco Valley Square Project

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NOTICE IS HEREBY GIVEN that the City of Norco is the Lead Agency responsible for preparing an Environmental Impact Report (EIR) to evaluate the potential environmental impacts of the proposed Norco Valley Square project (project). The purpose of this Notice of Preparation (NOP) is to solicit input from those public agencies and interested members of the public as to the scope and content of the environmental information to be included in the EIR (Ref: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375). As specified by the CEQA Guidelines, the NOP will be circulated for a 30-day public review period.

The City welcomes input from agencies and the public during this period regarding the scope and content of information to be included and analyzed in the EIR. Agencies should comment on the elements of the environmental information that are relevant to their statutory responsibility in connection with the project.

REVIEW PERIOD: The public comment period is from March 9, 2020 to April 7, 2020. Please send all written responses, referencing the "Norco Valley Square EIR" and including any comments you may have by 4 p.m. on Tuesday, April 7, 2020 to:

Steve King, Planner Director
City of Norco Planning Department
2870 Clark Avenue
Norco, CA 92860
Email: sking@ci.norco.ca.us

Please include the name and email address of a contact person at your agency along with any submitted comments. Copies of the NOP are available for review online at www.norco.ca.us and at the following locations:

Norco City Hall, City Clerk's Office
2870 Clark Avenue
Norco, CA 92860

Norco Fire Station #47
3902 Hillside Avenue
Norco, CA 92860

Norco Community Library
3240 Hamner Avenue, Suite 101B
Norco, CA 92860

Norco Senior Center
2690 Clark Avenue
Norco, CA 92860

PUBLIC SCOPING MEETING

A public scoping meeting will be held on Thursday, March 26, 2020 at 5:00 PM, located at Norco City Hall, 2870 Clark Ave, Norco, CA 92860. At this meeting, public agencies, organizations, and members of the public will be able to review the proposed project application materials and provide comments on the scope of the environmental review process.

PROJECT LOCATION / DESCRIPTION: The Norco Valley Square project is located in southwestern Riverside County, within the southwestern portion of the City of Norco. The project site encompasses approximately 19.1 acres and is located at the southwest corner of Hamner Avenue and Third Street, within the City of Norco, California. The Assessor Parcel Numbers for the project site include 126-050-002, 126-050-004, and 129-380-010. The property address is 2350 Hamner Avenue, Norco, California 92860. The project site has a General Plan land use designation of Specific Plan (SP) with a Housing Development Overlay (HDO), and a zoning designation of Specific Plan (SP), specifically Norco Auto Mall Specific Plan. Additionally, the site is located within the Corona North USGS 7.5-Minute Quadrangle; Section 12, Township 3 South, Range 7 West, San Bernardino Baseline and Meridian. A vicinity map is provided in Figure 1, Local Vicinity.

The proposed project would result in a mix of multi-family residential units, indoor/outdoor commercial food services with performance stage, and hotel development. The residential portion of the project will be constructed on approximately 11.26 acres on the west portion of the project site and includes 320 one-, two- and three- bedroom units configured into 20 three-story buildings. The project is planned for approximately 280,000 square feet of net rentable square footage, resulting in a density of approximately 29 dwelling units per acre. An approximately 6,000 square foot single-story recreation center with offices, meeting rooms, and fitness uses, including a pool and spa, are planned near the project entry. There are 196 single car garages and 380 surface spaces on the residential property (total of 576 spaces dedicated to the residential use). In addition, 64 overflow parking stalls will be shared with the commercial food services.

The commercial food services and ancillary uses are located on approximately 3.60 acres on the northeast portion of the project site and includes a 8,700 square foot commercial food service building and other uses such as enhanced community gathering spaces. A total of 50 parking spaces are reserved exclusively for the food area, with another 64 parking spaces shared with the residential use.

The Hotel is located on approximately 3.56 acres in the southeast portion of the project site and consists of a 128 key, four story building with 133 parking spaces.

Vehicular access to the project site is provided by a grand drive from Hamner Avenue that will give major access to the residential uses, food hall, and hotel. There also is a secondary access on Third Street, on the north side of the project site. A site plan for the project is provided in Figure 2.

PROJECT APPLICANT: Frontier Communities, 2151 East Convention Center Way, Ste. 114, Ontario, California 91764.

POTENTIAL ENVIRONMENTAL EFFECTS OF THE PROJECT: The following environmental factors may be affected by this project and these topic areas will be evaluated in the EIR:

- Aesthetics
- Agriculture and Forestry
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

PROJECT ALTERNATIVES: Identification of potential alternatives to the Norco Valley Square project will be addressed as part of the EIR. Analysis of a "No Project" alternative is required by law. In addition to the "No Project" Alternative, two additional alternatives will be evaluated. The evaluation of alternatives will provide a comparative analysis of alternatives to the proposed development.

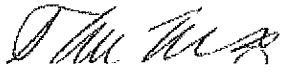
The EIR will identify the degree to which each alternative might reduce one or more of the impacts associated with development of the Norco Valley Square project, whether or not the alternative could result in other or increased impacts, the viability of the alternative, and the degree to which the alternative is consistent with the City and Applicant's goals and objectives.

CUMULATIVE IMPACT ANALYSIS: The EIR will include a discussion of the potentially significant cumulative impacts of the Norco Valley Square project when considered with other past, present, and reasonably foreseeable future projects in the area.

OTHER REQUIRED SECTIONS: The EIR will also include other information typically required for an EIR. These other sections include the following: 1) Introduction; 2) Project Description; 3) Effects Found Not to Be Significant; 4) Environmental Impact Analysis; 5) Growth-Inducing Impacts; 6) Significant Unavoidable Environmental Effects; 7) Significant Irreversible Changes; 8) Consistency with Regional Plans; 9) Discussion and Analysis of Energy Conservation based on Appendix F of CEQA Guidelines; 10) Mitigation Measures; 11) References; and 12) List of Preparers.

Relevant technical reports will be provided as EIR appendices.

Pursuant to Section 15082(a) of the CEQA Guidelines, the City will be the Lead Agency and will prepare an EIR for the project described above. This NOP has been prepared to solicit comments from agencies, organizations, and other interested parties on the proposed project.

SIGNATURE: 

TITLE: Steve King, Planning Director – City of Norco

TELEPHONE: 951-270-5662

DATE: March 9, 2020

Figure 1: Local Vicinity

Imagery provided by Microsoft Bing and its licensors © 2020.

Figure 2: Site Plan

FOOD HALL/HOTEL
7.16 ACRES
- FOOD HALL — 5,000 SF
  - COMMUNITY GATHERING
  - FARMERS MARKET
  - FOOD TRUCKS
  - HORSE CORAL PATH
  - CHILDREN'S PLAYGROUND
  - KIOSKS
  - BIKE RENTALS
  - LOUNGE WITH FIRE PITS
  - ARTIST EXHIBIT AREA
  - AMPHITHEATER/PERFORMING STAGE
  - BOCE COURT/LAWN GAMES
- HOTEL — 128 KEYS (4 LEVELS)

PARKING
- REQUIRED
  - FOOD HALL AT 1 PER 100 SF — 50
  - HOTEL AT 1 PER KEY — 128
  - TOTAL — 178
- PROVIDED
  - TOTAL — 242 (64 EXTRA TO BE SHARED WITH RESIDENTIAL AS GUEST PARKING)

RESIDENTIAL
3 STORY BUILDINGS WITH STAIR ENCLOSURES AND TUCK UNDER SINGLE CAR GARAGES
320 UNITS
11.26 ACRES
28.4 DU/AC
279,650 TOTAL NRSF
873 AVERAGE NRSF
5,500 SF LEASING/CLUB/FITNESS

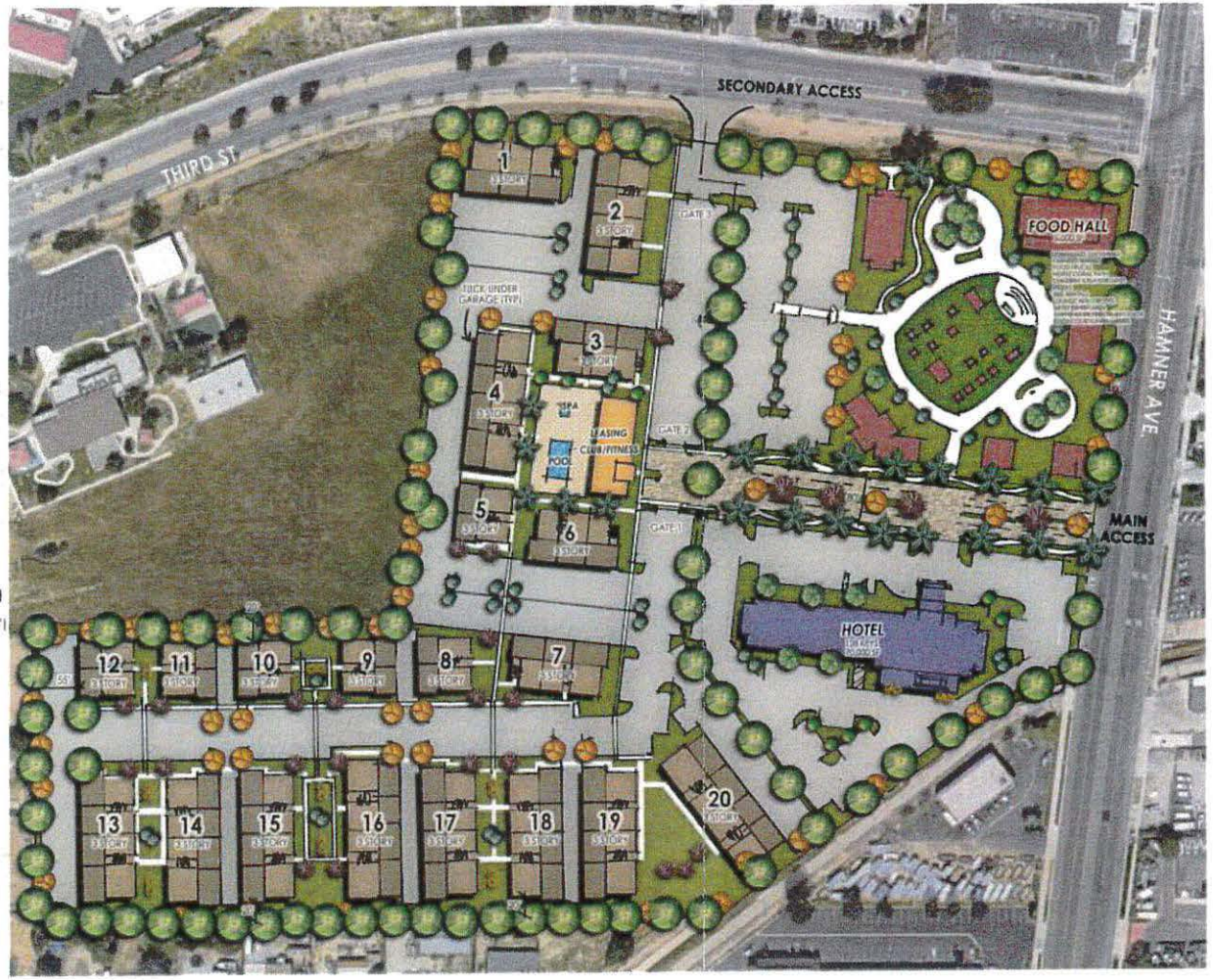
MIX

A1	1 BEDROOM/1 BATH	70	750 SF	CARRIAGE FLAT (32' X 25')
A2	1 BEDROOM/1 BATH	105	750 SF	STACKED FLAT (24' X 35')
		175	**55%**	**1 BEDROOM**
B1	2 BEDROOM/2 BATH	58	950 SF	CARRIAGE FLAT (42' X 25')
B2	2 BEDROOM/2 BATH	6	1000 SF	END FLAT WRAPPED STAIR
B2	2 BEDROOM/2 BATH	72	1050 SF	END STACKED FLAT 37' X 35')
		136	**43%**	**2 BEDROOM**
C1	3 BEDROOM/3 BATH	9	1300 SF	END STACKED FLAT (42' X 35')
		9	**3% 2 BEDROOM**	
TOTAL		320		

PARKING (PER CITY CODE)
REQUIRED
- 320 UNITS X 2.0 SPACES/DU — 640 (2 ROOFED PARKING SPACES/DU)
- TOTAL — 640 (2.0 SPACES/DU)

PROVIDED
- RESIDENT
  - SINGLE CAR GARAGES — 191
  - CARPORT — 129
  - OPEN
    - ON SITE — 256
  - RESIDENT TOTAL — 576 (1.80 SPACES/DU)
- GUEST
  - SHARED WITH COMMERCIAL — 64 (0.20 SPACES/DU)
  - TOTAL — 640 (2.00 SPACES/DU)

NOTES 1. STANDARD STALLS ARE 9'X 20'
2. AISLE WIDTHS ARE 25' (FIRE MAY REQUIRE WIDER)
3. 1 CAR GARAGES ARE 10' X 20' CLEAR PROPOSED



HAMNER AVENUE MIXED USE — NORCO, CA

DATE: 09-25-19
JOB NO.: 2019-344

FRONTIER ENTERPRISES
2151 E. CONVENTION CENTER WAY, SUITE 114 ONTARIO, CA 91746

0' 10' 50' 100' 200'
SCALE 1"=100'-0"

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866

NOP Scoping Letters from the Public

Steve King

From: KILEY SANDOVAL <KileyQuickbooks@msn.com>
Sent: Thursday, March 12, 2020 9:19 AM
To: Steve King
Subject: Norco Valley Square EIR

I vehemently oppose this development, and here are some of the reasons why:

1. Building apartments would bring 300-600 voters who will most likely not care to vote to maintain the Norco equestrian way of life geared towards horses and livestock.
2. Our K-12 schools are already overcrowded so where do you plan on sending the additional students?
3. This development will bring even more traffic to Hamner, along with all the excess vehicles already flooding over from Eastvale. The City isn't even fixing our roads now. How can our roads and infrastructure take even more abuse?
4. We currently have four hotels in Norco, and Eastvale, in conjunction with Lewis Management, is going to build a hotel right next to the Silver Lakes soccer fields to accommodate the events there. So why do we need another hotel?

I have never seen a city improve with the development of apartments. Maybe the City will get more money, but you already raised our sales tax and get a lot from our property taxes.

Please reconsider this development.

Why don't you expand Norco College? Why don't you support building more classroom buildings and adding more classes so students can actually get their classes? Maybe expand the athletics program? Build athletic fields so the college can have softball, baseball and football teams like Chaffey College.

Unfortunately, you have allowed the developer, Frontier Homes, to spend a lot of money on the EIR and hiring Architects Orange to prepare the conceptual design. I hope you truly listen to the citizens of Norco and deny this development and not railroad us Norconians because of the money that has been spent by the developer.

Kiley Sandoval
909-215-2613
Sierra Avenue

Steve King

From: Gail Traynor <calgt@att.net>
Sent: Wednesday, March 11, 2020 7:52 PM
To: Steve King
Subject: Norco Valley Square EIR

I think this is absurd. Why do you want to make Norco like Orange County or any other big city where there are too many people, too many cars, too many homes??
The beauty of Norco was the rural atmosphere.....that is being taken away and it is a SHAME.
The major growth of Eastvale has already destroyed our quiet little community. The traffic near my home in the Bluff area is horrendous ... it now takes at least 3 traffic light "rounds" just to get to my street. The new Stater Bros. center is bad enough with additional traffic.
Also, How is it justified that "WE" already get put on water usage restriction because "there is NOT enough water" BUT now you are saying there is magically enough to support the hundreds/thousands of more people that will be added here? No wonder the majority of people I know are looking to move out of this state. THERE IS NO COMMON SENSE!!!
I SAY NO to this addition

Gail Traynor

Steve King

From: Angela Kelly <a.kelly022@gmail.com>
Sent: Thursday, March 12, 2020 1:37 PM
To: Steve King
Subject: Norco Valley Square EIR

Hello Steven,

I have been a home owner in Norco for the past 4 years and previous to that I lived in Norco as a child, this is my life long hometown. I love our open spaces, rural lifestyle, animal first mentality.

I believe this Norco Valley Square project threatens that way of life. And I am vehemently against it.
- I believe it will add additional pressure to our already overfilled schools. As a mother of 2 school age kids this is a particularly pressing issue for me.
- Many of our roads are crumbling and need repair. Having an apartment building filled with additional driving age people would add stress to the infrastructure. And I have driven down Hamner during the college class time and am shocked at how congested the area is already. Is there any part of the project that addresses that issue? Or would it just continue to make it worse?
- How can we keep the title of a "horsetown" with so many new residents that would not have horses, or open spaces? This project discredits the seal of the town!

I hope you take my concerns serious and listen to all the Norco residents points of view before allowing this project to proceed as planned. With the addition of the CarMax and now the new Grocery store on 6th it feels like Norco planning department has not been transparent or upholding the city's standards for open spaces and rural lifestyle. Hopefully that does not hold true again for this project!

Angela Kelly
951-751-5859

Steve King

From: Esther Conway <estherconway@sbcglobal.net>
Sent: Thursday, March 12, 2020 6:56 PM
To: Steve King
Subject: Norco Valley Square Project
Attachments: Norco project 3.12.20.docx

Steve King,
Please see attached letter. Thank you for your consideration.
Esther Conway

March 12, 2020

Steve King, Planner Director
City of Norco Planning Department
2870 Clark Ave
Norco, CA 92860
Email: sking@ci.norco.ca.us

Re: Norco Valley Square Project

Dear Steve,

As a long-time resident of Norco, I have seen many changes to our town. Many of the changes have not been for the good of our revered lifestyle and few that have benefitted the Animal Keeping which makes Norco unique.

This project, **The Norco Valley Square**, is not a benefit to our town and will only cause more problems for our way of life. The project proposes 320 apartments. This will bring in a minimum of 500 extra people who are not interested in the equestrian and livestock way of life. It shows 640 parking spaces plus guest parking, so they predict 640 people living here. These are voters who will have a vote in our community but are renters and do not pay property taxes!

It will bring more crime to our city. We will need more police and fire protection and graffiti control.

Our schools are not equipped to handle more children so where do they plan on putting those extra kids?

Traffic will increase and we will have more wear and tear on our roads which we can't keep up with now. Have you driven down Valley View between 4th and 2nd street? Shameful roads!

We don't need another Hotel in Norco and 4 stories tall? Isn't there a height limit and a "Western" look required?

There are so many more reasons to not move forward with this project and I would suggest that we use that land to increase Norco College or anything other than apartments!

I am against this project and only wish the community could vote on it because it would be a No vote.

Sincerely,

Esther Conway
3293 Temescal Ave
Norco, CA 92860
Email: estherconway@sbcglobal.net
951-264-5742

Steve King

From: Patrick Aleman <aleman_patrick@hotmail.com>
Sent: Sunday, March 22, 2020 6:30 PM
To: Steve King
Subject: Norco Valley Square EIR

Hello,

I am writing in reference to the notice that we received regarding the Norco Valley Square project. I am the property owner at 1975 Paddock Lane and have been here for several years in Norco and love the city. However, this notice of the 3 story apartment complex that is supposedly going in directly behind my property's back wall has me FURIOUS and needing to write you and express my concerns.

My family and I, and i'm sure most of the residents of Norco, purchased property here expecting a rural setting to live in without multi-story properties in the near vicinity of our homes. Now, you guys tell me you are planning on ruining our Norco experience by placing these large apartments directly behind my house! From what I can see there isn't even a horse trail in between our property's back fence and these apartments. I would feel completely differently if I was being told that there were more ranch properties going in behind us with a horse trail in between. That would still be an acceptable Norco experience. Moving in directly behind a set of 3 story apartment buildings is NOT why I moved to Norco and I would NOT have moved to this property had I knows that this is what would be happening in the future.

I am totally fine with putting a shopping center and hotel on the corner of 3rd St and Hamner even if it has some buildings or part of a parking lot that comes close to our back property line so long as we still have our horse trail area in back of us. However, I am NOT ok with 3 Story apartments being directly behind me.

We already have issues of college students parking on the corner of Mountain and Paddock and I'm sure with an apartment complex right behind us this will become even more of an issue. I have also heard that these apartments exceed the height limit for the City of Norco which is also disturbing that the city is breaking the height ruling to box me and my family in with these apartments.

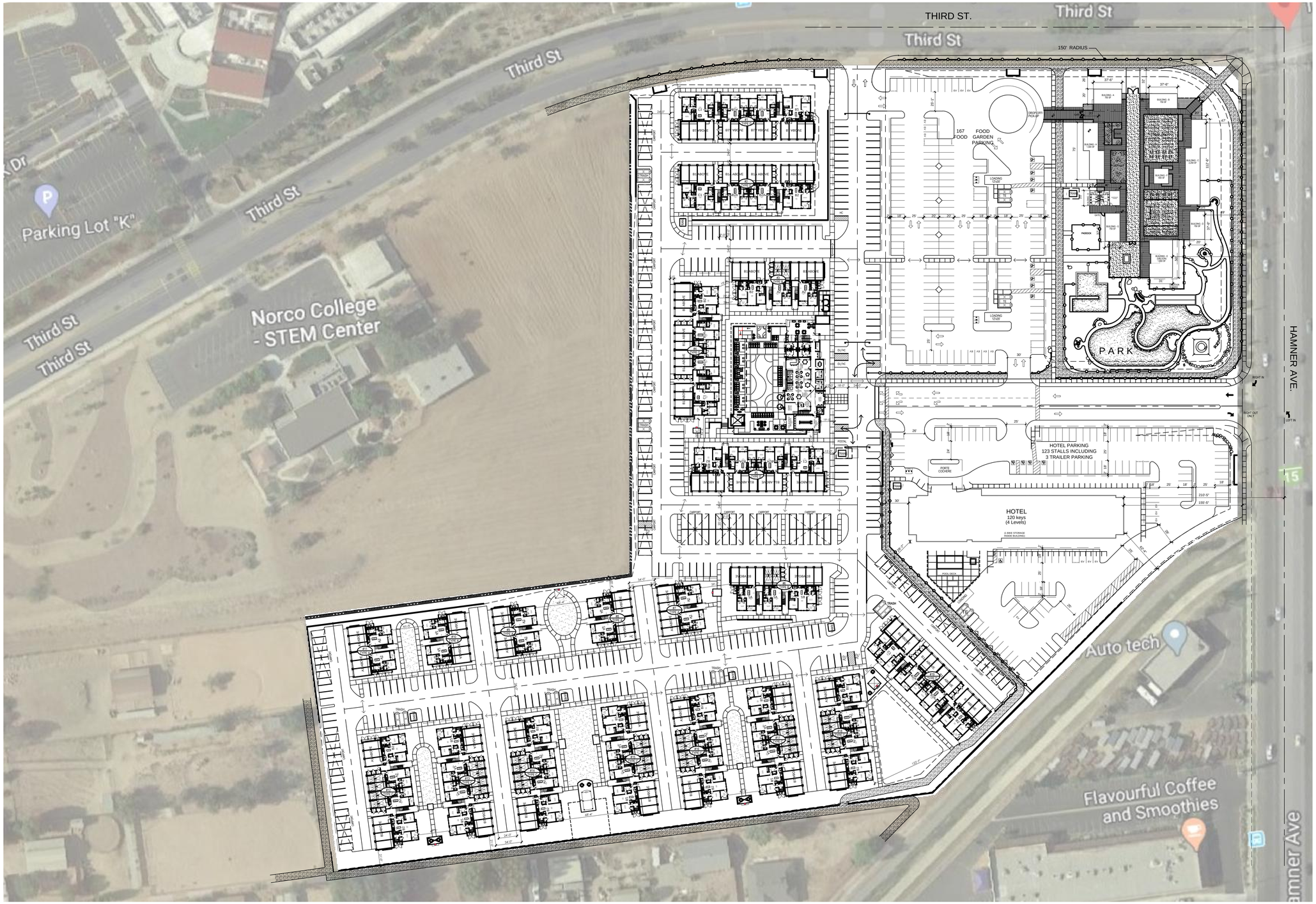
In short, I HATE this idea of you guys putting these apartments behind me and ruining the reason that I bought property here in Norco. Please reconsider your plans and actions and please keep Norco the rural living city that you claim that it is and that I thought is was.

Thank you for your time,

Patrick Aleman
951-241-3034

Appendix B

Project Site Plans



SITE PLAN NOTES

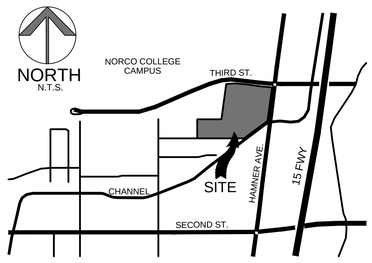
1. THIS ARCHITECTURAL SITE PLAN IS PROVIDED FOR OVERALL SITE REFERENCE. THE LOCATION OF ITEMS INCLUDED IN THIS SET OF PLANS IS FOR AGENCY DEPARTMENT USE ONLY.
2. THIS SITE PLAN IS FOR REFERENCE ONLY, AS AN ARCHITECTURAL PLAN FOR GENERAL LAYOUT AND IDENTIFICATION PURPOSES ONLY
3. FOR LOT LINE DIMENSIONS & HORIZONTAL CONTROL, SEE CIVIL DRAWINGS
4. FOR HARDSCAPE AND ALL SITE IMPROVEMENTS, SEE LANDSCAPE DRAWINGS
5. FOR "FIRE LANE" DESIGN, SEE CIVIL AND LANDSCAPE DRAWINGS
6. FOR PERIMETER FENCING, SEE LANDSCAPE DRAWINGS
7. REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR SPECIFIC SITE REQUIREMENTS
8. ALL PROPERTY LINES, EASEMENTS, AND BUILDINGS, EXISTING AND PROPOSED ARE SHOWN ON THIS PLAN BUT MUST BE VERIFIED WITH THE CIVIL PLANS
9. BUILDING SIGNAGE IS DESIGNED BY OTHERS AND INSTALLED BY THE GENERAL CONTRACTOR.
10. SITE SIGNAGE IS DESIGNED BY OTHERS AND INSTALLED BY THE CONTRACTOR.
11. SITE WALLS ARE DESIGNED BY OTHERS
12. DECORATIVE SITE LIGHTING IS DESIGNED BY OTHERS.
13. SURFACE WATER MUST DRAIN AWAY FROM BUILDING SEE CIVIL AND LANDSCAPE PLANS FOR DRAINAGE DESIGN.

GENERAL NOTES

1. SEE SHEETS L-1 - L-5 FOR LANDSCAPE.
2. SEE SHEETS C-1 TO C-4 FOR CIVIL.

LEGEND

VICINITY MAP



1"=60'-0" 0 30' 60' 120' 180'

SITE PLAN A1.2

NORCO VALLEY SQUARE

NORCO, CA

FRONTIER COMMUNITIES
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

DATE: 09-03-20
JOB NO.: 2019-344

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860
Architecture. Design. Relationships.

Thursday, September 03, 2020 7:59:14 PM
R:\2019\2019-344 FRONTIER NORCO APTS NORCO\03 DESIGN\SCHEM\02 AUTOCAD\19-344_A1.2 SITE PLAN.DWG

NORCO VALLEY SQUARE
NORCO, CA

PROJECT DESCRIPTION

A MIXED-USE PROJECT CONSISTING OF 8,700 SF RETAIL, 120 KEY HOTEL, AND 320 UNIT APARTMENT PROJECT AND CLUBHOUSE, CONSISTING OF 3 STORY TYPE V-A ON GRADE, WITH 13-R AUTOMATIC SPRINKLER SYSTEM

GROSS LAND AREA: 19.08 ACRES
TOTAL UNITS: 320 UNITS
DENSITY: 27.78 DU/AC

EXISTING/PROPOSED USES

EXISTING USES:	COMMERCIAL COMPLEX - NORCO RV CENTER
PROPOSED USES:	MIXED-USE RESIDENTIAL (320 UNITS)
	CLUBHOUSE
	8,700 SF RETAIL / FOOD GARDENS
	HOTEL (120 KEYS)

CODE SUMMARY

CODE	ADOPTED EDITION
BUILDING CODE	2019 CALIFORNIA BUILDING CODE
FIRE CODE	2019 CALIFORNIA FIRE CODE
ENERGY CODE	2019 BUILDING EFFICIENCY STANDARDS FOR RESIDENTIAL AND NON RESIDENTIAL BUILDING
MECHANICAL CODE	2019 CALIFORNIA MECHANICAL CODE
PLUMBING CODE	2019 CALIFORNIA PLUMBING CODE
ELECTRICAL CODE	2019 CALIFORNIA CODE
POOL CODE	2019 UNIFORM SWIMMING POOL CODE
PLANNING CODE	CITY OF NORCO MUNICIPAL CODE
CAL GREEN	2019 CALIFORNIA GREEN BUILDING STANDARDS

ACCESSIBLE PARKING REQUIRED (INCLUDED IN PARKING COUNT)

ASSIGNED ACCESSIBLE PARKING = 2% OF COVERED DWELLING UNITS
UNNASSIGNED ACCESSIBLE PARKIN 5% OF GUEST STALLS REQUIRED

COVERED DWELLING UNITS CALCULATION

BUILDING TYPE	QUANTITY	COVERED DWELLING UNITS
TYPE A - (2 EACH)	5	10
TYPE B - (3 EACH)	2	6
TYPE C - (4 EACH)	7	28
TYPE D - (4 EACH)	5	20
TOTAL		**64**

PARKING TYPE	COVERED DWELLING UNITS	GUEST STALLS REQUIRED	FACTOR	TOTAL REQUIRED	TOTAL REQ'D (MIN. 1 OF EACH TYPE)	TOTAL PROVIDED	BREAKDOWN			
							OPEN	VAN TYPE(1/8)	GARAGE	CARPORT
ASSIGNED RESIDENTIAL	64	NA	2%	2	4	5	2	1	1	1
UNASSIGNED RESIDENTIAL	NA	11	5%	1	2	2	1	1		
TOTAL				**3**	**6**	**7**	**3**	**2**	**1**	**1**

RESIDENTIAL EVCS PARKING REQ'D & PROVIDED PER 2019 CAL GREEN CODE SEC.4.106.4.2

PARKING TYPE	STALLS	FACTOR	TOTAL	BREAKDOWN	
				STANDARD	VAN TYPE(1/25)
RESIDENTIAL	462	10%	47	45	2
GUEST	115	10%	12	11	1
TOTAL	577		**59**	**56**	**3**

** 10% REQUIRED ARE INCLUDED IN OVERALL PARKING COUNT*

PARKING SUMMARY

TOTAL PARKING REQUIRED

(PER CONDITIONS OF APPROVAL)

UNIT TYPE	UNITS	RATIO	QTY.
1 BDRM. UNITS	150	1.5	225
2 BDRM. UNITS	155	2.0	310
3 BDRM. UNITS	15	2.5	38
TOTAL	**320**	**1.79**	**573**

TOTAL PARKING PROVIDED

PARKING TYPE	QTY.	%
TOTAL GARAGE	197	34%
TOTAL OPEN STALLS (INCLUDES ACCESSIBLE PARKING)	246	42%
TOTAL CARPORTS	134	23%
VAN ACCESSIBLE EV RESIDENT ASSIGNED PARKING **(PER AB.1100 EV ACCESSIBLE PARKING SPACE WITH AN ACCESS AISLE CAN BE COUNTED AS TWO STALLS)**	2	0%
VAN ACCESSIBLE EV RESIDENTIAL UNASSIGNED PARKING **(PER AB.1100 EV ACCESSIBLE PARKING SPACE WITH AN ACCESS AISLE CAN BE COUNTED AS TWO STALLS)**	2	0%
LOADING STALL EXCLUDED IN COUNT	0	0%
TOTAL MAIL EXCLUDED IN COUNT	1	0%
TOTAL PROVIDED PARKING	**581**	**100%**
PARKING TO UNIT RATIO	**1.82**	**STALL/ DU**

BUILDING/ UNIT MIX

BLDG. #	BLDG. TYPE	1 BDRM				2 BDRM				3 BDRM	TOTAL UNIT	TOTAL GARAGE
		A1	A1A	A2	A2A	B1	B1A	B2	B2A	C1		
		748	729	745	740	1,050	1,010	1,046	1,054	1,284		
7	A - 3 STORY	4		6							10	6
8		4		6							10	6
9		4		6							10	6
10		4		6							10	6
11		4		6							10	6
3	B - 3 STORY		2	3	3	4		3			15	10
6			2	3	3	4		3			15	10
12	C - 3 STORY	2	4		6	2		6			20	11
13		2	4		6	2		6			20	11
14		2	4		6	2		6			20	11
15		2	4		6	2		6			20	11
16		2	4		6	2		6			20	11
17		2	4		6	2		6			20	11
18		2	4		6	2		6			20	11
1	D - 3 STORY					4	4	3	6	3	20	14
2						4	4	3	6	3	20	14
4						4	4	3	6	3	20	14
5						4	4	3	6	3	20	14
19						4	4	3	6	3	20	14
SUB-TOTAL	-	34	32	36	48	42	20	63	30	15	320	197
		150				155				15		
TOTAL		320										
%		47%				48%				5%	100%	

NET RENTABLE

(EXTERIOR UNIT WALL, MINUS VENT SHAFTS & BALCONIES)

UNIT TYPE	QTY.	NET RENTABLE PER UNIT SQ.FT	TOTAL NET RENTABLE SQ.FT.	BALCONY SQ.FT. PER UNIT	TOTAL BALCONY SQ.FT.	%
A1	34	748	25,432	54	1,836	11%
A1A	32	729	23,328	49	1,568	10%
A2	36	745	26,820	71	2,556	11%
A2A	48	740	35,520	56	2,688	15%
B1	42	1,050	44,100	88	3,696	13%
B1A	20	1,010	20,200	57	1,140	6%
B2	63	1,046	65,898	110	6,930	20%
B2A	30	1,054	31,620	76	2,280	9%
C1	15	1,284	19,260	71	1,065	5%
TOTAL	**320**	**913**	**292,178**	**74**	**23,759**	**100%**

ESTIMATE GROSS BUILDING AREAS

BLDG TYPE	QUANTITY	AREA PER BLDG	TOTAL
TYPE A	5	9,621 SQFT.	48,105 SQ.FT.
TYPE B	2	18,843 SQ.FT	37,686 SQ.FT
TYPE C	7	23,873 SQ.FT	167,111 SQ.FT
TYPE D	5	29,028 SQ.FT	145,140 SQ.FT
TOTAL RES	**19**		**398,042 SQ.FT.**
TOTAL CLUBHOUSE		13,407 SQ.FT	**13,407 SQ.FT.**

LOT COVERAGE AREA (RESIDENTIAL)

BLDG TYPE	QUANTITY	GROUND FLOOR AREA PER BLDG	TOTAL
TYPE A	5	3,225 SQFT.	16,125 SQ.FT.
TYPE B	2	5,837 SQ.FT	11,674 SQ.FT
TYPE C	7	7,539 SQ.FT	52,773 SQ.FT
TYPE D	5	9,206 SQ.FT	46,030 SQ.FT
CLUBHOUSE	1	5,724 SQ.FT	5,724 SQ.FT.
TOTAL GROUND FLOOR SF (RESIDENTIAL)			**132,326 SQ.FT.**
TOTAL SITE AREA (RESIDENTIAL)			**502,128 SQ.FT.**
LOT COVERAGE CALCULATION (RESIDENTIAL)			**26.35%**

GENERAL DISCLAIMER

THESE CONCEPTUAL ARCHITECTURAL PLANS ARE FOR PLANNING & DEVELOPMENT PURPOSES ONLY. REVISIONS MAY BE REQUIRED DUE TO FURTHER REQUIREMENTS, INVESTIGATION FROM GOVERNING AGENCIES AND BUILDING CODE ANALYSIS. DIMENSIONS SHOWN ARE APPROXIMATE AND ARE BASED UPON THE INFORMATION AND SURVEYS AVAILABLE. PLEASE REFER TO CIVIL SURVEYS, DRAWINGS AND EXHIBITS FOR TECHNICAL INFORMATION AND MEASUREMENTS. PLEASE REFER TO THE LANDSCAPE ARCHITECT'S DRAWINGS AND EXHIBITS FOR ALL LANDSCAPE PLANTING, IRRIGATION, DESIGN AND SPECIFICATIONS.

Lowrise Photovoltaic Requirements

Calculation (CEC 150.1©14)

(CFA x A)/1000 + (NDwell x B) = kWPV

Conditioned floor area (all, ammenity, corridors, et...)	Adjustment factor from Table 150.1-C (which climate zone is project in?)	Divisor (Do Not Change)	Number of dwelling units (on proposed site)	Dwelling adjustment factor from Table 150.1-C (which climate zone is project in?)	kWpv required	PV panels requred estimate (300 W per panel, 3'x4'. Newer panels may produce more, check with PV contractor)
CFA	A	1000	Ndwell	B	kWpv	
282097	0.572	1000	320	1.15	529.359484	1764.531613

TOTAL SF SOLAR = ***21,174*** *(12 SF EA)*

**** TOTAL= 132 COVERED STALLS MIN. REQUIRED, 134 PROVIDED***

CEC 150.1©14: Photovoltaic Requirements.

All low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal to or greater than the dwelling's annual electrical usage as determined by Equation 150.1-C:

EQUATION 150.1-C ANNUAL PHOTOVOLTAIC ELECTRICAL OUTPUT

kW_{PV} = (CFA x A)/1000 + (NDwell x B)

WHERE:

kW_{PV} = kWdc size of the PV system

CFA = Conditioned floor area

Ndwell = Number of dwelling units

A = Adjustment factor from Table 150.1-C

B = Dwelling adjustment factor from Table 150.1-C

Table 150.1-C – CFA and Dwelling adjustment Factors

Climate Zone	A-CFA	B-DwellingUnits
1	0.793	1.27
2	0.621	1.22
3	0.628	1.12
4	0.586	1.21
5	0.585	1.06
6	0.594	1.23
7	0.572	1.15
8	0.586	1.37
9	0.613	1.36
10	0.627	1.41
11	0.836	1.44
12	0.613	1.4
13	0.894	1.51
14	0.741	1.26
15	1.56	1.47
16	0.59	1.22

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NORCO VALLEY SQUARE NORCO, CA
FRONTIER COMMUNITIES
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

DATE: 09-03-20
JOB NO.: 2019-344

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860
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COMMERCIAL

Food Garden and Park	4.75 ac
Hotel	2.81 ac
Total Commercial	**7.56 ac**
FOOD GARDEN BUILDINGS	
Building A (Food)	750 sf
Building B (Food)	750 sf
Building C (Food)	2,250 sf
Building D (Food)	750 sf
Building E (Saloon)	1,550 sf
Building F (Food)	400 sf
Building G (Food)	750 sf
Building H (Food)	1,500 sf
Gross Leaseable Area	**8,700 sf**
Building X (Restrooms, Maintenance, Tenants Bike Storage)	*±800 sf*

AMENITY LEGEND

1. HORSE TRAIL
   - 12' OR 7' WIDE DG TRAIL
   - 2 RAIL FENCE
2. "OLD TOWN" WOOD WATER TOWER ON ELEVATED LANDSCAPE MOUND
3. STACKED STONE WALL W/ MONUMENT SIGNAGE
4. RETAIL OPEN AIR FOOD GARDEN (SEE ENLARGEMENT)
5. TERRACE ENCLOSED GARDEN
   - FIRE PITS
   - SEAT NODES
   - HORSE SHOES
   - MEANDER LOOP PATH
6. STONE "RUINS" EVENT SPACE
   - WEDDING VENUE
7. HORSE PADDOCK LOCATED ALONG HORSE TRAIL ON-SITE LOOP
8. VEHICLE ACCESS CONTROL SYSTEM
   - CONTROLS ACCESS FOR RESIDENTIAL
9. RESIDENTIAL & HOTEL SITE ENCLOSED POOL AREA
   (SEE ENLARGEMENT)
   - POOL
   - ELEVATED SPA
   - SHADE STRUCTURE
   - LOUNGE/ BAR STRUCTURE
10. OPEN MEADOW / RETENTION AREA
11. 12 SQ. SHADE STRUCTURE W/ PEDESTAL BBQ & TABLE SEATING UNDERNEATH (2 LOCATIONS)
12. AL FRESCO DINING (2) LOCATIONS
    - PEDESTAL BBQ
    - STRING LIGHT ABOVE
    - (2) DINING TABLE BELOW
13. ACTIVE COURTYARD
    - OPEN TURF PLAY AREA (45x100)
    - PLAZA ENHANCED PAVING
    - 12x24 LATTICE SHADE STRUCTURE
      - 1/2 USED AT PLAZA
      - 1/2 USED AT DOG PARK
    - PEDESTAL BBQ
    - VARIETY OF SEATING OPTION
14. ENCLOSED DOG PARK
    - 50x50 ENCLOSED SPACE
    - BARK SURFACE
15. PEDESTAL BBQ NODE (2 LOCATIONS)
16. ENTERTAINMENT COURTYARD
    - OUTDOOR FIREPLACE
    - BBQ W/ COUNTERTOP
    - PIZZA OVEN
    - TABLE SEATING W/ UMBRELLA
17. EXISTING 'NORCO COLLEGE' SIGN TO REMAIN

TREES LIST

SYMBOLS	BOTANICAL NAME	COMMON NAME
	Bauhinia purpurea	Orchid tree
	Lagerstroemia indica	Crape myrtle
	Olea europaea	Olive tree
	Cercidium hybrid 'desert museum'	Hybrid palo verde
	Chitalpa taskentensis 'pink dawn'	Chitalpa
	Prosopis chilensis 'thornless'	Thornless chilean mesquite
	Sambucus mexicana	Mexican elderberry
	Geijera parviflora	Australian willow
	Tristania conferta	Brisbane box
	Grevillea robusta	Silk oak
	Magnolia grandiflora 'd.D. Blanchard'	Southern magnolia
	Ulmus parvifolia 'true green'	Evergreen elm
	Schinus molle	California pepper tree
	Rhus lancea	African sumac
	Pinus canariensis	Canary island pine
	Quercus agrifolia	Coast live oak
	Platanus racemosa	California sycamore
	Phoenix dactylifera	Date palm
	Washingtonia robusta	Mexican fan palm

SHRUBS LIST

SYMBOLS	BOTANICAL NAME	COMMON NAME
	Aeonium arboreum	Tree Aeonium
	Agave attenuata	Foxtail Agave
	Agave desmettiana	Dwarf Century Plant
	Agave weberi	Weber's Century Plant
	Aloe vera	Medicinal Aloe
	Arctostaphylos uva-ursi	Bearberry
	Baccharis 'Centennial'	Coyote Brush
	Bougainvillea 'La Jolla'	Bougainvillea
	Buxus microphylla japonica	Japanese Boxwood
	Callistemon viminalis 'LittleJohn'	Dwarf Bottlebrush
	Carex divulsa	Berkeley Sedge
	Carissa grandiflora 'Green Carpet'	Natal Plum
	Cereus peruvianus	Peruvian Torch
	Chondropetalum tectorum	Cape Rush
	Dianella revoluta 'DR5000'	Little Rev Flax Lily
	Dianella tasmanica 'Silver Streak'	Silver Streak Flax Lily
	Hemerocallis 'Dwart Red'	Day Lily
	Heteromeles arbutifolia	Toyon
	Leymus condensatus 'Canyon Prince'	Canyon Prince Wild Rye
	Ligustrum japonicum 'Texanum'	Wax Leaf Privet
	Moraea bicolor	Fortnight Lily
	Muhlenbergia capillaris 'Regal Mist'	Regal Mist Muhly
	Muhlenbergia rigens	Deer Grass
	Myoporum parvifolium 'Putah Creek'	Creeping Myoporum
	Olea europaea 'Montra' P.P.#6266	Little Ollie Dwarf Olive
	Opuntia violacea 'Santa Rita'	Santa Rita Prickley Pear
	Pennisetum 'Fairy Tails'	Fairy Tails Fountain Grass
	Pittosporum tobira	Tobira
	Podocarpus elongatus 'Monmal'	Icee Blue Yellow-Wood
	Rhaphiolepis indica	Indian Hawthorne
	Rosmarinus officinalis 'Tuscan Blue'	Tuscan Blue Rosemary
	Senecio mandraliscae	Blue Chalk Sticks
	Strelizia reginae	Bird-of-Paradise
	Trachelospermum jasminoides	Star Jasmine
	Yucca recurvifolia	Pendulous Yucca
	Turf	Synthetic Turf or St. Augustine

PRELIMINARY LANDSCAPE PLAN

L-1

NORCO VALLEY SQUARE

NORCO, CA

FRONTIER COMMUNITIES
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

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DATE: 9-08-20
JOB NO.: 20-003

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31340-B2 Airport Loop Drive
Costa Mesa, CA 92626
Ridcut Pulmonas, Llcense # 2750
(949) 644-9370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

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Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Edward Fuhrman, License # 3798
(949) 644-9370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

SITESCAPES
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3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Inland Palomar, Llano # 2718
(949) 644-9370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

SITESCAPES
Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Mount Palomar, Unmee # 2765
(949) 644-8370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

SITESCAPES
Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Robert Patterson, License # 2765
(949) 644-9270 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

SITESCAPES
Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Inland Palomar, Llano # 2758
(949) 644-9370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

SITESCAPES
Landscape Architecture & Planning
31801-02 Airport Loop Drive
Costa Mesa, CA 92626
(949) 864-8370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

NORCO VALLEY SQUARE

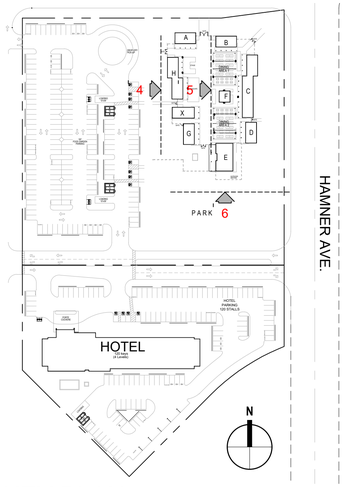
SITESCAPES
Landscape Architecture & Planning
3190-B2 Airport Loop Drive
Costa Mesa, CA 92626
Inland Palomino, Llanos @ 2762
(949) 644-8370 FAX (714) 210-3140

JOB# 20-003 DATE: 05-12-20

WEST ELEVATION 4

WEST ELEVATION 5

SOUTH ELEVATION 6



KEY PLAN NOT TO SCALE

FOOD GARDEN - COMPOSITE ELEVATIONS 2

A04

DATE: 04-21-20
JOB NO.: 2019-344

NORCO VALLEY SQUARE NORCO, CA

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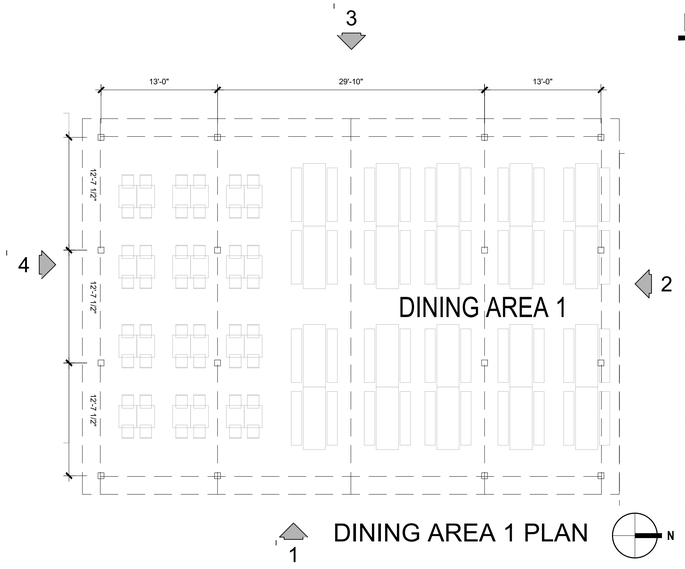


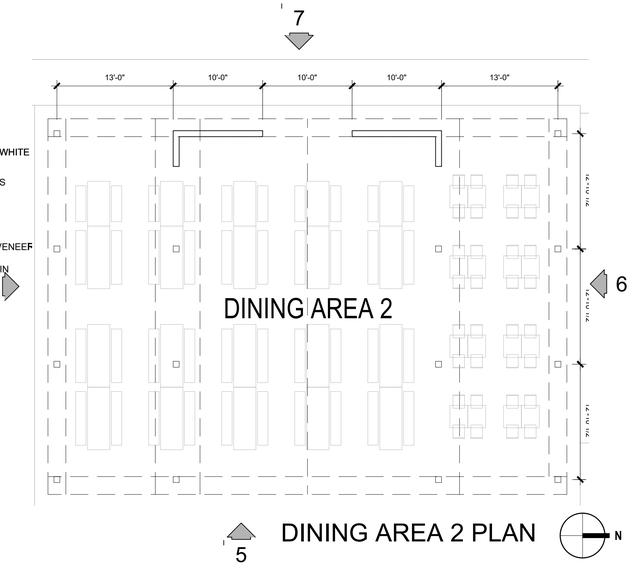
DINING AREA 1 PLAN

MATERIAL / COLOR LEGEND

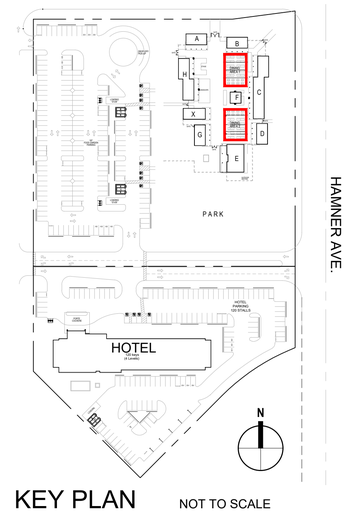
S1	FIBER CEMENT BOARD & BATTEN COLOR TO MATCH KHAKI BROWN BY JAMES HARDIE
S2	FIBER CEMENT BOARD & BATTEN COLOR TO MATCH ARCTIC WHITE BY JAMES HARDIE
S3	FIBER CEMENT LAP SIDING COLOR TO MATCH TRADITIONAL RED BY JAMES HARDIE
S4	FIBER CEMENT LAP SIDING COLOR TO MATCH LIGHT MIST BY JAMES HARDIE
W1	WOOD SIDING, T&G JOINT - OLYMPIC COLOR TO MATCH GOLDEN OAK - STAIN COLOR
W2	WOOD ELEMENTS, TRELLIS, POSTS, BEAMS, RAFTER TAILS, TRUSSES, FENCE, BARN DOORS, DIRECTIONAL SIGNS, ETC. OLYMPIC COLOR TO MATCH GOLDEN OAK - STAIN COLOR
W3	BARN WOOD VERTICAL SIDING DISTRESSED RECLAIMED FINISH
MR1	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING GALVANIZED FINISH G-90
MR2	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING COLONIAL RED
MR3	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING STREAKED RUST
L1	GOOSENECK BARN LIGHT BLACK COLOR
L2	BARNHOUSE STYLE WALL SCONCE GALVANIZED COLOR
L3	BARN DOWNLIGHT STRAIGHT ARM BLACK COLOR
ST1	STUCCO - 20/30 SAND LIGHT DASH PAINTED TO MATCH FROSTY WHITE - SW 6196
ST2	STUCCO - SMOOTH COAT PAINTED TO MATCH FROSTY WHITE - SW 6196

C1	CENTER ID - GRAPHIC
C2	SIGNAGE, PAINTED ON SURFACE
G	SPANDREL GLASS WITH BLUE TINTED COLOR
M	ALUMINUM ANODIZED DOORS & WINDOWS - COLOR WHITE
D	BIFOLDING STRAPLIFT DOOR WITH SPANDREL GLASS
AR1	ASPHALT SHINGLE ROOF BLEND OF GRAY COLORS
SV1	OLD STONE RUINS LOOK - MANUFACTURED STONE VENEER BY CORONADO STONE 70% EASTERN MOUNTAIN LEDGE - CARMEL MOUNTAIN 30% MINNESOTA FIELDSTONE - WISCONSIN BLEND

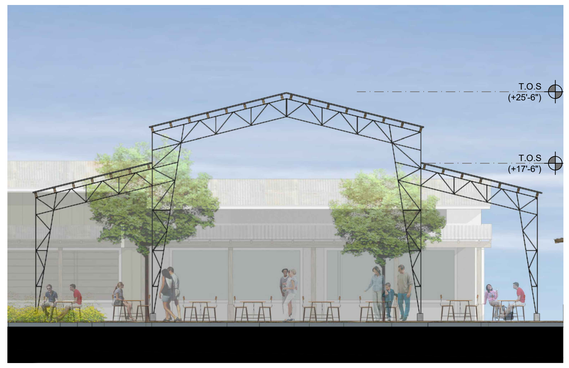
FOR FURTHER INFORMATION REFER TO SHEET A20
FOR THE COLOR & MATERIAL FINISHES



DINING AREA 2 PLAN

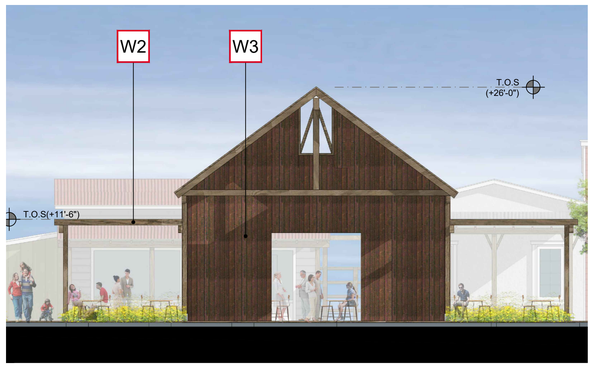


KEY PLAN NOT TO SCALE



DINING AREA 1 - EAST ELEVATION 1

DINING AREA 1 - NORTH ELEVATION 2

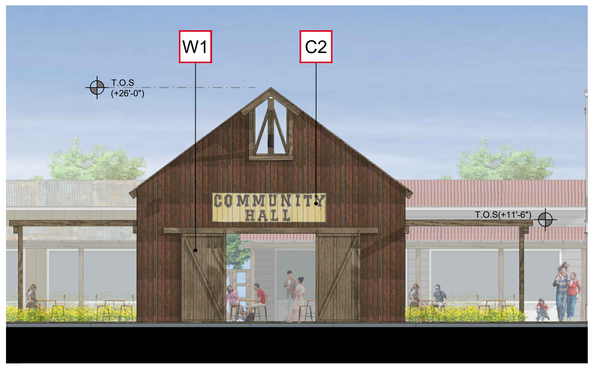


DINING AREA 2 - EAST ELEVATION 5

DINING AREA 2 - NORTH ELEVATION 6

DINING AREA 1 - WEST ELEVATION 4

DINING AREA 1 - SOUTH ELEVATION 3



DINING AREA 2 - WEST ELEVATION 8

DINING AREA 2 - SOUTH ELEVATION 7

FOOD GARDEN - DINING AREA 1 & 2 FLOOR PLAN & ELEVATIONS

A12

½" 0 1' 2' 4' 8' 12' 16'

DATE: 04-21-20
JOB NO.: 2019-344

NORCO VALLEY SQUARE NORCO, CA

FRONTIER COMMUNITIES
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

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NORTH ELEVATION 1

EAST ELEVATION 2

MATERIAL / COLOR LEGEND

S1	FIBER CEMENT BOARD & BATTEN COLOR TO MATCH KHAKI BROWN BY JAMES HARDIE
S2	FIBER CEMENT BOARD & BATTEN COLOR TO MATCH ARCTIC WHITE BY JAMES HARDIE
S3	FIBER CEMENT LAP SIDING COLOR TO MATCH TRADITIONAL RED BY JAMES HARDIE
S4	FIBER CEMENT LAP SIDING COLOR TO MATCH LIGHT MIST BY JAMES HARDIE
W1	WOOD SIDING, T&G JOINT - OLYMPIC COLOR TO MATCH GOLDEN OAK - STAIN COLOR
W2	WOOD ELEMENTS, TRELLIS, POSTS, BEAMS, RAFTER TAILS, TRUSSES, FENCE, BARN DOORS, DIRECTIONAL SIGNS, ETC. OLYMPIC COLOR TO MATCH GOLDEN OAK - STAIN COLOR
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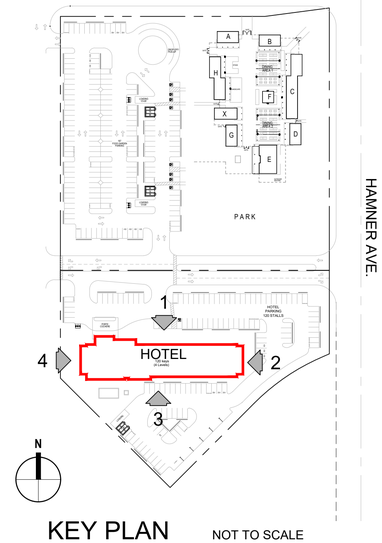
MR1	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING GALVANIZED FINISH G-90
MR2	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING COLONIAL RED
MR3	CORRUGATED METAL ROOF - WESTERN STATES METAL ROOFING STREAKED RUST
L1	GOOSENECK BARN LIGHT BLACK COLOR
L2	BARNHOUSE STYLE WALL SCONCE GALVANIZED COLOR
L3	BARN DOWNLIGHT STRAIGHT ARM BLACK COLOR
ST1	STUCCO - 20/30 SAND LIGHT DASH PAINTED TO MATCH FROSTY WHITE - SW 6196
ST2	STUCCO - SMOOTH COAT PAINTED TO MATCH FROSTY WHITE - SW 6196
C1	CENTER ID - GRAPHIC
C2	SIGNAGE, PAINTED ON SURFACE
G	SPANDREL GLASS WITH BLUE TINTED COLOR
M	ALUMINUM ANODIZED DOORS & WINDOWS - COLOR WHITE
D	BIFOLDING STRAPLIFT DOOR WITH SPANDREL GLASS
AR1	ASPHALT SHINGLE ROOF BLEND OF GRAY COLORS
SV1	OLD STONE RUINS LOOK - MANUFACTURED STONE VENEER BY CORONADO STONE 70% EASTERN MOUNTAIN LEDGE - CARMEL MOUNTAIN 30% MINNESOTA FIELDSTONE - WISCONSIN BLEND

FOR FURTHER INFORMATION REFER TO SHEET A20
FOR THE COLOR & MATERIAL FINISHES



KEY PLAN NOT TO SCALE

HOTEL- NORTH & EAST ELEVATIONS

3/32" 0 1'-2" 4' 8' 16' 21'-4"

A15

DATE: 04-21-20
JOB NO.: 2019-344

NORCO VALLEY SQUARE

NORCO, CA

FRONTIER COMMUNITIES
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860
Architecture. Design. Relationships.

Tuesday, May 26, 2020 3:27:11 PM
\\AO-PROJECTS\PROJECTS\2019-344 FRONTIER-NORCO\DESIGN\PRESENTATION\SUBMITTAL PACKAGE\CAD\00-000_A02 - A16 BUILDS PLAN-ELEVATIONS.DWG

TENTATIVE PARCEL MAP NO. □79□9
IN THE CITY OF NORCO
FOR FINANCIAL PURPOSES

LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE CITY OF NORCO, THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

LOT 10 OF TRACT 33876, IN THE CITY OF NORCO, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, PER MAP RECORDED IN BOOK 430 PAGES 17 THROUGH 22, INCLUSIVE, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL A:
THAT PORTION OF SECTIONS 12 AND 13, TOWNSHIP 3 SOUTH, RANGE 7 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN ON MAP OF W.J. HOLE SUBDIVISION OF RANCHO LA SIERRA ON FILE IN BOOK 6 PAGE 70 OF MAPS, RIVERSIDE COUNTY RECORDS, ALSO DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF LOT 3 IN BLOCK 7 OF RIVERSIDE ORANGE HEIGHTS TRACT, AS SHOWN BY MAP ON FILE IN BOOK 6 PAGE 74 OF MAPS, RIVERSIDE COUNTY RECORDS; THENCE NORTH 7° 27' EAST, 665.63 FEET, TO THE TRUE POINT OF BEGINNING; THENCE WEST 837.09 FEET; THENCE NORTH 7° 27' EAST, 1447.91 FEET; THENCE SOUTH 83° 58' EAST, 539.76 FEET; THENCE SOUTH 7° 27' WEST, 590.00 FEET THENCE SOUTH 83° 58' EAST, 290.50 FEET; THENCE SOUTH 7° 27' WEST, 769.89 FEET, TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION OF SECTION 12, TOWNSHIP 3 SOUTH, RANGE 7 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN ON THE MAP OF W.J. HOLE SUBDIVISION OF RANCHO LA SIERRA ON FILE IN BOOK 6 PAGE 70 OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF LOT 3, RIVERSIDE ORANGE HEIGHTS TRACT, AS SHOWN BY MAP ON FILE IN BOOK 6, PAGE 74 OF MAPS, RIVERSIDE COUNTY RECORDS; THENCE NORTH 7° 27' EAST 665.63 FEET; THENCE WEST 837.09 FEET; THENCE NORTH 7° 27' EAST 472.41 FEET, TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 83° 58' EAST 539.76 FEET; THENCE NORTH 7° 27' EAST TO THE POINT OF INTERSECTION WITH THE WESTERLY EXTENSION OF THE CENTER LINE OF THIRD STREET, AS SHOWN ON THE MAP OF RIVERSIDE ORANGE HEIGHTS TRACT NO. 2 ON FILE IN BOOK 7 PAGE 54 OF MAPS, RIVERSIDE COUNTY RECORDS, THENCE SOUTH 7° 27' WEST 33 FEET; THENCE SOUTH 89° 58' 36" EAST TO A POINT ON THE WEST LINE OF HAMNER AVENUE, AS SHOWN ON SAID MAP, WHICH BEARS SOUTH 7° 27' WEST 33 FEET FROM THE WESTERLY EXTENSION OF THE CENTER LINE OF THIRD STREET; THENCE NORTH 7° 27' EAST, ALONG THE WEST LINE OF HAMNER AVENUE TO THE SOUTHEAST CORNER OF THAT CERTAIN PARCEL OF LAND CONVEYED TO LEE S. DANNER AND GENTLE L DANNER, HUSBAND AND WIFE, BY DEED RECORDED JULY 6, 1953 AS INSTRUMENT NO. 33106; SAID SOUTHEAST CORNER BEARING NORTH 7° 27' EAST 1,435.52 FEET FROM THE NORTHEAST CORNER OF LOT 3 IN BLOCK 7 OF RIVERSIDE ORANGE HEIGHTS TRACT; THENCE NORTH 83° 58' WEST 290.50 FEET; THENCE NORTH 7° 27' EAST 590 FEET; THENCE NORTH 83° 58' WEST 539.76 FEET; THENCE SOUTH 7° 27' WEST 975.30 FEET, TO THE POINT OF BEGINNING.

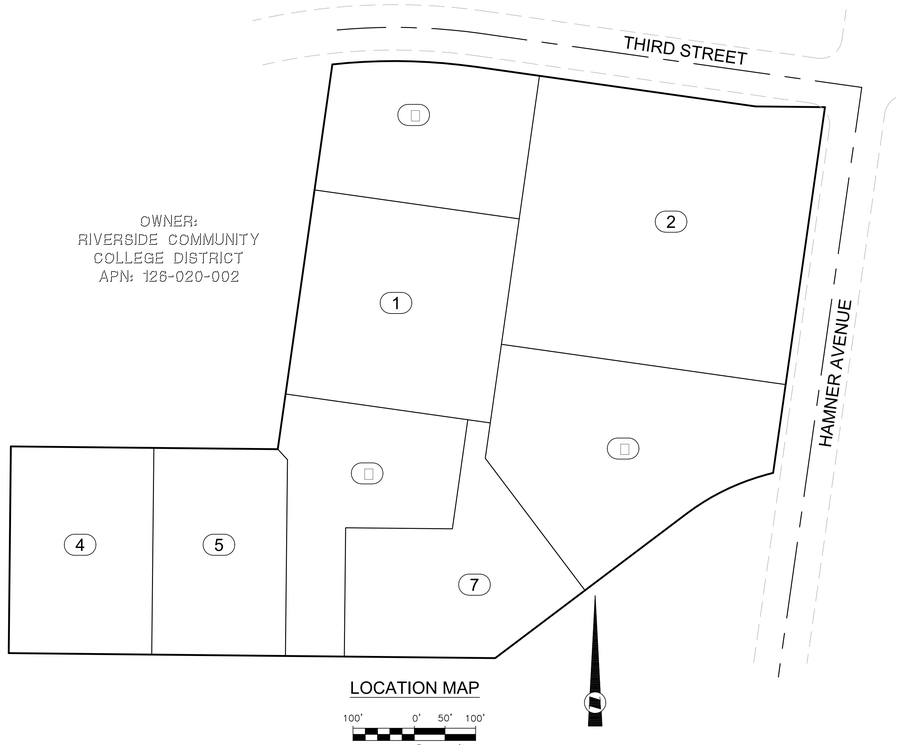
EXCEPT THAT PORTION DESCRIBED IN DEED TO THE CITY OF NORCO RECORDED MARCH 13, 1969 AS INSTRUMENT NO. 1969-24551 OF OFFICIAL RECORDS.

PARCEL B:
THAT PORTION OF FRACTIONAL SECTION 13, TOWNSHIP 3 SOUTH, RANGE 7 WEST, IN THE RANCHO LA SIERRA, IN THE CITY OF NORCO, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP SHOWING SUBDIVISIONS OF PORTIONS OF THE JURUPA AND LA SIERRA RANCHOS RECORDED IN BOOK 6, PAGE 70 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT 3 IN BLOCK 7 OF RIVERSIDE ORANGE HEIGHTS TRACT, AS PER MAP FILED IN BOOK 6, PAGE 74 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE NORTHERLY ON A LINE PRODUCED BY THE PROLONGATION OF THE WESTERLY LINE OF SAID LOT 3 IN BLOCK 7, A DISTANCE OF 322.90 FEET TO THE TRUE POINT OF BEGINNING;
THENCE NORTHERLY ON SAID LAST DESCRIBED LINE, 337.10 FEET;
THENCE EASTERLY, PARALLEL WITH THE NORTH LINE OF SAID LOT 3 IN BLOCK 7 TO A POINT ON THE WESTERLY LINE OF HAMNER AVENUE;
THENCE SOUTHWESTERLY, ALONG THE WESTERLY LINE OF HAMNER AVENUE, TO A POINT 322.90 FEET NORTHERLY, MEASURED AT RIGHT ANGLES, FROM THE NORTHERLY LINE OF SAID LOT 3, PRODUCED EASTERLY;
THENCE WESTERLY, PARALLEL WITH THE NORTHERLY LINE OF SAID LOT 3, TO THE TRUE POINT OF BEGINNING.

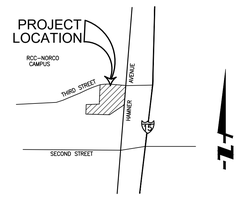
EXCEPT THAT PORTION LYING SOUTHEAST OF THE NORTHWEST LINE OF THE LAND CONVEYED TO THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT BY DEED RECORDED NOVEMBER 5, 1965 AS INSTRUMENT NO. 126111 OF OFFICIAL RECORDS.

ALSO EXCEPT THAT PORTION CONVEYED TO THE CITY OF NORCO BY DEED RECORDED MARCH 13, 1969 AS INSTRUMENT NO. 24550 OF OFFICIAL RECORDS.



LOCATION MAP

100' 0' 50' 100'
SCALE: 1" = 100'



VICINITY MAP
NOT TO SCALE

LEGEND □ ABBREVIATIONS

- CENTERLINE
- PROPERTY LINE
- RIGHT OF WAY
- PROPOSED LOTLINE
- PROPOSED WATER
- PROPOSED STORM DRAIN
- PROPOSED SEWER
- PROPOSED RECYCLE WATER
- 0.5% STREET GRADE & FLOW DIRECTION
- PUBLIC UTILITY EASEMENT
- 800 PROPOSED CONTOUR
- 703 EXISTING CONTOUR
- EXISTING WATER
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING RECYCLE WATER
- TOP OF SLOPE
- TOE OF SLOPE
- FLOW LINE
- (1) LOT NUMBER
- BUILDING FOOTPRINT
- DOUBLE CHECK DETECTOR ASSEMBLY AND FIRE DEPARTMENT CONNECTION
- PROPOSED RETAINING WALL
- FIRE ROAD ACCESS EASEMENT & UTILITY EASEMENT
- PROPOSED HORSE TRAIL EASEMENT
- EXISTING HORSE TRAIL EASEMENT
- MODULAR WET LAND

A.C.	ASPHALT CONCRETE
AC, AC.	ACRE
A.B.	AGGREGATE BASE
BC	BEGIN OF CURVE
BCR	BEGIN OF CURB RETURN
BLDG.	BUILDING
CB	CATCH BASIN
℄	BOUNDARY LINE
C/L, CL, ℄	CENTER LINE
CONC.	CONCRETE
CY	CUBIC YARD
D/L	DAYLIGHT
DWY	DRIVEWAY
E.A., EA	EACH
EC	END OF CURVE
ECR	END OF CURB RETURN
EG	EXISTING GROUND
ESMT	EASEMENT
EX., EXIST.	EXISTING
FF	FINISHED FLOOR
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FS	FINISHED SURFACE
FT	FEET
GB	GRADE BREAK
GL	GARAGE LIP
HP	HIGH POINT
L.F., LF	LINEAL FEET
LN	LANE
LP	LOW POINT
L.S.	LUMP SUM
MAX	MAXIMUM
MIN	MINIMUM
MH	MANHOLE
NTS	NOT TO SCALE
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
P/L, ℙ	PROPERTY LINE
PROP.	PROPOSED
PUE	PUBLIC UTILITY EASEMENT
PVT	PRIVATE
R/W, RW	RIGHT OF WAY
R	RADIUS
SCE	SOUTHERN CALIFORNIA EDISON
SD	STORM DRAIN
SDWK	SIDEWALK
SW, SS	SEWER
SIM.	SIMILAR
SF, S.F.	SQUARE FEET
TC	TOP OF CURB
TYP.	TYPICAL
VC	VERTICAL CURVE
W, DW	WATER, DOMESTIC WATER

SHEET INDEX	
SHEET NO.	DESCRIPTION
C-1	TITLE SHEET
C-2	TENTATIVE PARCEL MAP/GRADING
C-3	GRADING X-SECTIONS
C-4	UTILITY SYSTEMS MAP

UTILITIES

WATER: CITY OF NORCO, PHONE: (951) 270-5654

SEWER: CITY OF NORCO, PHONE: (951) 270-5654

NATURAL GAS: GAS COMPANY, PHONE: 1-800-427-2200

ELECTRICAL: SOUTHERN CALIFORNIA EDISON CO., PHONE: 1-800-655-4555

WASTE MANAGEMENT, PHONE: 1-800-423-9986

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, ZONE 6, CONSTRAINED LOCALLY BETWEEN CONTINUOUS GPS STATIONS NOCO & CNPP. SAID BEARING IS N28°35'33"E.

R1: INDICATES RECORD DATA PER RS 104/100
R2: INDICATES RECORD DATA PER TRACT 3952, MB 64/46-47
R3: INDICATES RECORD DATA PER RS 37/55-63
R4: INDICATES RECORD DATA PER TRACT MAP NO. 33876, MB 430/17-22
R5: INDICATES RECORD DATA PER RS 91/100
R6: INDICATES RECORD DATA PER RS 26/26

D1: INDICATES DATA PER DEED RECORDED OCT. 13, 1977 AS INSTR. NO. 202624
D2: INDICATES DATA PER DEED RECORDED MAY 7, 1990 AS INSTR. 166078 O.R.
D3: INDICATES DATA PER DOCUMENT RECORDED MARCH 13, 1969 AS INSTR. 24551, O.R.

ASSESSORS PARCEL NUMBERS

ASSESSOR'S PARCEL NUMBERS
129-380-010
126-050-002
126-050-004

□ONING

NORCO AUTO MALL SPECIFIC PLAN & HOUSING DEVELOPMENT OVERLAY (HDO)

BENCHMAR□

THE BENCHMARK FOR THIS SURVEY IS CONTINUOUS OPERATING REFERENCE STATION "NOCO", ELEVATION 725.78' (NAVD 88.)

THIS IS A CONTINUOUS GPS STATION AND IS PART OF THE CALIFORNIA SPATIAL REFERENCE CENTER SURVEY COMPUTED 11-11-17 FOR THE CALIFORNIA DEPARTMENT OF TRANSPORTATION. VERTICAL DATUM IS TO THE GEODETIC REFERENCE POINT (GRP.) THE ANTENNA IS A TOPCON TPSCR.G3 WITH SCIT DOME. TRUE VERTICAL ANTENNA HEIGHT IS FROM THE GEODETIC REFERENCE POINT TO THE BOTTOM OF THE ANTENNA PRE-AMP(BPA) AND IS 0.027 FEET.

PROPOSED LOTS		
LOT NUMBER	GROSS AREA	NET AREA
1	11□22□S.F. □2.□0 AC	11□22□S.F. □2.□0 AC
2	207,□□1 S.F. □4.77 AC	20□,□□5□S.F. □4.75 AC
□	77,1□2 S.F. □1.77 AC	77,1□2 S.F. □1.77 AC
4	7□,542 S.F. □1.□0 AC	7□,542 S.F. □1.□0 AC
5	7□,□□25 S.F. □1.□□AC	7□,□□25 S.F. □1.□□AC
□	77,002 S.F. □1.77 AC	77,002 S.F. □1.77 AC
7	□2,□99 S.F. □1.90 AC	□2,□99 S.F. □1.90 AC
□	122,□94 S.F. □2.□1 AC	122,□94 S.F. □2.□1 AC
TOTAL	□□2,20□S.F. □19.10 AC	□□1,□75 S.F. □19.0□AC

OWNER□DEVELOPER

FRONTIER ENTERPRISES
2151 E. CONVENTION CENTER WAY, SUITE 114
ONTARIO, CA. 91746
PHONE: (909) 354-8040

ARCHITECT

ARCHITECTS ORANGE
144 ORANGE STREET
ORANGE, CA 92866
PHONE: (714) 639-9860

LANDSCAPE ARCHITECT

SITESCAPES
3190 B-2 AIRPORT LOOP DRIVE
COSTA MESA, CA 92626
PHONE: (949) 644-9370

ENGINEER

FUSCOE ENGINEERING
2850 INLAND EMPIRE BLVD., SUITE B
ONTARIO, CA 91764
PHONE: (909) 581-0676

GROSS AREA

±19.1 AC

TENTATIVE PARCEL MAP SUMMARY

A)	TOTAL AREA GROSS:	19.10 ACRES
	TOTAL AREA NET:	19.08 ACRES
B)	EXISTING/PROPOSED ZONING:	NORCO AUTO MALL SPECIFIC PLAN & HOUSING DEVELOPMENT OVERLAY (HDO)
	EXISTING USE:	VACANT/RV-SALES LOT
	PROPOSED USE:	MIXED USE (320 UNIT RESIDENTIAL, RETAIL/RESTAURANT, HOTEL)
C)	PROPOSED BUILDING AND STRUCTURES:	SEE ARCHITECTURAL SITE PLAN A0.1
D)	LANDSCAPE AREA:	SEE PRELIMINARY LANDSCAPE PLAN L-1
E)	TOTAL PAVED PARKING AREAS:	394,148 S.F. / 9.05 A.C.
F)	PARKING SPACES REQUIRED AND PROVIDED:	SEE ARCHITECTURAL PROJECT INFORMATION G1.1
G)	LOADING SPACES REQUIRED AND PROVIDED:	SEE ARCHITECTURAL PROJECT INFORMATION G1.1

REGISTERED PROFESSIONAL ENGINEER STEVEN L. ELLIS NO. C 47255 Exp. 12/31/21 CIVIL STATE OF CALIFORNIA

ENGINEER'S STATEMENT:

THIS MAP HAS BEEN PREPARED UNDER MY SUPERVISION AS DIRECTED BY THE RECORD OWNER AND DEVELOPER OF THE PROPERTY DESCRIBED HEREON.

_____ DATE _____
STEVEN L. ELLIS, RCE 47255

TITLE SHEET C□1

DATE: 09-08-20
JOB NO.: 1655-003

NORCO VALLEY SQUARE

NORCO, CA

FRONTIER COMMUNITIES

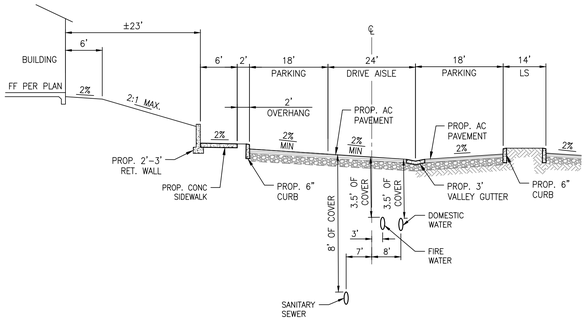
2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

FUSCOE ENGINEERING
2850 INLAND EMPIRE BLVD., SUITE B ONTARIO, CA 91764
(909)-581-0676

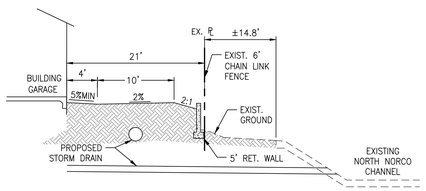
JN 1655-003

F:\PROJECTS\1655-003\PLANS\ENTITLEMENTS\TENTATIVE PARCEL MAP\1655-003-TMAP15.DWG (09-08-20, 1:21:06PM) Plotted by: Carlos Aguirre

TENTATIVE PARCEL MAP NO. □79□9
IN THE CITY OF NORCO
FOR FINANCIAL PURPOSES

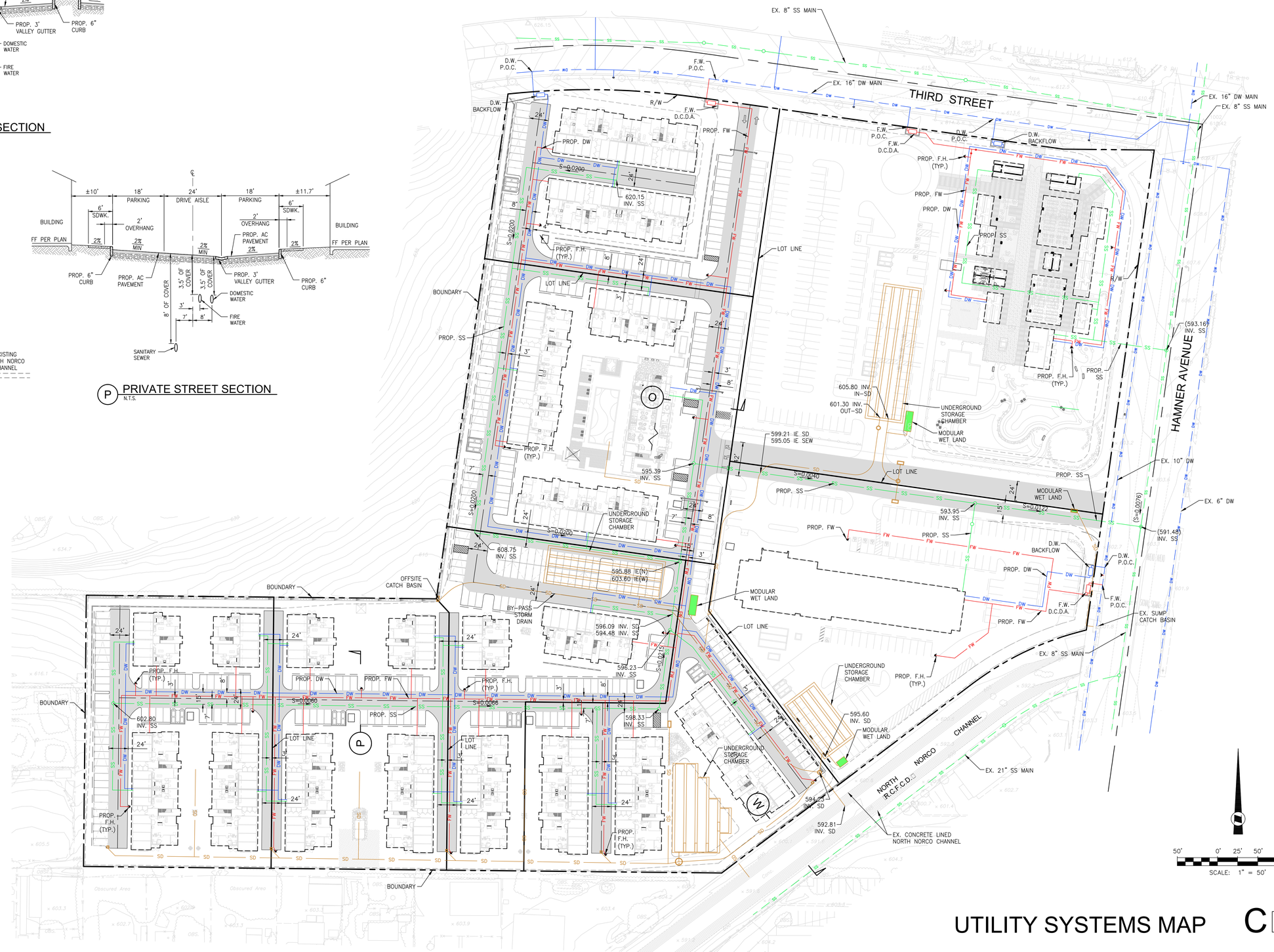


O PRIVATE STREET SECTION
N.T.S.



W SOUTH SECTION
N.T.S.

P PRIVATE STREET SECTION
N.T.S.



LEGEND:

- BOUNDARY / RIGHT-OF-WAY
- LOT LINE
- PUBLIC UTILITY EASEMENT
- PROPOSED CURB & GUTTER
- PROPOSED WATER LINE
- PROPOSED FIRE WATER LINE
- PROPOSED SEWER
- PROPOSED STORM DRAIN
- WATER LINE PER DWG
- EXISTING SEWER
- PROPOSED FIRE HYDRANT
- FIRE ROAD ACCESS EASEMENT & UTILITY EASEMENT
- MODULAR WET LAND

ABBREVIATIONS:

CONC.	CONCRETE
D.C.D.A.	DOUBLE CHECK DETECTOR ASSEMBLY
DW	DOMESTIC WATER
FW	FIRE WATER LINE
F.H.	FIRE HYDRANT
IE/INV.	INVERT
POC	POINT OF CONNECTION
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
PVT	PRIVATE
R/W	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
RW	RECYCLED WATER
SD	STORM DRAIN
SS	SANITARY SEWER
TYP.	TYPICAL
VCP	VITRIFIED CLAY PIPE

UTILITY SYSTEMS MAP C□4

NORCO VALLEY SQUARE

NORCO, CA

FRONTIER COMMUNITIES

2151 E. CONVENTION CENTER WAY, SUITE 114, ONTARIO, CA 91764

DATE: 09-08-20
JOB NO.: 1655-003

FUSCOE ENGINEERING
2850 INLAND EMPIRE BLVD., SUITE B ONTARIO, CA 91764
(909)-581-0676

JN 1655-003

F:\PROJECTS\1655\003\PLANS\ENTITLEMENTS\TENTATIVE PARCEL MAP\1655-003-TMP4GRADING (09-08-20 2:54:45PM) Plotted by: Carlos Aguirre

Appendix C

Air Quality and Greenhouse Gas Emissions Study

Norco Valley Square Project

Air Quality and Greenhouse Gas Emissions Study

prepared for

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764
Contact: Tim Nguyen

prepared by

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

September 2020

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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Appendices

Appendix A CalEEMod Output Files and Calculation Spreadsheets (N2O, Solar PV and RPS Energy Intensity Factors)
Appendix B Energy Fuel Consumption Calculation Spreadsheet

1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential air quality and greenhouse gas (GHG) emissions impacts of the proposed construction and operation of the Norco Valley Square Project. Rincon Consultants, Inc. (Rincon) prepared this study under contract to Frontier Enterprises. Table 1 provides a summary of project impacts.

Table 1 Summary of Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Recommendations
Air Quality		
Conflict with or obstruct implementation of the applicable air quality plan?	Less than significant impact	None
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?	Less than significant impact	None
Expose sensitive receptors to substantial pollutant concentrations?	Less than significant impact	None
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant impact	None
Greenhouse Gas Emissions		
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant impact	None
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant impact	None

Applicable Air Quality Regulations

The project would comply with the following existing requirements and reasonably anticipated standard conditions based on local, state, or federal regulations and laws required independently of environmental review. These measures are not included as mitigation measures since the project is required to comply with them through state and local regulations.

Fugitive Dust Control

The project would comply with all applicable standards of the South Coast Air Quality Management District (SCAQMD), including the following provisions of Rule 403:

- All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD Rule 403.
- The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.

- All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 miles per hour), so as to prevent excessive amounts of dust.
- All dirt/soil shall be secured by trimming, watering, or other appropriate means to prevent spillage and dust.
- All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
- Trucks having no current hauling activity shall not idle but be turned off.
- Exposed surfaces shall be maintained at a minimum soil moisture of 12 percent and vehicle speeds shall be limited to 15 miles per hour on unpaved roads.

Engine Idling

In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.

Engine Emission Standards

In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

Architectural Coatings

The project shall comply with SCAQMD Rule 1113 limiting the volatile organic compound (VOC) content of architectural coatings.

1.2 Project Summary

Project Location

The approximately 19.1-acre project site is located at the southwest corner of Hamner Avenue and Third Street, within the City of Norco, California. The assessor Parcel Numbers for the project site include 126-050-004, 126-050-002, and 129-380-010. The project site has a General Plan land use designation of Specific Plan (SP) with a Housing Development Overlay (HDO) overlay, and a zoning designation of Specific Plan (SP), specifically Norco Auto Mall Specific Plan.

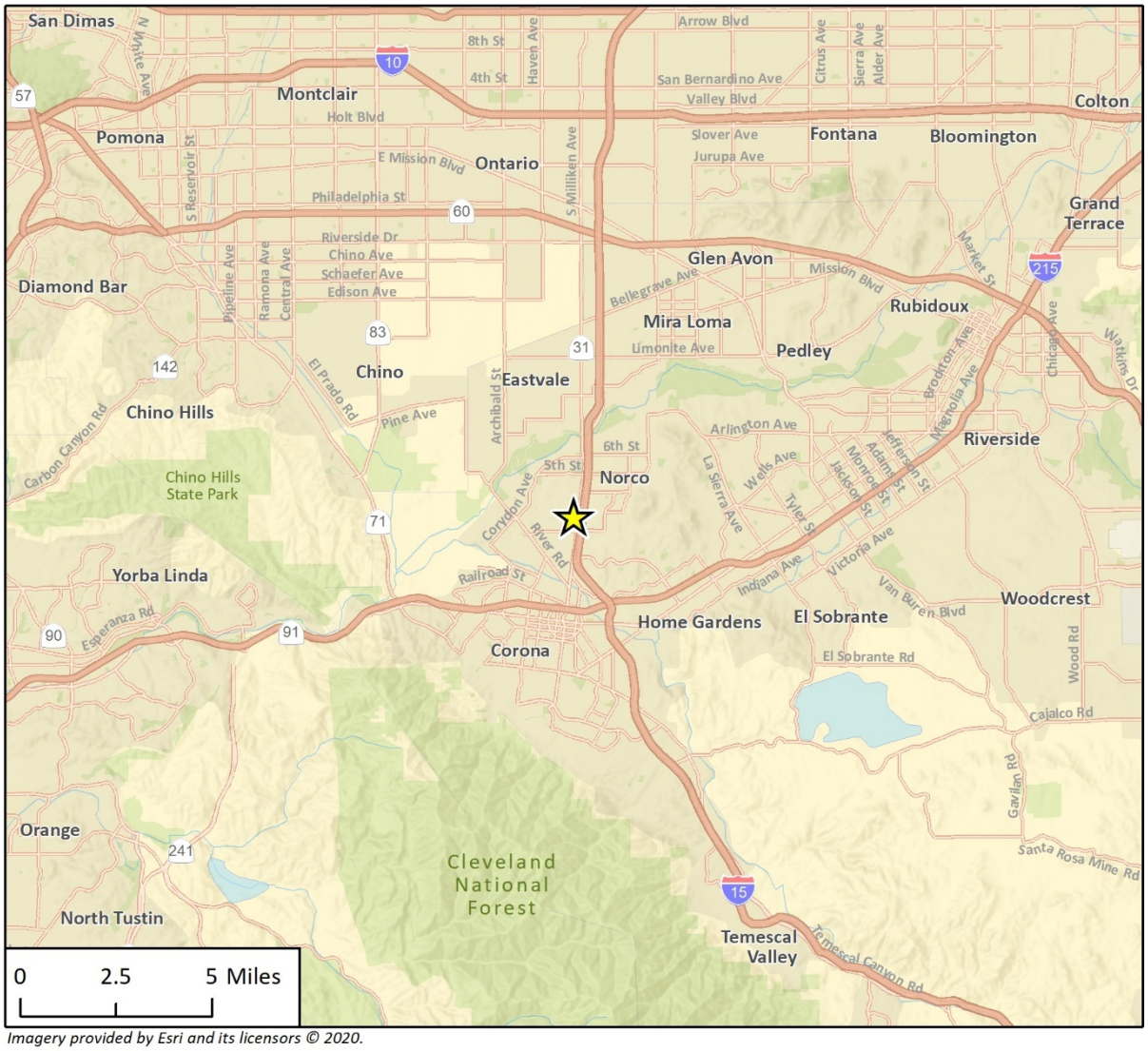
Figure 1 shows the location of the site in the region, Figure 2 shows the project site in its neighborhood context, and Figure 3 shows the project site plan.

Project Description

The proposed project would result in a mix of multi-family residential, food garden and hotel development. Residential apartment buildings would be constructed over approximately 11.3 acres and would line the western half of the project site.

The food garden/hotel portion of the project would be located on approximately 7.6 acres and would be located in the eastern half of the project site. The proposed food garden would be located

Figure 1 Regional Location



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Project Location

N

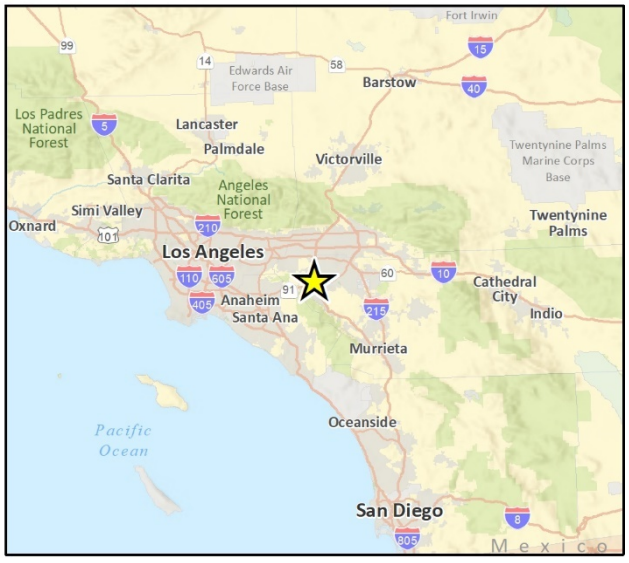

Figure 2 Project Location

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Fig 2 Project Location

Figure 3 Project Site Plan

in the northeastern portion of the project site and the proposed hotel would be located within the southeastern portion of the project site. The food garden would have a western town theme and aesthetic, comprised of eight buildings (totaling approximately 8,700 square feet [sf]) with outdoor dining and landscaped soft-seating (lawn seating) areas. The food garden would generally operate 12 to 15 hours a day, while outdoor amenities (such as the artist exhibit area, bocce courts and lawn game areas, open space park, horse paddock, and horse corral) would be available for use from 7:00 AM to dusk. A restroom and storage kiosk (800 sf) would be included by the hose paddocks in the food garden area as an amenity for food garden patrons and visitors. Table 2 provides a summary of the food garden structures and dining areas provided as part of the project.

Table 2 Food Garden Details

Building		Square Footage (sf)	Seating Capacity
A		750	N/A
B		750	N/A
C		2,250	N/A
D		750	N/A
E (Saloon)		1,500	(See Outdoor Seating below)
F		400	N/A
G		750	N/A
H		1,500	N/A
Outdoor Seating (Bldg. E, Saloon)		1,440	96 guests (15 sf/guest)
Dining Area 1		2,128	142 guests (15 sf/guest)
Dining Area 2		2,128	142 guests (15 sf/guest)
Soft Seating Area 1 (landscaped)		544	17 guests (30 sf/guest)
Soft Seating Area 2 (landscaped)		879	30 guests (30 sf/guest)
Total	**Buildings**	**8,650**	
	Outdoor Seating & Dining	**5,696**	
	Soft Seating	**1,423**	

The proposed hotel development would total approximately 70,000 sf within a four-story building with 120 rooms. Total parking for the food garden and hotel would include 211 spaces and 76 spaces that would be shared with the residential portion of the site as guest parking.

The residential portion of the project site would include three-story buildings, with stair enclosures and tuck-under single car garages. The first floor of the residential structures would include a one bedroom and one bath, the second floor would include two bedrooms and two baths, and the third floor would include three bedrooms and three baths. The residences would total 320 units and would be located on 11.3 acres of the project site (approximately 29 dwelling units per acre). Total parking for residences would include 581 spaces, with 76 shared commercial spaces as previously described (totaling 657 spaces). The residential parking spaces would be comprised of 197 single car garages, 134 roofed carports, and 250 surface parking spaces.

Development of the proposed project would involve site clearing, rough grading and compaction, pouring of concrete and asphalt, and construction of the proposed structures. Vehicular access to the project site would be provided by two driveway entrances. Main vehicular access to the site would be located off Hamner Avenue and secondary access to the site would be located off Third Street.

2 Background

2.1 Air Quality

Local Climate and Meteorology

The project site is within the South Coast Air Basin (SCAB), which is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The regional climate in the SCAB is semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. Air quality in the SCAB is primarily influenced by meteorology and a wide range of emission sources, such as dense population centers, substantial vehicular traffic, and industry.

Air pollutant emissions in the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

The predominant wind direction in the vicinity of the project site is from the north/northeast and the average wind speed is approximately four miles per hour (Iowa Environmental Mesonet 2019). The maximum average daily temperature in the project area ranges from approximately 68 degrees Fahrenheit (°F) in December to approximately 100°F in August, and the minimum average daily temperature ranges from approximately 34°F in December to 59°F in August. Total precipitation in the project area averages approximately 17 inches annually.

Air Quality Regulations

Federal Air Quality Regulations

The Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 United States Code (USC) 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, to achieve the purposes of Section 109 of the CAA [42 USC 7409], the United States Environmental Protection Agency (USEPA) developed primary and secondary National Ambient Air Quality Standards (NAAQS). NAAQS have been designated for the following criteria pollutants of primary concern: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with diameters of up to ten microns (PM_{10}) and up to 2.5 microns ($PM_{2.5}$), and lead (Pb). The primary NAAQS "in the judgment of the

Administrator[1], based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health" and the secondary standards are to "protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" [42 USC 7409(b)(2)]. The USEPA classifies specific geographic areas as either "attainment" or "non-attainment" areas for each pollutant based on the comparison of measured data with the NAAQS. States are required to adopt enforceable plans, known as a State Implementation Plan (SIP), to achieve and maintain air quality meeting the NAAQS. State plans also must control emissions that drift across state lines and harm air quality in downwind states. Table 3 lists the current federal standards for regulated pollutants.

Table 3 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
$PM_{2.5}$	Annual	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

ppm = parts per million; NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards
µg/m^3 = micrograms per cubic meter
Source: California Air Resources Board (CARB) 2016

The SCAQMD is the designated air quality control agency in the SCAB, which is a non-attainment area for the federal standards for ozone and $PM_{2.5}$. The SCAB is designated unclassifiable or in attainment for all other federal standards.

[1] The term "Administrator" means the Administrator of the USEPA.

State Air Quality Regulations

CALIFORNIA AMBIENT AIR QUALITY STANDARDS

The California Clean Air Act (CCAA) was enacted in 1988 (California Health and Safety Code Section 39000 et seq.). Under the CCAA the state has developed the California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the NAAQS. Table 3 lists the current state standards for regulated pollutants. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the federal CAA, the CCAA classifies specific geographic areas as either “attainment” or “non-attainment” areas for each pollutant, based on the comparison of measured data within the CAAQS. The SCAB is a non-attainment area for the state standards for ozone, PM_{10} and $PM_{2.5}$ (SCAQMD 2016).

TOXIC AIR CONTAMINANTS

A toxic air contaminant (TAC) is an air pollutant that may cause or contribute to an increase in mortality or serious illness or which may pose a present or potential hazard to human health. TACs may result in long-term health effects such as cancer, birth defects, neurological damage, asthma, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation, runny nose, throat pain, and headaches. TACs are considered either carcinogenic or non-carcinogenic based on the nature of the health effects associated with exposure. For carcinogenic TACs, potential health impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Non-carcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs include both organic and inorganic chemical substances. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter (DPM); however, TACs may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities.

In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires California Air Resources Board (CARB) to review its air quality standards from a children's health perspective, evaluate the statewide air quality monitoring network, and develop any additional air toxic control measures needed to protect children's health.

STATE IMPLEMENTATION PLAN

The SIP is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

As the regional air quality management district, the SCAQMD is responsible for preparing and implementing the portion of the SIP applicable to the SCAB. The air pollution control district for each county adopts rules, regulations, and programs to attain federal and state air quality standards and appropriates money (including permit fees) to achieve these objectives.

Local Air Quality Regulations

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is in non-compliance. The SCAQMD updates the plan every three years. Each SCAQMD Air Quality Management Plan (AQMP) is an update of the previous plan and has a 20-year horizon. The latest AQMP, the 2016 AQMP, was adopted on March 3, 2017. It incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 parts per million (ppm) that was finalized in 2015. The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Governments' (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP.

The plan builds upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal CAA, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The plan also demonstrates strategies for attainment of the new federal 8-hour ozone standard and vehicle miles traveled (VMT) emissions offsets, pursuant to recent U.S. EPA requirements (SCAQMD 2017).

Criteria Pollutants

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG[2]). NO_X are formed during the combustion of fuels, while ROG are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it usually occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Therefore, elevated concentrations are usually found near areas of high traffic volumes. The health effects from CO are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide

NO_2 is a byproduct of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 ppm may occur. NO_2 absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. It can also contribute to the formation of ozone/smog and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (small particulate matter which measures no more than 10 microns in diameter) and $PM_{2.5}$ (fine particulate matter which measures no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with PM_{10} and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer $PM_{2.5}$ particulates are generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with

[2] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in various acronyms, such as TOG (total organic gases), ROG (reactive organic gases), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (ROG and VOC). SCAQMD uses the term VOC to denote organic precursors.

respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Current Air Quality

The SCAQMD operates a network of air quality monitoring stations throughout the SCAB. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether ambient air quality meets the California and federal standards. The monitoring station closest to the project site is the Norco-Norconian located at USNFACNNorco approximately 0.6 mile northwest of the project site. The Norco-Norconian station only reported PM_{10} concentrations. Therefore, all other criteria pollutant concentrations were obtained from the nearest station reporting state and federal data, Mira Loma Van Buren monitoring station, located at 5130 Poinsettia Place, approximately 6.6 miles northeast of the project site. Table 4 indicates the number of days that each of the federal and state standards has been exceeded at monitoring station near the project site in each of the last three years for which data is available. In the vicinity of the project site, the federal and state 8-hour ozone standards were exceeded each year from 2016 to 2018, and the state worst hour ozone standard was exceeded each year from 2016 to 2018.[3] In addition, the PM_{10} and $PM_{2.5}$ federal standard state standard was exceeded each year. No other state or federal standards were exceeded at nearby monitoring stations.

[3] Most recent data provided by iADAM. CARB. 2020. CARB Top 4 Summary. [online]: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed March 2020.

Table 4 Ambient Air Quality

Pollutant	2016	2017	2018
Ozone (ppm), maximum concentration 8-hours[1]	0.106	0.111	0.107
Number of days of federal exceedances (>0.070 ppm)[2]	65	64	57
Number of days of state exceedances (>0.070 ppm)[2]	43	48	32
Ozone (ppm), maximum concentration 1-hour	0.140	0.144	0.129
Number of days of state exceedances (>0.09 ppm)	34	41	21
Nitrogen Dioxide (ppm), maximum concentration 1-hour	0.065	0.065	0.055
Number of days of state exceedances (>0.18 ppm)	0	0	0
Number of days of federal exceedances (>0.100 ppm)	0	0	0
Particulate Matter <10 microns ($\mu g/m^3$), maximum concentration 24-hours[3]	62.4	85.1	100.9
Number of days of state exceedances (>50 $\mu g/m^3$)	7	8	3
Number of days of federal exceedances (>150 $\mu g/m^3$)	0	0	0
Particulate Matter <2.5 microns ($\mu g/m^3$), maximum concentration 24-hours	50.9	63.9	89.1
Estimated number of days of federal exceedances (>35 $\mu g/m^3$)	7	10	6

[1] Data for pollutants (with the exemption of particulate matter < 10 microns) was obtained from the Mira Loma Van Buren Station reporting both state and federal data. The Mira Loma Van Buren is located at 5130 Poinsettia Place, approximately 6.6 miles northeast of the project site

[2] State and federal exceedances differ due to different data collection and analysis methodologies.

[3] Particulate Matter < 10 microns data was obtained from the Norco-Norconian, the nearest monitoring station reporting both state and federal Particulate Matter < 10 microns data. The Norco-Norconian is located at USNFACNNorco, approximately 0.62 miles northwest of the project site.

Source: CARB 2020

Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005, OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, religious facilities, and daycare centers.

The closest sensitive receptors include single-family residences located approximately 45 feet to the south and southeast boundary of the project site and one pre-school (Norco Headstart) located approximately 145 feet northwest of the project site boundary.

2.2 Greenhouse Gas Emissions

Greenhouse Gas Overview

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely byproducts of fossil fuel combustion, whereas CH_4 largely results from off-gassing associated with agricultural practices and landfills.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (U.S. EPA 2018). However, because the project is a non-industrial development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes; therefore, fluorinated gases are not analyzed further in this document. Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2e), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 28, meaning its global warming effect is 25 times greater than carbon dioxide on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2014a). N_2O has a global warming potential of 265 (IPCC 2014a).

Greenhouse Gas Emissions Inventory

Federal

Total United States GHG emissions were 6,456.7 million metric tons (MMT or gigatonnes) of CO_2e in 2017 (U.S. EPA 2019). Total United States emissions have increased by 1.3 percent since 1990; emissions decreased by 0.5 percent from 2016 to 2017 (U.S. EPA 2019). The decrease from 2016 to 2017 was a result of multiple factors, including: (1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector and (2) milder weather conditions that contributed to less overall electricity use (U.S. EPA 2019). Since 1990, U.S. emissions have increased at an average annual rate of 0.1 percent. In 2017, the transportation and industrial end-use sectors accounted for 36.7 and 27 percent each of GHG emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 19 percent and 17 percent of CO_2e emissions, respectively (U.S. EPA 2019).

California

Based on the CARB California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 MMT of CO_2e in 2016 (CARB 2018a). The major source of GHGs in California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is

the second largest source, contributing 23 percent of the state's GHG emissions, and electric power accounted for approximately 16 percent (CARB 2018a). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. CARB has projected that statewide unregulated GHG emissions for the year 2020 will be 509 MMT of CO_2e (CARB 2018b). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature for the decade from 2006 to 2015 was approximately 0.87°C (0.75°C to 0.99°C) higher than the global mean surface temperature over the period from 1850 to 1900. Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations agree that LSAT as well as sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014b; 2018).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 1°F to 2°F higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include loss in water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018a). While there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state as well as regionally-specific climate change case studies (State of California 2018a), including for the greater Los Angeles region that includes where the project is located in eastern Los Angeles County (State of California 2018b). Below is a summary of some of the potential effects that could be experienced in California and the Los Angeles region as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. As temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have been occurring at higher elevations in the Sierra Nevada Mountains (State of California 2018a). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality would worsen. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the

pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Natural Resources Agency 2009).

In the southern California region, changes in meteorological conditions under climate change will affect future air quality. Regional stagnation conditions may occur more often in the future, which would increase pollutant concentrations (State of California 2018b). Hotter future temperatures will act to increase surface ozone concentrations both due to chemistry producing more ozone and higher rates of biogenic emissions, while increases of water vapor also influence chemistry by increasing ozone production in already polluted areas

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. For example, many southern California cities have experienced their lowest recorded annual precipitation twice within the past decade; however, in a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR] 2008). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. However, the average early spring snowpack in the western United States, including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 5.9 inches along the central and southern California coast (State of California 2018a). The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. A warmer climate is predicted to reduce the fraction of precipitation falling as snow and result in less snowfall at lower elevations, thereby reducing the total snowpack (DWR 2008; State of California 2018a). The State of California projects that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018a).

Like the rest of the state, the southern California region is expected to face a challenging combination of decreased water supply and increased water demand (State of California 2018b). Greater interannual variability of rainfall and sharp decreases in snowpack will create surface water limitations for the region. Although the effect of climate change on average precipitation in the region is still unclear, more frequent occurrences of extreme events similar to the 2011-2016 drought could significantly decrease groundwater recharge, which is essential for the sustainability of agriculture in the region since the vast majority of water used in agriculture in the region is groundwater from local wells. Furthermore, higher temperatures mean that dry years will more quickly develop into severe drought conditions.

Hydrology

As discussed above, climate change could potentially affect the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion.

In the southern California region, despite small changes in average precipitation, dry and wet extremes are both expected to increase. By the late 21st century, the wettest day of the year is expected to increase across most of the region. Increased frequency and severity of atmospheric river events are also projected to occur for this region.

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the annual average maximum daily temperatures in California could rise by 4.4 to 5.8°F in the next 50 years and by 5.6 to 8.8°F in the next century (State of California 2018a). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals related to (1) timing of ecological events; (2) geographic distribution and range; (3) species' composition and the incidence of nonnative species within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018a).

Many of the impacts identified above would impact ecosystems and wildlife in the Los Angeles region. Increases in wildfire would further remove sensitive habitat; increased severity in droughts would potentially starve plants and animals of water; and sea level rise will affect sensitive coastal ecosystems.

Greenhouse Gas Regulations

Federal Regulations

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act. The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. In 2012, the U.S. EPA issued a Final Rule that establishes the GHG permitting thresholds that determine when CAA permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* (134 S. Ct. 2427 [2014]) held that U.S. EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT).

California Building Standards Code

California Regulations

CARB is responsible for the coordination and oversight of state and local air pollution control programs in California. California has numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

CALIFORNIA ADVANCED CLEAN CARS PROGRAM

AB 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan Update defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 statewide goals. The update highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer-term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2018c).

SENATE BILL 32

Senate Bill (SB) 32, signed into law on September 8, 2016, extends AB 32 by requiring the state to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with statewide per capita goals of six metric tons (MT) CO_2e by 2030 and two MT CO_2e by 2050 (CARB 2017a). As stated in the 2017 Scoping Plan, these goals may be appropriate

for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017a).

SENATE BILL 97

SB 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Natural Resources Agency (Resources Agency) adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

SENATE BILL 375

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. SCAG was assigned targets of an 8 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements.

SENATE BILL 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

The bill also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

SENATE BILL 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

EXECUTIVE ORDER B-55-18

On September 10, 2018, Governor Brown issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions

thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT (ASSEMBLY BILL 341)

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) diversion of 75 percent of all solid waste by 2020, and annually thereafter. CalRecycle is required to develop strategies to implement AB 341, including source reduction.

CALIFORNIA CODE OF REGULATIONS, TITLE 24 – CALIFORNIA BUILDING CODE

The California Code of Regulations, Title 24, is referred to as the California Building Code (CBC). It consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility, and so on. The CBC's energy efficiency and green building standards are outlined below.

PART 6 – BUILDING ENERGY EFFICIENCY STANDARDS

California Code of Regulations, Title 24, Part 6 is the Building Energy Efficiency Standards. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. The Building Energy Efficiency Standards is updated periodically to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New construction and major renovations must demonstrate their compliance with the current Building Energy Efficiency Standards through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission (CEC).

The 2019 standards, effective starting on January 1, 2020, would be applicable to the project. The 2019 standards move toward cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: (1) smart residential photovoltaic systems; (2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); (3) residential and nonresidential ventilation requirements; (4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards, and single-family homes will be 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

PART 11 – CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2016 CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. It also includes voluntary tiers (I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions

must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels
- 50 percent construction/demolition waste diverted from landfills
- Inspections of energy systems to ensure optimal working efficiency
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards
- Dedicated circuitry to facilitate installation of electric vehicle (EV) charging stations in newly constructed attached garages for single-family and duplex dwellings
- Installation of EV charging stations at least three percent of the parking spaces for all new multi-family developments with 17 or more units

The voluntary standards require:

- Tier I—15 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste, 10 percent recycled content, 20 percent permeable paving, 20 percent cement reduction, cool/solar reflective roof
- Tier II—30 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste, 15 percent recycled content, 30 percent permeable paving, and 30 percent cement reduction, cool/solar reflective roof

Similar to the compliance reporting procedure for demonstrating Building Energy Efficiency Standards compliance in new buildings and major renovations, compliance with the CALGreen water-reduction requirements must be demonstrated through completion of water use reporting forms for new low-rise residential and non-residential buildings. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

Regional and Local Regulations

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California regarding compliance with the federal and state air quality requirements, including the Transportation Conformity Rule and other applicable federal, state, and air district laws and regulations. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to develop transportation activities that conform to, and are supportive of, the goals of regional and state air quality plans to attain NAAQS. In addition, SCAG is a co-producer with the SCAQMD of the transportation strategy and transportation control measure sections of the AQMP for the Basin. With regard to future growth, SCAG adopted the 2016 RTP/SCS in April 2016, which provides population, housing, and employment projections for cities under its jurisdiction. The growth projections in the 2016 RTP/SCS

are based in part on projections originating under county and city general plans. These growth projections were utilized in the preparation of the air quality forecasts and consistency analysis included in the 2016 AQMP.

WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS

Adopted in September 2014, the Western Riverside Council of Governments (WRCOG) developed a long-range Subregional Climate Action Plan (CAP) to reduce local greenhouse gas emissions that contribute to climate change (WRCOG 2014). The CAP includes an inventory of existing GHG emissions and projects future emissions trends for multiple jurisdictions including the City of Norco. The CAP also describes local GHG emissions targets for the years 2020 and 2035, and strategies and measures to achieve the targets. The CAP establishes a subregional GHG emissions target of 15 percent below 2010 levels by 2020 and 49 percent below 2010 levels by 2035 (WRCOG 2018). The WRCOG Subregional CAP establishes policies and programs that are consistent with and support statewide GHG emissions reductions targets and strategies for 2020. The WRCOG Subregional CAP is not however a qualified plan that would allow for streamlining of GHG emissions impacts analyses. The City of Norco is a participant party to the WRCOG Subregional CAP and is subject to applicable policies and programs.

3 Impact Analysis

3.1 Methodology

Criteria pollutant and GHG emissions for project construction and operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates criteria pollutant emissions of CO, PM_{10}, $PM_{2.5}$, SO_2, the ozone precursors, ROG and NO_X, and GHGs emissions of CO_2, N_2O, and CH_4, reported as CO_2e. The calculation methodology and input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices A, D, and E (CAPCOA 2017). The input data and subsequent construction and operation emission estimates for the proposed project are discussed below. CalEEMod output files for the project are included in Appendix A to this report.

Construction Emissions

Project construction would primarily generate temporary criteria pollutant and GHG emissions from construction equipment operation on-site, construction worker vehicle trips to and from the site, and from export of materials off-site. Construction input data for CalEEMod include but are not limited to: (1) the anticipated start and finish dates of construction activity; (2) areas to be excavated and graded; and (3) volumes of materials to be exported from and imported to the project site. The analysis assessed maximum daily emissions from individual construction activities, including site preparation, grading, building construction, and architectural coating. Construction would require heavy equipment during site preparation, grading, and building construction. Construction phase timing and equipment estimates are based on surveys of construction projects in California conducted by members of CAPCOA. Project construction is planned over approximately to commence in July 2021 and complete in December 2024, taking approximately 42 months. The project would occur in three phases:

- **Phase I**
  - Phase I includes site preparation and grading for the entire project site, as well as installation of wet and dry utilities and asphalt paving for apartments and food garden. Phase I would take nine months total
- **Phase II**
  - Phase II includes building construction and architectural coating for apartment and food garden parcels of the project site. Phase II would occur for 24 months total and may overlap with Phase I

- **Phase III**
  - Phase III involves building construction, architectural coating, installation of wet and dry utilities, and asphalt paving for hotel parcel of project site. Phase III would occur for approximately 30 months and may overlap with Phase II for up to 24 months.

The quantity, duration, and the intensity of construction activity influences the amount of construction emissions and their related pollutant concentrations that occur at any one time. The emission forecasts modeled for this report reflect conservative assumptions where a relatively large amount of construction is occurring in a relatively intensive manner. Overlapping of construction phases was also assumed for conservative purposes of this analysis. If construction is delayed or occurs over a longer period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in the CalEEMod, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). Worker and vendor trip generation rates were adjusted to account for each phase of construction.

CalEEMod has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. Emissions calculations assume application of water during grading in compliance with SCAQMD Rule 403, Fugitive Dust, and Rule 1113, Architectural Coatings (as detailed in Section 1, *Project Description and Impact Summary*). Based on the provided data request, watering would be implemented three times a day instead of the mandated twice daily.

Pursuant to SCAQMD Guidance, total construction GHG emissions resulting from the project are amortized over 30 years and added to operational GHG emissions.

Operational Emissions

In CalEEMod, operational sources of criteria pollutant emissions include area, energy, and mobile sources; GHG emissions include water and solid waste sources in addition to area, energy, and mobile sources. The project's use was modeled using the following land use subtypes and square footage consistent with the project plans: 8,700 sf of "Fast food restaurant w/o drive thru," 70,000 sf of "hotel," 13,407 sf of "health club" based on the leasing office, fitness center and lounge, 322,600 sf of "city park" which includes open recreational space and 800 sf restroom and storage room, and 410,568 sf of gross "mid-rise residential." In addition, a "Parking Lot" land use subtype was modeled with 671 parking spaces covering approximately four acres to represent parking not included in the single garages associated with the proposed residences.

Energy Sources

Emissions from energy use include electricity and natural gas use. The emissions factors for natural gas combustion are based on USEPA's AP-42 (*Compilation of Air Pollutant Emissions Factors*) and California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). Natural gas emissions are calculated by multiplying the emissions factors for combustion by the project's natural gas demand. Electricity only apply to GHG emissions (as the energy is generated off-site and therefore may not be relevant for local and regional air quality conditions) and are calculated by multiplying the electricity use times the carbon intensity of the utility district per kilowatt hour (CAPCOA 2017). The default electricity and natural gas consumption values in CalEEMod include the CEC-sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod currently incorporates California's 2016 Title 24 building energy efficiency standards. As the project is planned for construction beginning in 2021, with an

operational date of 2025, it would be subject to at least 2019 Title 24 standards. According to the CEC, non-residential buildings built with the 2019 standards will use about 30 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Therefore, energy usage from the commercial components of the project was reduced by 30 percent to account for the requirements of 2019 Title 24 standards (California Energy Commission 2018b).

To account for the energy reduction from rooftop solar, in accordance with Section 150.1(b)14 of the 2019 Building Energy Efficiency Standards, the project would be required to install photovoltaic (PV) systems on all residences that generate an amount of electricity equal to expected electricity usage. Therefore, based on the calculation method contained in Section 150.1(b)14, the project would be required to include 455 kW of PV solar panels, which would generate approximately 864,190 kWh per year (see Appendix A). Therefore, the energy reduction achieved by the requisite on-site PV system was included in CalEEMod as "mitigation" for the project's energy use emissions, which is a term of art for the modeling input and is not equivalent to mitigation measures that may apply to the CEQA impact analysis.

The project would be served by Southern California Edison (SCE). Therefore, SCE's specific energy intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) are used in the calculations of GHG emissions. The energy intensity factors included in CalEEMod are based on 2012 data by default at which time SCE had only achieved a 20.6 percent procurement of renewable energy (SCE 2012). Per SB 100, the statewide Renewable Portfolio Standard (RPS) Program requires electricity providers to increase procurement from eligible renewable energy sources to 60 percent by 2030. To account for the continuing effects of the RPS, the energy intensity factors included in CalEEMod were reduced based on the percentage of renewables reported by SCE. SCE energy intensity factors that include this reduction are shown in Table 5.

Table 5 SCE Energy Intensity Factors

	2012 (lbs/MWh)	2030 (lbs/MWh)
Percent procurement	20.6%[1]	60%
Carbon dioxide (CO_2)	702	353.65
Methane (CH_4)	0.029	0.015
Nitrous oxide (N_2O)	0.006	0.003

[1] Source: Southern California Edison 2012. 2012 Corporate Responsibility & Sustainability. https://www1.sce.com/wps/wcm/connect/68145014-2eba-40c2-8587-6482ce056977/CRR_08202013.pdf?MOD=AJPERES&ContentCache=NONE

[2] RPS goal established by SB 100

Area Sources

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and utilize standard emission rates from CARB, USEPA, and emission factor values provided by the local air district (CAPCOA 2017). Area source modeling assumes compliance with SCAQMD Rule 1113, which limits the VOC content of architectural coatings.

Waste Sources

GHG emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CAPCOA 2017). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

According to a CalRecycle report to the Legislature, as of 2013 California had achieved a statewide 50 percent diversion of solid waste from landfills through "reduce/recycle/compost" programs (CalRecycle 2015). However, AB 341 sets a statewide goal that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020. Based on the City of Norco's annual reports to CalRecycle, the City had achieved a landfill diversion rate of 65 percent in 2006 and has decreased per capita disposal rate by another 25 percent from 2006 to 2018 indicating that City of Norco is on track to achieve a 75 percent diversion rate by 2020 (CalRecycle 2019). Therefore, to account for the continuing actions of recycling requirements under state law (i.e., AB 341), an additional 25 percent solid waste diversion rate was included in CalEEMod.

Water and Wastewater Sources

GHG emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for northern and southern California. CalEEMod does not incorporate water use reductions achieved by 2016 CALGreen (Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to account for compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for new development and as a project design feature under mitigation tab in CalEEMod.

The indoor water use reduction achieved by 2016 CALGreen requirements was included in CalEEMod as "mitigation" for the project's indoor water use emissions, which is a term of art for the modeling input and is not equivalent to mitigation measures that may apply to the CEQA impact analysis.

Mobile Sources

Mobile source emissions are generated by the increase in vehicle trips to and from the project site associated with operation of on-site development. Vehicle trips for the project were determined by the Traffic Impact Analysis (TIA) prepared by Urban Crossroads which utilized the ITE trip generation rates (10th Edition 2017) for multifamily housing (mid-rise) (ITE Code 221), hotel (ITE Code 310) and fast-food without drive-thru window (ITE Code 933). Because residents and patrons of the food garden/ hotel may also visit other uses on-site, internal capture reduction was applied to the trip rates such that the multi-family housing generated 4.36 average daily trips (ADT) per dwelling unit, the hotel generated 6.5 ADT per room, and the food garden generated 144.14 ADT per thousand square feet (Urban Crossroads 2020). Land use and site enhancement features including increase in site density, improved destination accessibility, and increased access to transit associated with the project type and location were incorporated into CalEEMod as mitigation, which is a term of art for the modeling input and is not equivalent to mitigation measures that may apply to the CEQA impact analysis.

NITROUS OXIDE EMISSIONS

Because CalEEMod does not calculate N_2O emissions from mobile sources, N_2O emissions were quantified using guidance from CARB and the EMFAC2017 Emissions Inventory for the Riverside County region for the year 2030 (the next State milestone target year for GHG emission reductions) using the EMFAC2017 categories (CARB 2018 and 2019; see Appendix A for calculations).

3.2 Significance Thresholds

Air Quality

To determine whether a project would result in a significant impact to air quality, Appendix G of the CEQA Guidelines requires consideration of whether a project would:

1. Conflict with or obstruct implementation of the applicable air quality plan
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard
3. Expose sensitive receptors to substantial pollutant concentrations
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people

Regional Significance Thresholds

The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB, shown in Table 6.

Table 6 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of ROG	55 pounds per day of ROG
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO_X	150 pounds per day of SO_X
150 pounds per day of PM_{10}	150 pounds per day of PM_{10}
55 pounds per day of $PM_{2.5}$	55 pounds per day of $PM_{2.5}$

Source: SCAQMD 2015

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions in construction areas up to five acres in size. However, LSTs only apply to emissions in a fixed stationary location

and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions because the majority of operational emissions are associated with project-generated vehicle trips.

The SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. If a site is greater than five acres, SCAQMD recommends a dispersion analysis be performed. The project involves an approximately 19.1-acre disturbance area. It is unlikely that more than five acres would be under active construction at one time; therefore, this analysis utilizes the five-acre LSTs. This analysis uses a regression calculator to determine an applicable LST based on the project site area and the LST lookup values for two- and five-acre construction sites. LSTs are provided for receptors at a distance of 82 to 1,640 feet from the project disturbance boundary to the sensitive receptors. Construction activity would occur approximately 45 feet south and southeast border of the closest sensitive receptors, an existing single-family residence, and Norco Headstart school approximately 145 feet northwest. According to the SCAQMD's publication, *Final LST Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 feet. Therefore, the analysis below uses the LST values for 82 feet. In addition, the project is located in SRA-22 (Norco/Corona). LSTs for construction in SRA-22 on a five-acre site with a receptor 82 feet away are shown in Table 7.

Table 7 SCAQMD LSTs for Construction (SRA-22)

Pollutant	Allowable Emissions for a Five-acre Site in SRA-22 for a Receptor 82 Feet Away (lbs/day)
Gradual conversion of NO_X to NO_2	270
CO	1,700
PM_{10}	12
$PM_{2.5}$	8

Source: SCAQMD 2009

Greenhouse Gas Emissions

Based on Appendix G of the CEQA Guidelines, impacts related to GHG emissions from the project would be significant if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs

In addition, CEQA Guidelines Section 15064.4(b) states that a lead agency should consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

The vast majority of individual projects do not generate sufficient GHG emissions to create significant project-specific environment effects. However, the environmental effects of a project's GHG emissions can contribute incrementally to cumulative environmental effects that are significant, contributing to climate change, even if an individual project's environmental effects are limited (CEQA Guidelines Section 15064[h][1]). The issue of a project's environmental effects and contribution towards climate change typically involves an analysis of whether or not a project's contribution towards climate change is cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

CEQA Guidelines Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, as long as any threshold chosen is supported by substantial evidence (CEQA Guidelines Section 15064.7[c]).

According to the CEQA Guidelines Section 15183.5, projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (AEP 2016). However, although the WRCOG has completed an inventory of community emissions for the region including the City of Norco, the WRCOG CAP is not a qualified GHG reduction plan and thus this approach is not currently feasible.

Project-Specific Efficiency Threshold

This analysis evaluates GHG emissions generated by the proposed project against a locally-appropriate, project-specific efficiency threshold derived from the SB 32 target and the City's GHG inventory from 2010, which is consistent with current best practices in the industry (AEP 2016). This provides a quantitative assessment of the project's GHG emissions compared to a project-specific threshold. Because the GHG emissions target set by SB 32 is significantly more stringent than the AB 32 target, if the project is found to be consistent with the SB 32 emission reduction target, then it is considered consistent with the AB 32 reduction target as well.

The locally-appropriate, project-specific efficiency threshold used in this analysis was created to comply with the CEQA Guidelines and interpretative GHG case law. An efficiency threshold is calculated by dividing the allowable GHG emissions inventory in a selected calendar year by the service population (residents plus employees) in that year. This calculation identifies the quantity of emissions that can be generated on a per-service population basis without significantly impacting the environment. This approach is appropriate for the proposed project because it measures the project's emissions on a local per-service population basis to determine its overall GHG emissions efficiency relative to regulatory GHG emission reduction goals.

For the proposed project, an efficiency threshold was calculated based on the target GHG emission levels that would be consistent with the State 2030 target using the service population of the City of Norco in year 2030. This locally-appropriate, project-specific quantitative threshold is derived, in part, from the City's 2010 GHG inventory in line with CARB's recommendations in the 2008 Climate Change Scoping Plan and the 2017 Scoping Plan (CARB 2008; 2017). Consistent with the legal guidance provided in the Golden Door (2018) and Newhall Ranch (2015) decisions, regarding the correlation between state and local conditions, the 2010 GHG inventory was used to calculate a locally-appropriate, evidence-based, project-specific threshold consistent with California's SB 32 target. Accordingly, the threshold established in this report is a project-specific threshold, as opposed to a threshold for general use.

As part of the WRCOG Subregional CAP, the City of Norco completed a 2010 GHG inventory that calculated communitywide emissions of 233,908 MT of CO_2e per year (Table 8). Energy use for water for potable water was included in the residential and commercial energy use sector. There is no wastewater treatment facility within the City of Norco therefore no emissions were associated with the wastewater sector. Because the proposed project is a hotel, food garden, and multi-family apartment complex, the Commercial/Industrial Energy, Transportation, Residential Energy, and Waste sectors are appropriate to use in developing a project-specific threshold because future guests, residents and employees of the project would consume energy, generate on-road vehicle trips, and produce waste. Therefore, all sector emissions within the City's 2010 inventory are applicable to the proposed project and were utilized in developing a project-applicable efficiency threshold.

Table 8 City of Norco 2010 Inventory

Source	2010 Total (MT of CO_2e)
Transportation	155,105
Commercial/Industrial Energy	29,301
Residential Energy	43,149
Waste	6,353
Total Emissions	**233,908**

Note: GHG Inventory Report includes the following jurisdictions; Riverside, Temecula, Jurupa valley, Hemet, Perris, Norco, San Jacinto, Banning, Eastvale, Wildomar, Calimesa, and Canyon Lake

Source: WRCOG Subregional CAP 2014

AB 32 set a statewide target of reducing GHG emissions to 1990 levels by 2020. Therefore, for the subregional area to be consistent with AB 32, annual GHG emissions levels from project-applicable sectors would need to be reduced by 15 percent below 2010 levels by 2020 to approximately 198,822 MT of CO_2e per year. In addition, SB 32 set a statewide GHG emission reduction target of 40 percent below 1990 levels. Therefore, annual GHG emissions levels from project-applicable sectors would need to be reduced by 40 percent below 1990 levels to approximately 119,923 MT of CO_2e per year to be consistent with SB 32.

Accordingly, the 2030 project-specific efficiency threshold can be calculated by dividing total GHG emissions by the citywide service population (residents + employees) for year 2030. Based on SCAG's Projections 2040 tool, the City's 2030 service population would be approximately 51,479 persons (30,243residents plus 21,236 jobs) (SCAG 2016). Therefore, the 2030 locally-

appropriate, project-specific threshold would be approximately 2.3 MT of CO_2e per year per service population (see Table 9).

Table 9 Locally-Applicable Project-Specific Efficiency Threshold

Target Year	Value
2010 Baseline Levels[1]	233,908 MT of CO2e/year
2020 Target (AB 32)[2]	198,822 MT of CO2e/year
2030 Target (SB 32)[3]	119,293 MT of CO2e/year
2030 Service Population[4]	51,479 persons
2030 Project-Specific Efficiency Threshold	**2.3 MT of CO_2e per service person per year**

[1] 2010 emission levels from project-applicable sectors (see Table 8).

[2] AB 32 sets a target of reducing GHG emissions to 1990 levels (i.e., 15 percent below 2010 levels) by 2020.

[3] SB 32 sets a target of reducing GHG emissions 40 percent below 1990 levels by 2030.

[4] 30,243 residents + 21,236 jobs (SCAG 2016)

Project Service Population

Service population is traditionally defined as the summation of residents and employees that are generated by a project. However, beyond the residential component of the proposed project, the project also includes a hotel and food garden where the primary user of these land uses are the hotel guests and food garden patrons. Per CalEEMod estimates, the 320-unit mid-rise apartments would house approximately 915 residents. Number of project employees was estimated based on SCAG employee density factors by land use category (SCAG 2001). Number hotels guests estimated based on average hotel room size and a 75 percent occupancy rate. The number of food garden patrons was based on the assumed total seating provided in the food garden seating area calculations and site map. Because the primary uses of the project include residences, a hotel, and food garden, the service population is equivalent to the sum of its residents, employees, guests, and food garden patrons as shown in Table 10.

Table 10 Project-Specific Service Population

Population	Persons
Residents[1]	915
Employees[2]	44
Average Hotel Guests[3]	135
Average Food Garden Patrons[4]	427
Total Service Population	**1,521**

[1] See CalEEMod Appendix A

[2] See Commercial Employee Generation Rates

[3] 120 hotel rooms with approximately 1.5 persons per room and average occupancy rate of 75 percent = 135persons

[4] 7,119 square feet of food garden seating space assuming 15 square feet per person for main seating area and 30 square feet per person for soft seating area = 427 persons (see proposed food garden seating area site map)

3.3 Impact Analysis

Air Quality

CEQA Appendix G Air Quality Threshold 1
Would the project conflict with or obstruct implementation of the applicable air quality plan? *(Less Than Significant)*

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts used in the development of the AQMP. With regard to air quality planning, SCAG has prepared the RTP/SCS, a long-range transportation plan that uses growth forecasts to project trends for regional population, housing and employment growth out to 2040 to identify regional transportation strategies to address mobility needs. These growth forecasts form the basis for the land use and transportation control portions of the 2016 AQMP.

The population growth forecasts in SCAG's 2016 RTP/SCS for Norco estimate that the population would increase from 26,900 in 2012 to 32,100 in 2040, for a population increase of 5,200. The increase in population from the project, estimated by CalEEMod at 915 persons, would be within the SCAG's projected 2040 population increase of 5,200 and the project would not cause Norco's population to exceed official regional population projections.

The household growth forecasts in SCAG's 2016 RTP/SCS for Norco estimate that the number of households would increase from 7,000 in 2012 to 9,200 in 2040, for a household increase of 2,200. The increase in housing from the project of 320 apartment units would be within the SCAG's project 2040 household increase of 2,200 and the project would not cause Norco's households to exceed official regional household projections.

The updated growth forecasts in SCAG's 2016 RTP/SCS estimate that the employment numbers in Norco would be 25,700 in 2040, up 12,500 from an employment number of 13,200 in 2012 (SCAG 2016). Based on Riverside County employee density factors in the Employee Density Report produced by SCAG, the proposed project could result in approximately 44 employees, as shown in Table 11. This would amount to less than one percent increase compared to 2012 employment in the City. The anticipated increase in employment would be within the SCAG's projected 2040 employment increase of 12,500 from 2012 and the project would not cause Norco to exceed official regional population projections.

Table 11 Project Employee Generation Rates

Land Use	Employee Rate	Proposed Size (sf)	Total Employees
Multi-Family Residences[1]	1 per 40,332 sf	410,568	10
Regional Retail[2]	1 per 629 sf	8,700	14
Hotel/Motel	1 per 3,476 sf	70,000	20
Total			**44**

sf = square feet

[1] Low-Rise Apartments, Condominiums, and Townhouses used for proposed multi-family residences. Proposed size is based on gross square footage of proposed multi-family development.

[2] Other Retail/Svc land use subtype substituted for food garden portion of the project.

Source: Table 10A (SCAG 2001).

In addition, the AQMP provides strategies and measures to reach attainment with the thresholds for 8-hour and 1-hour ozone and $PM_{2.5}$. As shown in Table 12 and Table 13, the project would not generate criteria pollutant emissions that would exceed SCAQMD thresholds for ozone precursors (ROG and NO_X) and $PM_{2.5}$. Since the project's population, housing and employment would be within SCAG 2016 forecasts, the project would be consistent with the AQMP and would have a less than significant impact.

CEQA Appendix G Air Quality Threshold 2
Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard? *(Less Than Significant)*

Pursuant to CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. If the project's mass regional emissions do not exceed the applicable SCAQMD, then the project's criteria pollutant emissions would not be cumulatively considerable.

Construction

Table 12 summarizes the estimated maximum daily emissions (lbs) of pollutants associated with construction of the proposed project. As shown below, ROG, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed SCAQMD regional thresholds or LSTs. Because the project would not exceed SCAQMD's regional construction thresholds or LSTs, project construction would not result in a cumulatively considerable net increase of a criteria pollutant and impacts would be less than significant.

Table 12 Project Construction Emissions

	Maximum Emissions (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2021	4.3	46.5	31.6	0.1	9.3	5.8
Construction Year 2022	7.2	63.1	60.4	0.2	10.7	5.0
Construction Year 2023	18.4	38.2	51.6	0.1	7.5	3.0
Construction Year 2024	31.3	37.4	52.5	0.1	7.5	2.9
Maximum Emissions	31.3	63.1	60.4	0.2	10.7	5.8
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions	31.3	63.1	60.4	0.2	10.7	5.8
SCAQMD Localized Significance Thresholds (LSTs)	N/A	270	1,700	N/A	12.0	8
Threshold Exceeded?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

Notes: See CalEEMod worksheets in Appendix A Table 2.0 "Overall Construction-mitigated" emissions. Winter emissions results are shown for all emissions except CO and SO_2, which has higher summer emissions. Some numbers may not add up precisely to the numbers indicated due to rounding. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and includes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

Operational

Table 13 summarizes the project's operational emissions by emission source (area, energy, and mobile). As shown below, the emissions generated by operation of the proposed project would not exceed SCAQMD regional thresholds for criteria pollutants. Therefore, the project would not contribute substantially to an existing or projected air quality violation. In addition, because criteria pollutant emissions and regional thresholds are cumulative in nature, the project would not result in a cumulatively considerable net increase of criteria pollutants.

Table 13 Project Operational Emissions

Emission Source	Maximum Daily Emissions (lbs/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	11.5	0.3	26.5	<0.1	0.1	0.1
Energy	0.3	3.1	2.1	<0.1	0.2	0.2
Mobile	3.7	16.1	31.3	0.1	9.9	2.7
Project Emissions	15.5	19.5	59.9	0.1	10.2	3.0
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: See CalEEMod worksheets in Appendix A Table 2.2 "Overall Operational-mitigated" emissions. Winter emissions results are shown for all emissions except CO and ROG, which has higher summer emissions. Some numbers may not add up precisely to the numbers indicated due to rounding

CEQA Appendix G Air Quality Threshold 3
Would the project expose sensitive receptors to substantial pollutant concentrations? *(Less Than Significant)*

CO Hot Spots

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 ppm or the federal and state eight-hour standard of 9.0 ppm (CARB 2016).

The SCAB is in conformance with state and federal CO standards, and most air quality monitoring stations no longer report CO levels. No stations in the vicinity of the project site have monitored CO since 2012. In 2012, the Mira Loma Van Buren station, located at 5130 Poinsettia Place, approximately 6.6 miles northeast of the project site, detected an 8-hour maximum CO concentration of 1.91 ppm, which is substantially below the state and federal standards (CARB 2019a). The proposed project would result in CO emissions of approximately 59.9 pounds per day, well below the 550 pounds per day threshold. Based on the low background level of CO in the project area, improving vehicle emissions standards for new cars in accordance with state and federal regulations, and the project's low level of operational CO emissions, the project would not create new hotspots or contribute substantially to existing hotspots, and impacts would be less than significant.

Toxic Air Contaminants

Construction-related activities would result in temporary project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities. DPM was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of DPM (discussed in the following paragraphs) outweighs the potential non-cancer health impacts (CARB 2017b).

Generation of DPM from construction projects typically occurs in a single area for a short period. Construction of the proposed project would occur over approximately 42 months in three phases. The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period of time. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of proposed construction activities (i.e., 42 months) is approximately five percent of the total exposure period used for health risk calculation. Current models and methodologies for conducting health-risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities, resulting in difficulties in producing accurate estimates of health risk (Bay Area Air Quality Management District 2017).

The maximum exhaust $PM_{2.5}$ emissions, which is used to represent DPM emission for this analysis, would occur during site preparation and grading activities during phase I. These activities would last for approximately nine months. PM emissions would decrease for the remaining construction period because construction activities such as building construction and architectural coating would require less construction equipment. While the maximum DPM emissions associated with site preparation and grading activities would only occur for a portion of the overall construction period, these activities represent the worst-case condition for the total construction period. This would represent less than one percent of the total exposure period for health risk calculation. Therefore, given the aforementioned, DPM generated by project construction would not create conditions where the probability is greater than one in one million of contracting cancer for the Maximally Exposed Individual or to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the Maximally Exposed Individual. This impact would be less than significant.

CEQA Appendix G Air Quality Threshold 4
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? *(Less Than Significant)*

For construction activities, odors would be temporary in nature and are subject to SCAQMD Rule 402, *Nuisance*. Construction activities would be temporary and transitory and associated odors would cease upon construction completion. Accordingly, the proposed project would not create objectionable odors affecting a substantial number of people during construction, and short-term impacts would be less than significant.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, a mixed-use development with residences, a commercial hotel and food garden, would not include any of these uses. Operational odor impacts would be less than significant.

Greenhouse Gas Emissions

CEQA Appendix G Greenhouse Gas Emissions Threshold 1
Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? *(Less Than Significant)*

CEQA Appendix G Greenhouse Gas Emissions Threshold 2
Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs? *(Less Than Significant)*

This section discusses GHG emissions associated with construction emissions and operation emissions from the project. As described in Section 3.2, *Significance Thresholds*, the determination of significance with respect to GHG impacts is based on the locally-applicable, project-specific threshold and consistency with applicable plans and policies. Complete modeling results are included as Appendix A of this report.

Construction Emissions

It was assumed that construction activity would begin in July 2021 with completion by December 2024. As shown in Table 14, construction activity for the project would generate an estimated 3,514.8 MT CO_2e. When amortized over a 30-year period, construction of the project would generate approximately 117.2 MT CO_2e per year.

Table 14 Estimated Construction Emissions of Greenhouse Gases

Construction Year	Annual Emissions MT CO_2e
2021	303.4
2022	1,248.5
2023	1,484.6
2024	478.3
Total	**3,514.8**
Amortized over 30 years	**117.2**

Notes: Emissions modeling was completed using CalEEMod. Annual Table 2.1 "Overall-mitigated construction" was used. See Appendix A for modeling results.

Operational and Total Project Emissions

Table 15 combines the construction and operational GHG emissions associated with development of the project. As shown, annual emissions from the proposed project would be approximately 3,179.7 MT CO_2e by 2030 or 2.09 MT CO_2e/SP/year, which would not exceed the locally-applicable, project-specific threshold of 2.3 MT of CO_2e per year. Therefore, GHG emissions would be less than significant.

Table 15 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions MT CO_2e
Construction	117.2
Operational	
Area	5.5
Energy	997.2
Solid Waste	146.9
Water	116.6
Mobile	
CO_2 and CH_4	1,758.8
N_2O	37.5
Total Emissions	**3,179.7**
Service Population	1,521
Emissions per Service Person (MT CO_2e/SP/year)	**2.09**
Project-Specific Efficiency Threshold (MT CO_2e/SP/year)	2.3
Exceed Project-Specific Threshold?	**No**

See Appendix A for CalEEMod results-Annual 2030 Table 2.2 "Overall-mitigated operational" and N_2O mobile emissions modeling.

The project would involve construction of new residential and commercial development. As a result, mobile emissions generated by the project—which account for approximately 58 percent of total project emissions as summarized in Table 15—would be new emissions associated with travel from the new residents, hotel guests, employees, and food garden patrons.

Consistency with Applicable Plans and Policies

The principal state plan and policy adopted to reduce GHG emissions is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. The 2017 Scoping Plan, which outlines a framework to achieve SB 32's 2030 target, emphasizes innovation, adoption of existing technology, and strategic investment to support its strategies. Statewide plans and regulations in support of these strategies, such as GHG emissions standards for vehicles (AB 1493), the Low Carbon Fuel Standard, and regulations requiring an increasing fraction of electricity to be generated from renewable sources, are being implemented at the statewide level; as such, compliance at a project level would occur as implementation continues statewide. As detailed above, the project would not exceed the project-specific efficiency threshold which is developed with the 2017 Scoping Plan's 2030 GHG emissions reduction goal of 40 percent below 1990 emissions. Therefore, the project would be consistent with the 2017 Scoping Plan.

SCAG 2016-2040 RTP/SCS

As mentioned above, Senate Bill 375, signed in August 2008, is a state-level policy directing each of California's 18 major MPO to prepare a SCS that contains a growth strategy to meet emission

targets for inclusion in the RTP. The applicable MPO for the project site is SCAG, and project consistency with the goals contained in SCAG's 2016-2040 RTP/SCS is discussed below.

SCAG's 2016-2040 RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development to comply with SB 375. The proposed commercial retail project would not conflict with any of the SCAG's 2016-2040 RTP/SCS goals, as outlined in Table 16.

Given the aforementioned, the project is consistent with state and local policies aimed at reducing GHG emissions. Therefore, the project would have a less than significant impact with respect to GHG emissions and climate change.

Table 16 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
Focus new growth around transit. The 2016 RTP/SCS land use pattern reinforces the trend of focusing growth in the region's High Quality Transit Areas (HQTAs). Concentrating housing and transit in conjunction concentrates roadway repair investments, leverages transit and active transportation investments, reduces regional life cycle infrastructure costs, improves accessibility, avoids greenfield development, and has the potential to improve public health and housing affordability. HQTAs provide households with alternative modes of transport that can reduce VMT and GHG emissions.	**Consistent.** There are two bus stops located along Hamner Avenue that are within 1,000 feet of the project site (Hamner + Lampton stop, approximately 760 feet north; and Hamner NS Auto Mall Drive stop, approximately 320 feet south). The project site is located along a prominent corridor (Hamner Avenue) adjacent to existing residential, commercial, and institutional uses in the City of Norco. The project site is well situated to support vehicular, pedestrian, and equestrian access on Hamner Avenue and Third Street. The project includes development of an equestrian trail along the frontage of Hamner Avenue and Third Street to encourage alternative transportation and enhance the equestrian lifestyle of Norco. Therefore, the project would be consistent with this strategy..
Plan for growth around livable corridors. The Livable Corridors strategy seeks to create neighborhood retail nodes that would be walking and biking destinations by integrating three different planning components: 1. Transit improvements 2. Active transportation improvements (i.e., improved safety for walking and biking) 3. Land use policies that include the development of mixed-use retail centers at key nodes and better integrate different types of ritual uses.	**Consistent.** The project site would include a food garden with outdoor recreational amenities and an equestrian trail. The project site is adjacent to existing residential, commercial, and institutional uses. Most of the commercial uses are auto-centric (i.e., carwashes, auto shops, auto sales, etc.). The proposed food garden and hotel would provide commercial food options within walking distance of existing uses, which would reduce VMT. As stated above and in Section 2, the project includes development of an equestrian trail along the frontage of Hamner Avenue and Third Street to encourage alternative transportation and enhance the equestrian lifestyle of Norco. The proposed trail would connect to an existing trail along Hamner Avenue. Therefore, the project would be consistent with this strategy
Provide more options for short trips. 38 percent of all trips in the SCAG region are less than three miles. The 2016 RTP/SCS provides two strategies to promote the use of active transport for short trips. Neighborhood Mobility Areas are meant to reduce short trips in a suburban setting, while "complete communities" support the creation of mixed-use districts in strategic growth areas and are applicable to an urban setting.	**Consistent.** Implementation of the project would promote the reduction in vehicle trips by providing new commercial food services and outdoor recreational amenities within walking distance from existing residential, commercial, and institutional uses. In addition, there are two bus stops within 1,000 feet of the project site, which allow for easy access to public transportation for employees and other customers. Therefore, the project would be consistent with this strategy.

Strategy/Action	Project Consistency
Transit Initiatives	
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	**Consistent.** There are two bus stops within 1,000 feet of the project site, which allow for easy access to public transportation for project customers, residents, and employees to reduce VMT. Therefore, the project would be consistent with this strategy.
Other Initiatives	
Reduce emissions resulting from a project through implementation of project features, project design, or other measures. Incorporate design measures to reduce energy consumption and increase use of renewable energy.	**Consistent.** The project would incorporate applicable energy- and water-efficiency design features, as described in Section 2, Project Description, to comply with 2019 Title 24 standards. The incorporation of such features, provision and use of EV charging parking spaces and bicycle racks, and use of the proposed equestrian trail would result in reduced emissions from resource (energy and water) use and alternative transportation use. Therefore, the project would be consistent with this strategy

Source: SCAG 2016

4 Conclusions and Recommendations

Construction and operation of the project would not exceed any established air quality or GHG emissions thresholds of conflict with any applicable plans or policies relating to air quality or reduction of GHG emissions. Furthermore, the project would comply with all applicable air quality regulatory requirements, as detailed in Section 1, *Project Description and Impact Summary*. Such measures include fugitive dust control pursuant to SCAQMD Rule 403, use of low-VOC architectural coatings pursuant to SCAQMD Rule 1113, engine idling restrictions pursuant to Section 2485, Title 13 of the California Code of Regulations, and engine emissions standards pursuant to Section 93115, Title 17 of the California Code of Regulations. As detailed above, with adherence to existing regulatory requirements, the project would not result in any significant air quality or GHG related impacts.

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Appendix A

CalEEMod Output Files, N_2O Emissions Calculations, RPS Energy Intensity Factors, Solar PV Calculations

Appendix A

CalEEMod Output Files, N_2O Emissions Calculations, RPS Energy Intensity Factors, Solar PV Calculations

Norco Valley Square Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	671.00	Space	4.00	178,130.00	0
City Park	7.40	Acre	7.40	322,600.00	0
Fast Food Restaurant w/o Drive Thru	8.70	1000sqft	0.20	8,700.00	0
Health Club	13.41	1000sqft	0.30	13,407.00	0
Hotel	120.00	Room	1.77	70,000.00	0
Apartments Mid Rise	320.00	Dwelling Unit	5.43	398,042.00	915

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Norco Valley Square Project - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use - Square footage for apartments (avg 890 sf per unit; 398042 gross sf for residential from client), hotel (70,000 sf) and food hall (8,700 sf) obtained from site plans; total acreage adjusted for site plans
Parking spaces obtained from the total of 671 spaces in updated PD 9/8/20
Health Club includes lounge, fitness center, leasing office. obtained from the total sf of 13,407 in updated PD 9/8/20
City Park includes all open space and 800 sf restroom/storage area

Construction Phase - Coating adjusted to reflect start date approximately halfway into building construction
Construction phase based on data request:
Phase II four month overlap with Phase I for conservative analysis
Phase III overlap with Phase II for conservative analysis

Trips and VMT - Worker trips for building construction and architectural phase to account for the actual construction/coating occurring in that phase using CalEEMod Appendix A calculation details for worker trips

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - weekday daily trip rate obtained from traffic study; adjusted trip rate includes internal capture

Woodstoves - 0 fireplaces per data request

Area Coating - SCAQMD Rule 1113

Energy Use - Title-24 Electricity Energy Intensity reduced by 30% for commercial use per 2019 Title 24 standards

Water And Wastewater -

Solid Waste - 25% reduction to account for AB 341

Construction Off-road Equipment Mitigation - Water 3x daily per data request

Mobile Land Use Mitigation - 320 DU per 11.3 residential acres & 34 jobs per 7.2 commercial acres; avg 0.1 miles to bus stops; avg distance to edge is 0.75 miles

Area Mitigation - SCAQMD Rule 1113

Energy Mitigation - kwH calculated in Solar PV spreadsheet

Water Mitigation - 20 percent reduction in indoor water use based on Title 24 Green Building Standards

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	263.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	300.00	521.00

Norco Valley Square Project - South Coast AQMD Air District, Winter

tblConstructionPhase	NumDays	300.00	522.00
tblConstructionPhase	NumDays	30.00	86.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	10.00	67.00
tblEnergyUse	T24E	12.38	8.67
tblEnergyUse	T24E	6.47	4.53
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	272.00	0.00
tblFireplaces	NumberNoFireplace	32.00	0.00
tblFireplaces	NumberWood	16.00	0.00
tblLandUse	LandUseSquareFeet	268,400.00	178,130.00
tblLandUse	LandUseSquareFeet	322,344.00	322,600.00
tblLandUse	LandUseSquareFeet	13,410.00	13,407.00
tblLandUse	LandUseSquareFeet	174,240.00	70,000.00
tblLandUse	LandUseSquareFeet	320,000.00	398,042.00
tblLandUse	LotAcreage	6.04	4.00
tblLandUse	LotAcreage	0.31	0.30
tblLandUse	LotAcreage	4.00	1.77
tblLandUse	LotAcreage	8.42	5.43
tblSolidWaste	SolidWasteGenerationRate	147.20	110.40
tblSolidWaste	SolidWasteGenerationRate	0.64	0.48
tblSolidWaste	SolidWasteGenerationRate	100.21	75.16
tblSolidWaste	SolidWasteGenerationRate	76.44	53.44
tblSolidWaste	SolidWasteGenerationRate	65.70	52.56

tblTripsAndVMT	VendorTripNumber	131.00	85.00
tblTripsAndVMT	VendorTripNumber	131.00	18.00
tblTripsAndVMT	WorkerTripNumber	479.00	359.00
tblTripsAndVMT	WorkerTripNumber	479.00	45.00
tblTripsAndVMT	WorkerTripNumber	96.00	72.00
tblTripsAndVMT	WorkerTripNumber	96.00	9.00
tblVehicleTrips	ST_TR	6.39	4.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	696.00	144.14
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	6.50
tblVehicleTrips	SU_TR	5.86	4.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	500.00	144.14
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	6.50
tblVehicleTrips	WD_TR	6.65	4.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	716.00	144.14
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	6.50

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					
2021	4.2834	46.4598	31.5555	0.0641	18.2675	2.0459	20.3134	9.9840	1.8823	11.8663	0.0000	6,214.1770	6,214.1770	1.9484	0.0000	6,262.8858
2022	7.2085	63.1494	59.2833	0.1478	13.4537	2.4888	15.9425	4.8766	2.3071	7.1837	0.0000	14,578.8484	14,578.8484	2.7959	0.0000	14,648.7457
2023	18.4282	38.2424	50.1889	0.1272	5.9798	1.5157	7.4954	1.6008	1.4297	3.0305	0.0000	12,587.5640	12,587.5640	1.4919	0.0000	12,624.8608
2024	31.3092	37.3958	51.0954	0.1295	6.0804	1.3939	7.4743	1.6275	1.3178	2.9453	0.0000	12,793.9774	12,793.9774	1.4900	0.0000	12,831.2279
Maximum	**31.3092**	**63.1494**	**59.2833**	**0.1478**	**18.2675**	**2.4888**	**20.3134**	**9.9840**	**2.3071**	**11.8663**	**0.0000**	**14,578.8484**	**14,578.8484**	**2.7959**	**0.0000**	**14,648.7457**

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	4.2834	46.4598	31.5555	0.0641	7.2470	2.0459	9.2930	3.9263	1.8823	5.8086	0.0000	6,214.1770	6,214.1770	1.9484	0.0000	6,262.8858
2022	7.2085	63.1494	59.2833	0.1478	8.1629	2.4888	10.6517	2.6828	2.3071	4.9899	0.0000	14,578.8484	14,578.8484	2.7959	0.0000	14,648.7457
2023	18.4282	38.2424	50.1889	0.1272	5.9798	1.5157	7.4954	1.6008	1.4297	3.0305	0.0000	12,587.5640	12,587.5640	1.4919	0.0000	12,624.8607
2024	31.3092	37.3958	51.0954	0.1295	6.0804	1.3939	7.4743	1.6275	1.3178	2.9453	0.0000	12,793.9774	12,793.9774	1.4900	0.0000	12,831.2279
Maximum	**31.3092**	**63.1494**	**59.2833**	**0.1478**	**8.1629**	**2.4888**	**10.6517**	**3.9263**	**2.3071**	**5.8086**	**0.0000**	**14,578.8484**	**14,578.8484**	**2.7959**	**0.0000**	**14,648.7457**

	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**	**37.26**	**0.00**	**31.84**	**45.62**	**0.00**	**32.97**	**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	20.1685	1.5841	104.8916	0.2573		12.9415	12.9415		12.9415	12.9415	1,888.5243	47.7163	1,936.2406	8.8745	0.0000	2,158.1020
Energy	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
Mobile	4.1694	20.2626	48.9994	0.2030	18.9207	0.1500	19.0707	5.0615	0.1393	5.2008		20,740.5201	20,740.5201	0.9498		20,764.2639
Total	**24.6850**	**24.9262**	**155.9824**	**0.4792**	**18.9207**	**13.3314**	**32.2521**	**5.0615**	**13.3207**	**18.3822**	**1,888.5243**	**24,575.2878**	**26,463.8121**	**9.8968**	**0.0694**	**26,731.9219**

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	11.5319	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467	0.0000	47.7163	47.7163	0.0460	0.0000	48.8660
Energy	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
Mobile	3.4253	16.1457	30.5872	0.1125	9.7995	0.0868	9.8863	2.6215	0.0806	2.7021		11,514.6993	11,514.6993	0.6005		11,529.7113
Total	**15.3044**	**19.5298**	**59.1376**	**0.1328**	**9.7995**	**0.4733**	**10.2728**	**2.6215**	**0.4671**	**3.0886**	**0.0000**	**15,349.4670**	**15,349.4670**	**0.7191**	**0.0694**	**15,388.1333**

	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	**38.00**	**21.65**	**62.09**	**72.28**	**48.21**	**96.45**	**68.15**	**48.21**	**96.49**	**83.20**	**100.00**	**37.54**	**42.00**	**92.73**	**0.00**	**42.44**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	10/1/2021	5	67	Phase I
2	Grading	Grading	10/4/2021	1/31/2022	5	86	Phase I
3	Building Construction (Food Garden and Apartments)	Building Construction	1/3/2022	1/1/2024	5	521	Phase II
4	Paving (Food Garden & Apartments)	Paving	2/1/2022	3/31/2022	5	43	Phase I
5	Paving (Hotel)	Paving	7/1/2022	12/30/2022	5	131	Phase III
6	Building Construction (Hotel)	Building Construction	1/2/2023	12/31/2024	5	522	Phase III
7	Architectural Coating (Food Garden and Apartments)	Architectural Coating	3/1/2023	3/1/2024	5	263	Phase II
8	Architecural Coating (Hotel)	Architectural Coating	1/1/2024	12/31/2024	5	262	Phase III

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 215

Acres of Paving: 4

Residential Indoor: 806,035; Residential Outdoor: 268,678; Non-Residential Indoor: 139,361; Non-Residential Outdoor: 46,454; Striped Parking Area: 10,656 (Architectural Coating – sqft)

OffRoad Equipment

Norco Valley Square Project - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction (Food Garden and Apartments)	Cranes	1	7.00	231	0.29
Building Construction (Food Garden and Apartments)	Forklifts	3	8.00	89	0.20
Building Construction (Food Garden and Apartments)	Generator Sets	1	8.00	84	0.74
Building Construction (Food Garden and Apartments)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Food Garden and Apartments)	Welders	1	8.00	46	0.45
Paving (Food Garden & Apartments)	Pavers	2	8.00	130	0.42
Paving (Food Garden & Apartments)	Paving Equipment	2	8.00	132	0.36
Paving (Food Garden & Apartments)	Rollers	2	8.00	80	0.38
Paving (Hotel)	Pavers	2	8.00	130	0.42
Paving (Hotel)	Paving Equipment	2	8.00	132	0.36
Paving (Hotel)	Rollers	2	8.00	80	0.38
Building Construction (Hotel)	Cranes	1	7.00	231	0.29
Building Construction (Hotel)	Forklifts	3	8.00	89	0.20
Building Construction (Hotel)	Generator Sets	1	8.00	84	0.74
Building Construction (Hotel)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Hotel)	Welders	1	8.00	46	0.45
Architectural Coating (Food Garden and Apartments)	Air Compressors	1	6.00	78	0.48
Architecural Coating (Hotel)	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Food Garden and Ap	9	359.00	85.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Food Garden & Apartments)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Hotel)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Hotel)	9	45.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Food Garden and Ap	1	72.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architecural Coating (Hotel)	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

3.2 Site Preparation - 2021

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.0458**	**2.0445**	**9.0903**	**3.8730**	**1.8809**	**5.7539**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	**0.0830**	**0.0539**	**0.6094**	**1.8700e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**186.4202**	**186.4202**	**5.0000e-003**		**186.5451**

3.3 Grading - 2021

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.0599	0.6771	2.0800e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		207.1336	207.1336	5.5500e-003		207.2724
Total	**0.0922**	**0.0599**	**0.6771**	**2.0800e-003**	**0.2236**	**1.6500e-003**	**0.2252**	**0.0593**	**1.5200e-003**	**0.0608**		**207.1336**	**207.1336**	**5.5500e-003**		**207.2724**

3.3 Grading - 2021

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.3826**	**1.9853**	**5.3679**	**1.4026**	**1.8265**	**3.2292**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.0599	0.6771	2.0800e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		207.1336	207.1336	5.5500e-003		207.2724
Total	**0.0922**	**0.0599**	**0.6771**	**2.0800e-003**	**0.2236**	**1.6500e-003**	**0.2252**	**0.0593**	**1.5200e-003**	**0.0608**		**207.1336**	**207.1336**	**5.5500e-003**		**207.2724**

3.3 Grading - 2022

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**0.0868**	**0.0541**	**0.6250**	**2.0000e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**199.7073**	**199.7073**	**5.0100e-003**		**199.8326**

3.3 Grading - 2022

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.3826**	**1.6349**	**5.0175**	**1.4026**	**1.5041**	**2.9067**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**0.0868**	**0.0541**	**0.6250**	**2.0000e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**199.7073**	**199.7073**	**5.0100e-003**		**199.8326**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.2336	7.6646	2.0357	0.0209	0.5440	0.0146	0.5586	0.1566	0.0140	0.1706		2,228.6509	2,228.6509	0.1447		2,232.2694
Worker	1.5571	0.9716	11.2178	0.0360	4.0128	0.0287	4.0415	1.0642	0.0264	1.0906		3,584.7461	3,584.7461	0.0900		3,586.9957
Total	**1.7907**	**8.6362**	**13.2535**	**0.0568**	**4.5568**	**0.0433**	**4.6001**	**1.2208**	**0.0404**	**1.2612**		**5,813.3970**	**5,813.3970**	**0.2347**		**5,819.2651**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.2336	7.6646	2.0357	0.0209	0.5440	0.0146	0.5586	0.1566	0.0140	0.1706		2,228.6509	2,228.6509	0.1447		2,232.2694
Worker	1.5571	0.9716	11.2178	0.0360	4.0128	0.0287	4.0415	1.0642	0.0264	1.0906		3,584.7461	3,584.7461	0.0900		3,586.9957
Total	**1.7907**	**8.6362**	**13.2535**	**0.0568**	**4.5568**	**0.0433**	**4.6001**	**1.2208**	**0.0404**	**1.2612**		**5,813.3970**	**5,813.3970**	**0.2347**		**5,819.2651**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.1743	5.7804	1.8000	0.0202	0.5440	6.8600e-003	0.5509	0.1566	6.5600e-003	0.1632		2,162.0741	2,162.0741	0.1253		2,165.2069
Worker	1.4685	0.8788	10.3390	0.0346	4.0128	0.0280	4.0407	1.0642	0.0257	1.0899		3,451.0542	3,451.0542	0.0811		3,453.0810
Total	**1.6429**	**6.6592**	**12.1390**	**0.0548**	**4.5568**	**0.0348**	**4.5916**	**1.2208**	**0.0323**	**1.2531**		**5,613.1283**	**5,613.1283**	**0.2064**		**5,618.2879**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.1743	5.7804	1.8000	0.0202	0.5440	6.8600e-003	0.5509	0.1566	6.5600e-003	0.1632		2,162.0741	2,162.0741	0.1253		2,165.2069
Worker	1.4685	0.8788	10.3390	0.0346	4.0128	0.0280	4.0407	1.0642	0.0257	1.0899		3,451.0542	3,451.0542	0.0811		3,453.0810
Total	**1.6429**	**6.6592**	**12.1390**	**0.0548**	**4.5568**	**0.0348**	**4.5916**	**1.2208**	**0.0323**	**1.2531**		**5,613.1283**	**5,613.1283**	**0.2064**		**5,618.2879**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.1706	5.7678	1.7484	0.0201	0.5440	6.7600e-003	0.5508	0.1566	6.4600e-003	0.1631		2,154.7205	2,154.7205	0.1232		2,157.8016
Worker	1.3940	0.8005	9.6395	0.0335	4.0128	0.0276	4.0404	1.0642	0.0254	1.0896		3,337.3449	3,337.3449	0.0742		3,339.2005
Total	**1.5645**	**6.5683**	**11.3880**	**0.0536**	**4.5568**	**0.0343**	**4.5911**	**1.2208**	**0.0318**	**1.2527**		**5,492.0654**	**5,492.0654**	**0.1975**		**5,497.0022**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.1706	5.7678	1.7484	0.0201	0.5440	6.7600e-003	0.5508	0.1566	6.4600e-003	0.1631		2,154.7205	2,154.7205	0.1232		2,157.8016
Worker	1.3940	0.8005	9.6395	0.0335	4.0128	0.0276	4.0404	1.0642	0.0254	1.0896		3,337.3449	3,337.3449	0.0742		3,339.2005
Total	**1.5645**	**6.5683**	**11.3880**	**0.0536**	**4.5568**	**0.0343**	**4.5911**	**1.2208**	**0.0318**	**1.2527**		**5,492.0654**	**5,492.0654**	**0.1975**		**5,497.0022**

3.5 Paving (Food Garden & Apartments) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3465**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.5 Paving (Food Garden & Apartments) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3465**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.6 Paving (Hotel) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1828**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.6 Paving (Hotel) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1828**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.7 Building Construction (Hotel) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.0369	1.2241	0.3812	4.2800e-003	0.1152	1.4500e-003	0.1167	0.0332	1.3900e-003	0.0346		457.8510	457.8510	0.0265		458.5144
Worker	0.1841	0.1102	1.2960	4.3400e-003	0.5030	3.5000e-003	0.5065	0.1334	3.2300e-003	0.1366		432.5834	432.5834	0.0102		432.8375
Total	**0.2210**	**1.3342**	**1.6772**	**8.6200e-003**	**0.6182**	**4.9500e-003**	**0.6232**	**0.1666**	**4.6200e-003**	**0.1712**		**890.4344**	**890.4344**	**0.0367**		**891.3519**

3.7 Building Construction (Hotel) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.0369	1.2241	0.3812	4.2800e-003	0.1152	1.4500e-003	0.1167	0.0332	1.3900e-003	0.0346		457.8510	457.8510	0.0265		458.5144
Worker	0.1841	0.1102	1.2960	4.3400e-003	0.5030	3.5000e-003	0.5065	0.1334	3.2300e-003	0.1366		432.5834	432.5834	0.0102		432.8375
Total	**0.2210**	**1.3342**	**1.6772**	**8.6200e-003**	**0.6182**	**4.9500e-003**	**0.6232**	**0.1666**	**4.6200e-003**	**0.1712**		**890.4344**	**890.4344**	**0.0367**		**891.3519**

3.7 Building Construction (Hotel) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.0361	1.2214	0.3703	4.2600e-003	0.1152	1.4300e-003	0.1166	0.0332	1.3700e-003	0.0345		456.2938	456.2938	0.0261		456.9462
Worker	0.1747	0.1004	1.2083	4.1900e-003	0.5030	3.4600e-003	0.5065	0.1334	3.1800e-003	0.1366		418.3301	418.3301	9.3000e-003		418.5627
Total	**0.2109**	**1.3218**	**1.5786**	**8.4500e-003**	**0.6182**	**4.8900e-003**	**0.6231**	**0.1666**	**4.5500e-003**	**0.1711**		**874.6239**	**874.6239**	**0.0354**		**875.5090**

3.7 Building Construction (Hotel) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.0361	1.2214	0.3703	4.2600e-003	0.1152	1.4300e-003	0.1166	0.0332	1.3700e-003	0.0345		456.2938	456.2938	0.0261		456.9462
Worker	0.1747	0.1004	1.2083	4.1900e-003	0.5030	3.4600e-003	0.5065	0.1334	3.1800e-003	0.1366		418.3301	418.3301	9.3000e-003		418.5627
Total	**0.2109**	**1.3218**	**1.5786**	**8.4500e-003**	**0.6182**	**4.8900e-003**	**0.6231**	**0.1666**	**4.5500e-003**	**0.1711**		**874.6239**	**874.6239**	**0.0354**		**875.5090**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**13.1243**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.2945	0.1763	2.0736	6.9400e-003	0.8048	5.6000e-003	0.8104	0.2134	5.1600e-003	0.2186		692.1334	692.1334	0.0163		692.5399
Total	**0.2945**	**0.1763**	**2.0736**	**6.9400e-003**	**0.8048**	**5.6000e-003**	**0.8104**	**0.2134**	**5.1600e-003**	**0.2186**		**692.1334**	**692.1334**	**0.0163**		**692.5399**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**13.1243**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.2945	0.1763	2.0736	6.9400e-003	0.8048	5.6000e-003	0.8104	0.2134	5.1600e-003	0.2186		692.1334	692.1334	0.0163		692.5399
Total	**0.2945**	**0.1763**	**2.0736**	**6.9400e-003**	**0.8048**	**5.6000e-003**	**0.8104**	**0.2134**	**5.1600e-003**	**0.2186**		**692.1334**	**692.1334**	**0.0163**		**692.5399**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.1134**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.2796	0.1606	1.9333	6.7100e-003	0.8048	5.5300e-003	0.8103	0.2134	5.0900e-003	0.2185		669.3282	669.3282	0.0149		669.7004
Total	**0.2796**	**0.1606**	**1.9333**	**6.7100e-003**	**0.8048**	**5.5300e-003**	**0.8103**	**0.2134**	**5.0900e-003**	**0.2185**		**669.3282**	**669.3282**	**0.0149**		**669.7004**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.1134**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.2796	0.1606	1.9333	6.7100e-003	0.8048	5.5300e-003	0.8103	0.2134	5.0900e-003	0.2185		669.3282	669.3282	0.0149		669.7004
Total	**0.2796**	**0.1606**	**1.9333**	**6.7100e-003**	**0.8048**	**5.5300e-003**	**0.8103**	**0.2134**	**5.0900e-003**	**0.2185**		**669.3282**	**669.3282**	**0.0149**		**669.7004**

3.9 Architecural Coating (Hotel) - 2024

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	12.9820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.1628**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0350	0.0201	0.2417	8.4000e-004	0.1006	6.9000e-004	0.1013	0.0267	6.4000e-004	0.0273		83.6660	83.6660	1.8600e-003		83.7126
Total	**0.0350**	**0.0201**	**0.2417**	**8.4000e-004**	**0.1006**	**6.9000e-004**	**0.1013**	**0.0267**	**6.4000e-004**	**0.0273**		**83.6660**	**83.6660**	**1.8600e-003**		**83.7126**

3.9 Architecural Coating (Hotel) - 2024

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	12.9820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.1628**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0350	0.0201	0.2417	8.4000e-004	0.1006	6.9000e-004	0.1013	0.0267	6.4000e-004	0.0273		83.6660	83.6660	1.8600e-003		83.7126
Total	**0.0350**	**0.0201**	**0.2417**	**8.4000e-004**	**0.1006**	**6.9000e-004**	**0.1013**	**0.0267**	**6.4000e-004**	**0.0273**		**83.6660**	**83.6660**	**1.8600e-003**		**83.7126**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

	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	3.4253	16.1457	30.5872	0.1125	9.7995	0.0868	9.8863	2.6215	0.0806	2.7021		11,514.6993	11,514.6993	0.6005		11,529.7113
Unmitigated	4.1694	20.2626	48.9994	0.2030	18.9207	0.1500	19.0707	5.0615	0.1393	5.2008		20,740.5201	20,740.5201	0.9498		20,764.2639

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,395.20	1,395.20	1395.20	4,767,610	2,469,264
City Park	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	1,254.02	1,254.02	1254.02	2,271,081	1,176,249
Health Club	0.00	0.00	0.00		
Hotel	780.00	780.00	780.00	1,861,213	963,969
Parking Lot	0.00	0.00	0.00		
Total	3,429.22	3,429.22	3,429.22	8,899,905	4,609,482

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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
City Park	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Fast Food Restaurant w/o Drive Thru	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Health Club	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Hotel	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Parking Lot	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Install Energy Efficient Appliances

Norco Valley Square Project - South Coast AQMD Air District, Winter

	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	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
NaturalGas Unmitigated	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560

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					
Apartments Mid Rise	12970.2	0.1399	1.1953	0.5086	7.6300e-003		0.0966	0.0966		0.0966	0.0966		1,525.9003	1,525.9003	0.0293	0.0280	1,534.9679
City Park	0	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
Fast Food Restaurant w/o Drive Thru	6517.61	0.0703	0.6390	0.5367	3.8300e-003		0.0486	0.0486		0.0486	0.0486		766.7778	766.7778	0.0147	0.0141	771.3343
Health Club	1193.41	0.0129	0.1170	0.0983	7.0000e-004		8.8900e-003	8.8900e-003		8.8900e-003	8.8900e-003		140.4008	140.4008	2.6900e-003	2.5700e-003	141.2351
Hotel	11508.8	0.1241	1.1283	0.9478	6.7700e-003		0.0858	0.0858		0.0858	0.0858		1,353.9726	1,353.9726	0.0260	0.0248	1,362.0186
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.3471**	**3.0796**	**2.0914**	**0.0189**		**0.2398**	**0.2398**		**0.2398**	**0.2398**		**3,787.0514**	**3,787.0514**	**0.0726**	**0.0694**	**3,809.5560**

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					
Apartments Mid Rise	12.9702	0.1399	1.1953	0.5086	7.6300e-003		0.0966	0.0966		0.0966	0.0966		1,525.9003	1,525.9003	0.0293	0.0280	1,534.9679
City Park	0	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
Fast Food Restaurant w/o Drive Thru	6.51761	0.0703	0.6390	0.5367	3.8300e-003		0.0486	0.0486		0.0486	0.0486		766.7778	766.7778	0.0147	0.0141	771.3343
Health Club	1.19341	0.0129	0.1170	0.0983	7.0000e-004		8.8900e-003	8.8900e-003		8.8900e-003	8.8900e-003		140.4008	140.4008	2.6900e-003	2.5700e-003	141.2351
Hotel	11.5088	0.1241	1.1283	0.9478	6.7700e-003		0.0858	0.0858		0.0858	0.0858		1,353.9726	1,353.9726	0.0260	0.0248	1,362.0186
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.3471**	**3.0796**	**2.0914**	**0.0189**		**0.2398**	**0.2398**		**0.2398**	**0.2398**		**3,787.0514**	**3,787.0514**	**0.0726**	**0.0694**	**3,809.5560**

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

No Hearths Installed

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	11.5319	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467	0.0000	47.7163	47.7163	0.0460	0.0000	48.8660
Unmitigated	20.1685	1.5841	104.8916	0.2573		12.9415	12.9415		12.9415	12.9415	1,888.5243	47.7163	1,936.2406	8.8745	0.0000	2,158.1020

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					
Architectural Coating	0.9319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.8005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	8.6365	1.2795	78.4326	0.2559		12.7949	12.7949		12.7949	12.7949	1,888.5243	0.0000	1,888.5243	8.8285	0.0000	2,109.2360
Landscaping	0.7996	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467		47.7163	47.7163	0.0460		48.8660
Total	**20.1685**	**1.5841**	**104.8916**	**0.2573**		**12.9415**	**12.9415**		**12.9415**	**12.9415**	**1,888.5243**	**47.7163**	**1,936.2406**	**8.8745**	**0.0000**	**2,158.1020**

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					
Architectural Coating	0.9319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.8005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.7996	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467		47.7163	47.7163	0.0460		48.8660
Total	**11.5319**	**0.3046**	**26.4590**	**1.4000e-003**		**0.1467**	**0.1467**		**0.1467**	**0.1467**	**0.0000**	**47.7163**	**47.7163**	**0.0460**	**0.0000**	**48.8660**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Norco Valley Square Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	671.00	Space	4.00	178,130.00	0
City Park	7.40	Acre	7.40	322,600.00	0
Fast Food Restaurant w/o Drive Thru	8.70	1000sqft	0.20	8,700.00	0
Health Club	13.41	1000sqft	0.30	13,407.00	0
Hotel	120.00	Room	1.77	70,000.00	0
Apartments Mid Rise	320.00	Dwelling Unit	5.43	398,042.00	915

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Norco Valley Square Project - South Coast AQMD Air District, Summer

Project Characteristics -

Land Use - Square footage for apartments (avg 890 sf per unit; 398042 gross sf for residential from client), hotel (70,000 sf) and food hall (8,700 sf) obtained from site plans; total acreage adjusted for site plans
Parking spaces obtained from the total of 671 spaces in updated PD 9/8/20
Health Club includes lounge, fitness center, leasing office. obtained from the total sf of 13,407 in updated PD 9/8/20
City Park includes all open space and 800 sf restroom/storage area

Construction Phase - Coating adjusted to reflect start date approximately halfway into building construction
Construction phase based on data request:
Phase II four month overlap with Phase I for conservative analysis
Phase III overlap with Phase II for conservative analysis

Trips and VMT - Worker trips for building construction and architectural phase to account for the actual construction/coating occurring in that phase using CalEEMod Appendix A calculation details for worker trips

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - weekday daily trip rate obtained from traffic study; adjusted trip rate includes internal capture

Woodstoves - 0 fireplaces per data request

Area Coating - SCAQMD Rule 1113

Energy Use - Title-24 Electricity Energy Intensity reduced by 30% for commercial use per 2019 Title 24 standards

Water And Wastewater -

Solid Waste - 25% reduction to account for AB 341

Construction Off-road Equipment Mitigation - Water 3x daily per data request

Mobile Land Use Mitigation - 320 DU per 11.3 residential acres & 34 jobs per 7.2 commercial acres; avg 0.1 miles to bus stops; avg distance to edge is 0.75 miles

Area Mitigation - SCAQMD Rule 1113

Energy Mitigation - kwH calculated in Solar PV spreadsheet

Water Mitigation - 20 percent reduction in indoor water use based on Title 24 Green Building Standards

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	263.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	300.00	521.00

Norco Valley Square Project - South Coast AQMD Air District, Summer

tblConstructionPhase	NumDays	300.00	522.00
tblConstructionPhase	NumDays	30.00	86.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	10.00	67.00
tblEnergyUse	T24E	12.38	8.67
tblEnergyUse	T24E	6.47	4.53
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	272.00	0.00
tblFireplaces	NumberNoFireplace	32.00	0.00
tblFireplaces	NumberWood	16.00	0.00
tblLandUse	LandUseSquareFeet	268,400.00	178,130.00
tblLandUse	LandUseSquareFeet	322,344.00	322,600.00
tblLandUse	LandUseSquareFeet	13,410.00	13,407.00
tblLandUse	LandUseSquareFeet	174,240.00	70,000.00
tblLandUse	LandUseSquareFeet	320,000.00	398,042.00
tblLandUse	LotAcreage	6.04	4.00
tblLandUse	LotAcreage	0.31	0.30
tblLandUse	LotAcreage	4.00	1.77
tblLandUse	LotAcreage	8.42	5.43
tblSolidWaste	SolidWasteGenerationRate	147.20	110.40
tblSolidWaste	SolidWasteGenerationRate	0.64	0.48
tblSolidWaste	SolidWasteGenerationRate	100.21	75.16
tblSolidWaste	SolidWasteGenerationRate	76.44	53.44
tblSolidWaste	SolidWasteGenerationRate	65.70	52.56

tblTripsAndVMT	VendorTripNumber	131.00	85.00
tblTripsAndVMT	VendorTripNumber	131.00	18.00
tblTripsAndVMT	WorkerTripNumber	479.00	359.00
tblTripsAndVMT	WorkerTripNumber	479.00	45.00
tblTripsAndVMT	WorkerTripNumber	96.00	72.00
tblTripsAndVMT	WorkerTripNumber	96.00	9.00
tblVehicleTrips	ST_TR	6.39	4.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	696.00	144.14
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	6.50
tblVehicleTrips	SU_TR	5.86	4.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	500.00	144.14
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	6.50
tblVehicleTrips	WD_TR	6.65	4.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	716.00	144.14
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	6.50

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					
2021	4.2756	46.4546	31.6319	0.0642	18.2675	2.0459	20.3134	9.9840	1.8823	11.8663	0.0000	6,228.5241	6,228.5241	1.9488	0.0000	6,277.2430
2022	7.0535	63.0917	60.4256	0.1511	13.4537	2.4883	15.9420	4.8766	2.3067	7.1833	0.0000	14,907.9204	14,907.9204	2.7930	0.0000	14,977.7458
2023	18.2425	38.1876	51.5968	0.1312	5.9798	1.5153	7.4950	1.6008	1.4294	3.0302	0.0000	12,982.0530	12,982.0530	1.4906	0.0000	13,019.3171
2024	31.1245	37.3463	52.4562	0.1333	6.0804	1.3936	7.4739	1.6275	1.3174	2.9449	0.0000	13,183.6655	13,183.6655	1.4886	0.0000	13,220.8804
Maximum	**31.1245**	**63.0917**	**60.4256**	**0.1511**	**18.2675**	**2.4883**	**20.3134**	**9.9840**	**2.3067**	**11.8663**	**0.0000**	**14,907.9204**	**14,907.9204**	**2.7930**	**0.0000**	**14,977.7458**

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	4.2756	46.4546	31.6319	0.0642	7.2470	2.0459	9.2930	3.9263	1.8823	5.8086	0.0000	6,228.5241	6,228.5241	1.9488	0.0000	6,277.2430
2022	7.0535	63.0917	60.4256	0.1511	8.1629	2.4883	10.6513	2.6828	2.3067	4.9894	0.0000	14,907.9204	14,907.9204	2.7930	0.0000	14,977.7458
2023	18.2425	38.1876	51.5968	0.1312	5.9798	1.5153	7.4950	1.6008	1.4294	3.0302	0.0000	12,982.0530	12,982.0530	1.4906	0.0000	13,019.3171
2024	31.1245	37.3463	52.4562	0.1333	6.0804	1.3936	7.4739	1.6275	1.3174	2.9449	0.0000	13,183.6655	13,183.6655	1.4886	0.0000	13,220.8804
Maximum	**31.1245**	**63.0917**	**60.4256**	**0.1511**	**8.1629**	**2.4883**	**10.6513**	**3.9263**	**2.3067**	**5.8086**	**0.0000**	**14,907.9204**	**14,907.9204**	**2.7930**	**0.0000**	**14,977.7458**

	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**	**37.26**	**0.00**	**31.84**	**45.62**	**0.00**	**32.97**	**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	20.1685	1.5841	104.8916	0.2573		12.9415	12.9415		12.9415	12.9415	1,888.5243	47.7163	1,936.2406	8.8745	0.0000	2,158.1020
Energy	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
Mobile	4.4186	20.0285	52.0313	0.2144	18.9207	0.1493	19.0700	5.0615	0.1386	5.2001		21,899.0320	21,899.0320	0.9440		21,922.6329
Total	**24.9342**	**24.6921**	**159.0143**	**0.4907**	**18.9207**	**13.3307**	**32.2514**	**5.0615**	**13.3200**	**18.3815**	**1,888.5243**	**25,733.7997**	**27,622.3240**	**9.8911**	**0.0694**	**27,890.2908**

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	11.5319	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467	0.0000	47.7163	47.7163	0.0460	0.0000	48.8660
Energy	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
Mobile	3.6540	16.1417	31.3184	0.1192	9.7995	0.0861	9.8856	2.6215	0.0799	2.7014		12,200.6842	12,200.6842	0.5850		12,215.3089
Total	**15.5331**	**19.5258**	**59.8688**	**0.1396**	**9.7995**	**0.4726**	**10.2721**	**2.6215**	**0.4664**	**3.0879**	**0.0000**	**16,035.4519**	**16,035.4519**	**0.7036**	**0.0694**	**16,073.7309**

	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	**37.70**	**20.92**	**62.35**	**71.56**	**48.21**	**96.45**	**68.15**	**48.21**	**96.50**	**83.20**	**100.00**	**37.69**	**41.95**	**92.89**	**0.00**	**42.37**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	10/1/2021	5	67	Phase I
2	Grading	Grading	10/4/2021	1/31/2022	5	86	Phase I
3	Building Construction (Food Garden and Apartments)	Building Construction	1/3/2022	1/1/2024	5	521	Phase II
4	Paving (Food Garden & Apartments)	Paving	2/1/2022	3/31/2022	5	43	Phase I
5	Paving (Hotel)	Paving	7/1/2022	12/30/2022	5	131	Phase III
6	Building Construction (Hotel)	Building Construction	1/2/2023	12/31/2024	5	522	Phase III
7	Architectural Coating (Food Garden and Apartments)	Architectural Coating	3/1/2023	3/1/2024	5	263	Phase II
8	Architecural Coating (Hotel)	Architectural Coating	1/1/2024	12/31/2024	5	262	Phase III

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 215

Acres of Paving: 4

Residential Indoor: 806,035; Residential Outdoor: 268,678; Non-Residential Indoor: 139,361; Non-Residential Outdoor: 46,454; Striped Parking Area: 10,656 (Architectural Coating – sqft)

OffRoad Equipment

Norco Valley Square Project - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction (Food Garden and Apartments)	Cranes	1	7.00	231	0.29
Building Construction (Food Garden and Apartments)	Forklifts	3	8.00	89	0.20
Building Construction (Food Garden and Apartments)	Generator Sets	1	8.00	84	0.74
Building Construction (Food Garden and Apartments)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Food Garden and Apartments)	Welders	1	8.00	46	0.45
Paving (Food Garden & Apartments)	Pavers	2	8.00	130	0.42
Paving (Food Garden & Apartments)	Paving Equipment	2	8.00	132	0.36
Paving (Food Garden & Apartments)	Rollers	2	8.00	80	0.38
Paving (Hotel)	Pavers	2	8.00	130	0.42
Paving (Hotel)	Paving Equipment	2	8.00	132	0.36
Paving (Hotel)	Rollers	2	8.00	80	0.38
Building Construction (Hotel)	Cranes	1	7.00	231	0.29
Building Construction (Hotel)	Forklifts	3	8.00	89	0.20
Building Construction (Hotel)	Generator Sets	1	8.00	84	0.74
Building Construction (Hotel)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Hotel)	Welders	1	8.00	46	0.45
Architectural Coating (Food Garden and Apartments)	Air Compressors	1	6.00	78	0.48
Architecural Coating (Hotel)	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Food Garden and Ap	9	359.00	85.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Food Garden & Apartments)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Hotel)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Hotel)	9	45.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Food Garden and Ap	1	72.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architecural Coating (Hotel)	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

3.2 Site Preparation - 2021

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**7.0458**	**2.0445**	**9.0903**	**3.8730**	**1.8809**	**5.7539**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	**0.0760**	**0.0493**	**0.6781**	**2.0000e-003**	**0.2012**	**1.4800e-003**	**0.2027**	**0.0534**	**1.3600e-003**	**0.0547**		**199.3326**	**199.3326**	**5.3600e-003**		**199.4666**

3.3 Grading - 2021

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.0844	0.0548	0.7535	2.2200e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		221.4807	221.4807	5.9600e-003		221.6296
Total	**0.0844**	**0.0548**	**0.7535**	**2.2200e-003**	**0.2236**	**1.6500e-003**	**0.2252**	**0.0593**	**1.5200e-003**	**0.0608**		**221.4807**	**221.4807**	**5.9600e-003**		**221.6296**

3.3 Grading - 2021

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**3.3826**	**1.9853**	**5.3679**	**1.4026**	**1.8265**	**3.2292**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

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	0.0844	0.0548	0.7535	2.2200e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		221.4807	221.4807	5.9600e-003		221.6296
Total	**0.0844**	**0.0548**	**0.7535**	**2.2200e-003**	**0.2236**	**1.6500e-003**	**0.2252**	**0.0593**	**1.5200e-003**	**0.0608**		**221.4807**	**221.4807**	**5.9600e-003**		**221.6296**

3.3 Grading - 2022

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**0.0792**	**0.0495**	**0.6967**	**2.1400e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**213.5448**	**213.5448**	**5.3800e-003**		**213.6794**

3.3 Grading - 2022

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					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**3.3826**	**1.6349**	**5.0175**	**1.4026**	**1.5041**	**2.9067**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

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	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**0.0792**	**0.0495**	**0.6967**	**2.1400e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**213.5448**	**213.5448**	**5.3800e-003**		**213.6794**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.2218	7.6953	1.8181	0.0215	0.5440	0.0142	0.5582	0.1566	0.0135	0.1701		2,295.5026	2,295.5026	0.1349		2,298.8739
Worker	1.4215	0.8878	12.5059	0.0385	4.0128	0.0287	4.0415	1.0642	0.0264	1.0906		3,833.1289	3,833.1289	0.0966		3,835.5445
Total	**1.6433**	**8.5831**	**14.3240**	**0.0599**	**4.5568**	**0.0428**	**4.5996**	**1.2208**	**0.0400**	**1.2608**		**6,128.6315**	**6,128.6315**	**0.2315**		**6,134.4184**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

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	0.2218	7.6953	1.8181	0.0215	0.5440	0.0142	0.5582	0.1566	0.0135	0.1701		2,295.5026	2,295.5026	0.1349		2,298.8739
Worker	1.4215	0.8878	12.5059	0.0385	4.0128	0.0287	4.0415	1.0642	0.0264	1.0906		3,833.1289	3,833.1289	0.0966		3,835.5445
Total	**1.6433**	**8.5831**	**14.3240**	**0.0599**	**4.5568**	**0.0428**	**4.5996**	**1.2208**	**0.0400**	**1.2608**		**6,128.6315**	**6,128.6315**	**0.2315**		**6,134.4184**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.1655	5.8177	1.6381	0.0208	0.5440	6.5400e-003	0.5506	0.1566	6.2500e-003	0.1629		2,225.8756	2,225.8756	0.1176		2,228.8154
Worker	1.3365	0.8033	11.5489	0.0370	4.0128	0.0280	4.0407	1.0642	0.0257	1.0899		3,690.2693	3,690.2693	0.0871		3,692.4478
Total	**1.5020**	**6.6210**	**13.1870**	**0.0578**	**4.5568**	**0.0345**	**4.5913**	**1.2208**	**0.0320**	**1.2528**		**5,916.1449**	**5,916.1449**	**0.2047**		**5,921.2632**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.1655	5.8177	1.6381	0.0208	0.5440	6.5400e-003	0.5506	0.1566	6.2500e-003	0.1629		2,225.8756	2,225.8756	0.1176		2,228.8154
Worker	1.3365	0.8033	11.5489	0.0370	4.0128	0.0280	4.0407	1.0642	0.0257	1.0899		3,690.2693	3,690.2693	0.0871		3,692.4478
Total	**1.5020**	**6.6210**	**13.1870**	**0.0578**	**4.5568**	**0.0345**	**4.5913**	**1.2208**	**0.0320**	**1.2528**		**5,916.1449**	**5,916.1449**	**0.2047**		**5,921.2632**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.1620	5.8033	1.5910	0.0207	0.5440	6.4700e-003	0.5505	0.1566	6.1900e-003	0.1628		2,217.8054	2,217.8054	0.1158		2,220.6995
Worker	1.2649	0.7321	10.7881	0.0358	4.0128	0.0276	4.0404	1.0642	0.0254	1.0896		3,569.2101	3,569.2101	0.0799		3,571.2072
Total	**1.4269**	**6.5353**	**12.3791**	**0.0565**	**4.5568**	**0.0341**	**4.5908**	**1.2208**	**0.0316**	**1.2524**		**5,787.0155**	**5,787.0155**	**0.1956**		**5,791.9067**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.1620	5.8033	1.5910	0.0207	0.5440	6.4700e-003	0.5505	0.1566	6.1900e-003	0.1628		2,217.8054	2,217.8054	0.1158		2,220.6995
Worker	1.2649	0.7321	10.7881	0.0358	4.0128	0.0276	4.0404	1.0642	0.0254	1.0896		3,569.2101	3,569.2101	0.0799		3,571.2072
Total	**1.4269**	**6.5353**	**12.3791**	**0.0565**	**4.5568**	**0.0341**	**4.5908**	**1.2208**	**0.0316**	**1.2524**		**5,787.0155**	**5,787.0155**	**0.1956**		**5,791.9067**

3.5 Paving (Food Garden & Apartments) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3465**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.5 Paving (Food Garden & Apartments) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.2437					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3465**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.6 Paving (Hotel) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1828**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.6 Paving (Hotel) - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1828**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.7 Building Construction (Hotel) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.0350	1.2320	0.3469	4.4100e-003	0.1152	1.3900e-003	0.1166	0.0332	1.3200e-003	0.0345		471.3619	471.3619	0.0249		471.9844
Worker	0.1675	0.1007	1.4476	4.6400e-003	0.5030	3.5000e-003	0.5065	0.1334	3.2300e-003	0.1366		462.5686	462.5686	0.0109		462.8417
Total	**0.2026**	**1.3327**	**1.7945**	**9.0500e-003**	**0.6182**	**4.8900e-003**	**0.6231**	**0.1666**	**4.5500e-003**	**0.1711**		**933.9305**	**933.9305**	**0.0358**		**934.8261**

3.7 Building Construction (Hotel) - 2023

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	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

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	0.0350	1.2320	0.3469	4.4100e-003	0.1152	1.3900e-003	0.1166	0.0332	1.3200e-003	0.0345		471.3619	471.3619	0.0249		471.9844
Worker	0.1675	0.1007	1.4476	4.6400e-003	0.5030	3.5000e-003	0.5065	0.1334	3.2300e-003	0.1366		462.5686	462.5686	0.0109		462.8417
Total	**0.2026**	**1.3327**	**1.7945**	**9.0500e-003**	**0.6182**	**4.8900e-003**	**0.6231**	**0.1666**	**4.5500e-003**	**0.1711**		**933.9305**	**933.9305**	**0.0358**		**934.8261**

3.7 Building Construction (Hotel) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.0343	1.2289	0.3369	4.3900e-003	0.1152	1.3700e-003	0.1166	0.0332	1.3100e-003	0.0345		469.6529	469.6529	0.0245		470.2658
Worker	0.1586	0.0918	1.3523	4.4900e-003	0.5030	3.4600e-003	0.5065	0.1334	3.1800e-003	0.1366		447.3940	447.3940	0.0100		447.6444
Total	**0.1929**	**1.3207**	**1.6892**	**8.8800e-003**	**0.6182**	**4.8300e-003**	**0.6230**	**0.1666**	**4.4900e-003**	**0.1711**		**917.0469**	**917.0469**	**0.0345**		**917.9101**

3.7 Building Construction (Hotel) - 2024

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	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

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	0.0343	1.2289	0.3369	4.3900e-003	0.1152	1.3700e-003	0.1166	0.0332	1.3100e-003	0.0345		469.6529	469.6529	0.0245		470.2658
Worker	0.1586	0.0918	1.3523	4.4900e-003	0.5030	3.4600e-003	0.5065	0.1334	3.1800e-003	0.1366		447.3940	447.3940	0.0100		447.6444
Total	**0.1929**	**1.3207**	**1.6892**	**8.8800e-003**	**0.6182**	**4.8300e-003**	**0.6230**	**0.1666**	**4.4900e-003**	**0.1711**		**917.0469**	**917.0469**	**0.0345**		**917.9101**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**13.1243**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.2681	0.1611	2.3162	7.4200e-003	0.8048	5.6000e-003	0.8104	0.2134	5.1600e-003	0.2186		740.1097	740.1097	0.0175		740.5466
Total	**0.2681**	**0.1611**	**2.3162**	**7.4200e-003**	**0.8048**	**5.6000e-003**	**0.8104**	**0.2134**	**5.1600e-003**	**0.2186**		**740.1097**	**740.1097**	**0.0175**		**740.5466**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**13.1243**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

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	0.2681	0.1611	2.3162	7.4200e-003	0.8048	5.6000e-003	0.8104	0.2134	5.1600e-003	0.2186		740.1097	740.1097	0.0175		740.5466
Total	**0.2681**	**0.1611**	**2.3162**	**7.4200e-003**	**0.8048**	**5.6000e-003**	**0.8104**	**0.2134**	**5.1600e-003**	**0.2186**		**740.1097**	**740.1097**	**0.0175**		**740.5466**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.1134**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.2537	0.1468	2.1636	7.1800e-003	0.8048	5.5300e-003	0.8103	0.2134	5.0900e-003	0.2185		715.8304	715.8304	0.0160		716.2310
Total	**0.2537**	**0.1468**	**2.1636**	**7.1800e-003**	**0.8048**	**5.5300e-003**	**0.8103**	**0.2134**	**5.0900e-003**	**0.2185**		**715.8304**	**715.8304**	**0.0160**		**716.2310**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

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	12.9327					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.1134**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.2537	0.1468	2.1636	7.1800e-003	0.8048	5.5300e-003	0.8103	0.2134	5.0900e-003	0.2185		715.8304	715.8304	0.0160		716.2310
Total	**0.2537**	**0.1468**	**2.1636**	**7.1800e-003**	**0.8048**	**5.5300e-003**	**0.8103**	**0.2134**	**5.0900e-003**	**0.2185**		**715.8304**	**715.8304**	**0.0160**		**716.2310**

3.9 Architecural Coating (Hotel) - 2024

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	12.9820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.1628**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0317	0.0184	0.2705	9.0000e-004	0.1006	6.9000e-004	0.1013	0.0267	6.4000e-004	0.0273		89.4788	89.4788	2.0000e-003		89.5289
Total	**0.0317**	**0.0184**	**0.2705**	**9.0000e-004**	**0.1006**	**6.9000e-004**	**0.1013**	**0.0267**	**6.4000e-004**	**0.0273**		**89.4788**	**89.4788**	**2.0000e-003**		**89.5289**

3.9 Architecural Coating (Hotel) - 2024

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	12.9820					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.1628**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	0.0317	0.0184	0.2705	9.0000e-004	0.1006	6.9000e-004	0.1013	0.0267	6.4000e-004	0.0273		89.4788	89.4788	2.0000e-003		89.5289
Total	**0.0317**	**0.0184**	**0.2705**	**9.0000e-004**	**0.1006**	**6.9000e-004**	**0.1013**	**0.0267**	**6.4000e-004**	**0.0273**		**89.4788**	**89.4788**	**2.0000e-003**		**89.5289**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

	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	3.6540	16.1417	31.3184	0.1192	9.7995	0.0861	9.8856	2.6215	0.0799	2.7014		12,200.6842	12,200.6842	0.5850		12,215.3089
Unmitigated	4.4186	20.0285	52.0313	0.2144	18.9207	0.1493	19.0700	5.0615	0.1386	5.2001		21,899.0320	21,899.0320	0.9440		21,922.6329

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,395.20	1,395.20	1395.20	4,767,610	2,469,264
City Park	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	1,254.02	1,254.02	1254.02	2,271,081	1,176,249
Health Club	0.00	0.00	0.00		
Hotel	780.00	780.00	780.00	1,861,213	963,969
Parking Lot	0.00	0.00	0.00		
Total	3,429.22	3,429.22	3,429.22	8,899,905	4,609,482

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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
City Park	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Fast Food Restaurant w/o Drive Thru	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Health Club	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Hotel	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Parking Lot	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Install Energy Efficient Appliances

Norco Valley Square Project - South Coast AQMD Air District, Summer

	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	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560
NaturalGas Unmitigated	0.3472	3.0796	2.0914	0.0189		0.2399	0.2399		0.2399	0.2399		3,787.0514	3,787.0514	0.0726	0.0694	3,809.5560

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					
Apartments Mid Rise	12970.2	0.1399	1.1953	0.5086	7.6300e-003		0.0966	0.0966		0.0966	0.0966		1,525.9003	1,525.9003	0.0293	0.0280	1,534.9679
City Park	0	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
Fast Food Restaurant w/o Drive Thru	6517.61	0.0703	0.6390	0.5367	3.8300e-003		0.0486	0.0486		0.0486	0.0486		766.7778	766.7778	0.0147	0.0141	771.3343
Health Club	1193.41	0.0129	0.1170	0.0983	7.0000e-004		8.8900e-003	8.8900e-003		8.8900e-003	8.8900e-003		140.4008	140.4008	2.6900e-003	2.5700e-003	141.2351
Hotel	11508.8	0.1241	1.1283	0.9478	6.7700e-003		0.0858	0.0858		0.0858	0.0858		1,353.9726	1,353.9726	0.0260	0.0248	1,362.0186
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.3471**	**3.0796**	**2.0914**	**0.0189**		**0.2398**	**0.2398**		**0.2398**	**0.2398**		**3,787.0514**	**3,787.0514**	**0.0726**	**0.0694**	**3,809.5560**

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					
Apartments Mid Rise	12.9702	0.1399	1.1953	0.5086	7.6300e-003		0.0966	0.0966		0.0966	0.0966		1,525.9003	1,525.9003	0.0293	0.0280	1,534.9679
City Park	0	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
Fast Food Restaurant w/o Drive Thru	6.51761	0.0703	0.6390	0.5367	3.8300e-003		0.0486	0.0486		0.0486	0.0486		766.7778	766.7778	0.0147	0.0141	771.3343
Health Club	1.19341	0.0129	0.1170	0.0983	7.0000e-004		8.8900e-003	8.8900e-003		8.8900e-003	8.8900e-003		140.4008	140.4008	2.6900e-003	2.5700e-003	141.2351
Hotel	11.5088	0.1241	1.1283	0.9478	6.7700e-003		0.0858	0.0858		0.0858	0.0858		1,353.9726	1,353.9726	0.0260	0.0248	1,362.0186
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.3471**	**3.0796**	**2.0914**	**0.0189**		**0.2398**	**0.2398**		**0.2398**	**0.2398**		**3,787.0514**	**3,787.0514**	**0.0726**	**0.0694**	**3,809.5560**

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

No Hearths Installed

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	11.5319	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467	0.0000	47.7163	47.7163	0.0460	0.0000	48.8660
Unmitigated	20.1685	1.5841	104.8916	0.2573		12.9415	12.9415		12.9415	12.9415	1,888.5243	47.7163	1,936.2406	8.8745	0.0000	2,158.1020

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					
Architectural Coating	0.9319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.8005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	8.6365	1.2795	78.4326	0.2559		12.7949	12.7949		12.7949	12.7949	1,888.5243	0.0000	1,888.5243	8.8285	0.0000	2,109.2360
Landscaping	0.7996	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467		47.7163	47.7163	0.0460		48.8660
Total	**20.1685**	**1.5841**	**104.8916**	**0.2573**		**12.9415**	**12.9415**		**12.9415**	**12.9415**	**1,888.5243**	**47.7163**	**1,936.2406**	**8.8745**	**0.0000**	**2,158.1020**

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					
Architectural Coating	0.9319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	9.8005					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.7996	0.3046	26.4590	1.4000e-003		0.1467	0.1467		0.1467	0.1467		47.7163	47.7163	0.0460		48.8660
Total	**11.5319**	**0.3046**	**26.4590**	**1.4000e-003**		**0.1467**	**0.1467**		**0.1467**	**0.1467**	**0.0000**	**47.7163**	**47.7163**	**0.0460**	**0.0000**	**48.8660**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Norco Valley Square Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	671.00	Space	4.00	178,130.00	0
City Park	7.40	Acre	7.40	322,600.00	0
Fast Food Restaurant w/o Drive Thru	8.70	1000sqft	0.20	8,700.00	0
Health Club	13.41	1000sqft	0.30	13,407.00	0
Hotel	120.00	Room	1.77	70,000.00	0
Apartments Mid Rise	320.00	Dwelling Unit	5.43	398,042.00	915

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Square footage for apartments (avg 890 sf per unit; 398042 gross sf for residential from client), hotel (70,000 sf) and food hall (8,700 sf) obtained from site plans; total acreage adjusted for site plans
Parking spaces obtained from the total of 671 spaces in updated PD 9/8/20
Health Club includes lounge, fitness center, leasing office. obtained from the total sf of 13,407 in updated PD 9/8/20
City Park includes all open space and 800 sf restroom/storage area

Construction Phase - Coating adjusted to reflect start date approximately halfway into building construction
Construction phase based on data request:
Phase II four month overlap with Phase I for conservative analysis
Phase III overlap with Phase II for conservative analysis

Trips and VMT - Worker trips for building construction and architectural phase to account for the actual construction/coating occurring in that phase using CalEEMod Appendix A calculation details for worker trips

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - weekday daily trip rate obtained from traffic study; adjusted trip rate includes internal capture

Woodstoves - 0 fireplaces per data request

Area Coating - SCAQMD Rule 1113

Energy Use - Title-24 Electricity Energy Intensity reduced by 30% for commercial use per 2019 Title 24 standards

Water And Wastewater -

Solid Waste - 25% reduction to account for AB 341

Construction Off-road Equipment Mitigation - Water 3x daily per data request

Mobile Land Use Mitigation - 320 DU per 11.3 residential acres & 34 jobs per 7.2 commercial acres; avg 0.1 miles to bus stops; avg distance to edge is 0.75 miles

Area Mitigation - SCAQMD Rule 1113

Energy Mitigation - kwH calculated in Solar PV spreadsheet

Water Mitigation - 20 percent reduction in indoor water use based on Title 24 Green Building Standards

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	263.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	300.00	521.00

tblConstructionPhase	NumDays	300.00	522.00
tblConstructionPhase	NumDays	30.00	86.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	10.00	67.00
tblEnergyUse	T24E	12.38	8.67
tblEnergyUse	T24E	6.47	4.53
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	272.00	0.00
tblFireplaces	NumberNoFireplace	32.00	0.00
tblFireplaces	NumberWood	16.00	0.00
tblLandUse	LandUseSquareFeet	268,400.00	178,130.00
tblLandUse	LandUseSquareFeet	322,344.00	322,600.00
tblLandUse	LandUseSquareFeet	13,410.00	13,407.00
tblLandUse	LandUseSquareFeet	174,240.00	70,000.00
tblLandUse	LandUseSquareFeet	320,000.00	398,042.00
tblLandUse	LotAcreage	6.04	4.00
tblLandUse	LotAcreage	0.31	0.30
tblLandUse	LotAcreage	4.00	1.77
tblLandUse	LotAcreage	8.42	5.43
tblSolidWaste	SolidWasteGenerationRate	147.20	110.40
tblSolidWaste	SolidWasteGenerationRate	0.64	0.48
tblSolidWaste	SolidWasteGenerationRate	100.21	75.16
tblSolidWaste	SolidWasteGenerationRate	76.44	53.44
tblSolidWaste	SolidWasteGenerationRate	65.70	52.56

tblTripsAndVMT	VendorTripNumber	131.00	85.00
tblTripsAndVMT	VendorTripNumber	131.00	18.00
tblTripsAndVMT	WorkerTripNumber	479.00	359.00
tblTripsAndVMT	WorkerTripNumber	479.00	45.00
tblTripsAndVMT	WorkerTripNumber	96.00	72.00
tblTripsAndVMT	WorkerTripNumber	96.00	9.00
tblVehicleTrips	ST_TR	6.39	4.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	696.00	144.14
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	6.50
tblVehicleTrips	SU_TR	5.86	4.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	500.00	144.14
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	6.50
tblVehicleTrips	WD_TR	6.65	4.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	716.00	144.14
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	6.50

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					
2021	0.2717	2.8685	1.7559	3.4200e-003	0.9287	0.1331	1.0618	0.4562	0.1225	0.5787	0.0000	301.0928	301.0928	0.0938	0.0000	303.4385
2022	0.5844	4.5536	5.5017	0.0138	0.7755	0.1775	0.9530	0.2076	0.1655	0.3731	0.0000	1,244.1256	1,244.1256	0.1746	0.0000	1,248.4909
2023	2.0886	4.9584	6.4833	0.0165	0.7467	0.1954	0.9421	0.2003	0.1842	0.3845	0.0000	1,480.2743	1,480.2743	0.1749	0.0000	1,484.6474
2024	2.2486	2.1406	2.6966	5.4200e-003	0.1125	0.0909	0.2034	0.0302	0.0860	0.1162	0.0000	476.3360	476.3360	0.0791	0.0000	478.3122
Maximum	**2.2486**	**4.9584**	**6.4833**	**0.0165**	**0.9287**	**0.1954**	**1.0618**	**0.4562**	**0.1842**	**0.5787**	**0.0000**	**1,480.2743**	**1,480.2743**	**0.1749**	**0.0000**	**1,484.6474**

2.1 Overall Construction

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					
2021	0.2717	2.8685	1.7559	3.4200e-003	0.3706	0.1331	0.5037	0.1802	0.1225	0.3026	0.0000	301.0924	301.0924	0.0938	0.0000	303.4381
2022	0.5844	4.5536	5.5017	0.0138	0.6674	0.1775	0.8449	0.1789	0.1655	0.3444	0.0000	1,244.1250	1,244.1250	0.1746	0.0000	1,248.4903
2023	2.0886	4.9584	6.4833	0.0165	0.7467	0.1954	0.9421	0.2003	0.1842	0.3845	0.0000	1,480.2735	1,480.2735	0.1749	0.0000	1,484.6466
2024	2.2486	2.1406	2.6966	5.4200e-003	0.1125	0.0909	0.2034	0.0302	0.0860	0.1162	0.0000	476.3356	476.3356	0.0791	0.0000	478.3118
Maximum	**2.2486**	**4.9584**	**6.4833**	**0.0165**	**0.7467**	**0.1954**	**0.9421**	**0.2003**	**0.1842**	**0.3845**	**0.0000**	**1,480.2735**	**1,480.2735**	**0.1749**	**0.0000**	**1,484.6466**

	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**	**25.99**	**0.00**	**21.08**	**34.08**	**0.00**	**20.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2021**	**9-30-2021**	1.4625	1.4625
2	**10-1-2021**	**12-31-2021**	1.6288	1.6288
3	**1-1-2022**	**3-31-2022**	1.6089	1.6089
4	**4-1-2022**	**6-30-2022**	0.8953	0.8953
5	**7-1-2022**	**9-30-2022**	1.3127	1.3127
6	**10-1-2022**	**12-31-2022**	1.3152	1.3152
7	**1-1-2023**	**3-31-2023**	1.5014	1.5014
8	**4-1-2023**	**6-30-2023**	1.8340	1.8340

9	**7-1-2023**	**9-30-2023**	1.8541	1.8541
10	**10-1-2023**	**12-31-2023**	1.8620	1.8620
11	**1-1-2024**	**3-31-2024**	1.3338	1.3338
12	**4-1-2024**	**6-30-2024**	1.0030	1.0030
13	**7-1-2024**	**9-30-2024**	1.0140	1.0140
		Highest	1.8620	1.8620

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	2.1666	0.0541	4.2878	3.3700e-003		0.1783	0.1783		0.1783	0.1783	21.4155	5.4109	26.8264	0.1053	0.0000	29.4597
Energy	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	1,638.5777	1,638.5777	0.0538	0.0201	1,645.9226
Mobile	0.7411	3.7467	9.0457	0.0375	3.3811	0.0272	3.4083	0.9059	0.0253	0.9311	0.0000	3,477.2423	3,477.2423	0.1554	0.0000	3,481.1271
Waste						0.0000	0.0000		0.0000	0.0000	59.2815	0.0000	59.2815	3.5034	0.0000	146.8674
Water						0.0000	0.0000		0.0000	0.0000	8.6697	194.6284	203.2981	0.8985	0.0227	232.5214
Total	**2.9710**	**4.3628**	**13.7152**	**0.0443**	**3.3811**	**0.2492**	**3.6303**	**0.9059**	**0.2473**	**1.1532**	**89.3666**	**5,315.8593**	**5,405.2259**	**4.7164**	**0.0428**	**5,535.8980**

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	2.0586	0.0381	3.3074	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.2200e-003	0.0000	5.5413
Energy	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	1,352.4045	1,352.4045	0.0420	0.0177	1,358.7256
Mobile	0.6045	2.9822	5.5949	0.0209	1.7512	0.0157	1.7669	0.4692	0.0146	0.4837	0.0000	1,936.5942	1,936.5942	0.0974	0.0000	1,939.0293
Waste						0.0000	0.0000		0.0000	0.0000	59.2815	0.0000	59.2815	3.5034	0.0000	146.8674
Water						0.0000	0.0000		0.0000	0.0000	6.9357	171.9536	178.8893	0.7195	0.0183	202.3261
Total	**2.7265**	**3.5823**	**9.2840**	**0.0245**	**1.7512**	**0.0778**	**1.8290**	**0.4692**	**0.0767**	**0.5458**	**66.2172**	**3,466.3632**	**3,532.5804**	**4.3675**	**0.0360**	**3,652.4896**

	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	**8.23**	**17.89**	**32.31**	**44.77**	**48.21**	**68.78**	**49.62**	**48.21**	**68.99**	**52.67**	**25.90**	**34.79**	**34.65**	**7.40**	**15.99**	**34.02**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	10/1/2021	5	67	Phase I
2	Grading	Grading	10/4/2021	1/31/2022	5	86	Phase I
3	Building Construction (Food Garden and Apartments)	Building Construction	1/3/2022	1/1/2024	5	521	Phase II
4	Paving (Food Garden & Apartments)	Paving	2/1/2022	3/31/2022	5	43	Phase I
5	Paving (Hotel)	Paving	7/1/2022	12/30/2022	5	131	Phase III
6	Building Construction (Hotel)	Building Construction	1/2/2023	12/31/2024	5	522	Phase III
7	Architectural Coating (Food Garden and Apartments)	Architectural Coating	3/1/2023	3/1/2024	5	263	Phase II
8	Architecural Coating (Hotel)	Architectural Coating	1/1/2024	12/31/2024	5	262	Phase III

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 215

Acres of Paving: 4

Residential Indoor: 806,035; Residential Outdoor: 268,678; Non-Residential Indoor: 139,361; Non-Residential Outdoor: 46,454; Striped Parking Area: 10,656 (Architectural Coating – sqft)

OffRoad Equipment

Norco Valley Square Project - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction (Food Garden and Apartments)	Cranes	1	7.00	231	0.29
Building Construction (Food Garden and Apartments)	Forklifts	3	8.00	89	0.20
Building Construction (Food Garden and Apartments)	Generator Sets	1	8.00	84	0.74
Building Construction (Food Garden and Apartments)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Food Garden and Apartments)	Welders	1	8.00	46	0.45
Paving (Food Garden & Apartments)	Pavers	2	8.00	130	0.42
Paving (Food Garden & Apartments)	Paving Equipment	2	8.00	132	0.36
Paving (Food Garden & Apartments)	Rollers	2	8.00	80	0.38
Paving (Hotel)	Pavers	2	8.00	130	0.42
Paving (Hotel)	Paving Equipment	2	8.00	132	0.36
Paving (Hotel)	Rollers	2	8.00	80	0.38
Building Construction (Hotel)	Cranes	1	7.00	231	0.29
Building Construction (Hotel)	Forklifts	3	8.00	89	0.20
Building Construction (Hotel)	Generator Sets	1	8.00	84	0.74
Building Construction (Hotel)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Hotel)	Welders	1	8.00	46	0.45
Architectural Coating (Food Garden and Apartments)	Air Compressors	1	6.00	78	0.48
Architecural Coating (Hotel)	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Food Garden and Ap	9	359.00	85.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Food Garden & Apartments)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Hotel)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Hotel)	9	45.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Food Garden and Ap	1	72.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architecural Coating (Hotel)	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					0.6052	0.0000	0.6052	0.3327	0.0000	0.3327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1303	1.3567	0.7087	1.2700e-003		0.0685	0.0685		0.0630	0.0630	0.0000	112.0097	112.0097	0.0362	0.0000	112.9153
Total	**0.1303**	**1.3567**	**0.7087**	**1.2700e-003**	**0.6052**	**0.0685**	**0.6737**	**0.3327**	**0.0630**	**0.3957**	**0.0000**	**112.0097**	**112.0097**	**0.0362**	**0.0000**	**112.9153**

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	2.5100e-003	1.8600e-003	0.0210	6.0000e-005	6.6200e-003	5.0000e-005	6.6700e-003	1.7600e-003	5.0000e-005	1.8000e-003	0.0000	5.7626	5.7626	1.5000e-004	0.0000	5.7665
Total	**2.5100e-003**	**1.8600e-003**	**0.0210**	**6.0000e-005**	**6.6200e-003**	**5.0000e-005**	**6.6700e-003**	**1.7600e-003**	**5.0000e-005**	**1.8000e-003**	**0.0000**	**5.7626**	**5.7626**	**1.5000e-004**	**0.0000**	**5.7665**

3.2 Site Preparation - 2021

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					0.2360	0.0000	0.2360	0.1297	0.0000	0.1297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1303	1.3567	0.7087	1.2700e-003		0.0685	0.0685		0.0630	0.0630	0.0000	112.0095	112.0095	0.0362	0.0000	112.9152
Total	**0.1303**	**1.3567**	**0.7087**	**1.2700e-003**	**0.2360**	**0.0685**	**0.3045**	**0.1297**	**0.0630**	**0.1928**	**0.0000**	**112.0095**	**112.0095**	**0.0362**	**0.0000**	**112.9152**

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	2.5100e-003	1.8600e-003	0.0210	6.0000e-005	6.6200e-003	5.0000e-005	6.6700e-003	1.7600e-003	5.0000e-005	1.8000e-003	0.0000	5.7626	5.7626	1.5000e-004	0.0000	5.7665
Total	**2.5100e-003**	**1.8600e-003**	**0.0210**	**6.0000e-005**	**6.6200e-003**	**5.0000e-005**	**6.6700e-003**	**1.7600e-003**	**5.0000e-005**	**1.8000e-003**	**0.0000**	**5.7626**	**5.7626**	**1.5000e-004**	**0.0000**	**5.7665**

3.3 Grading - 2021

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					0.3097	0.0000	0.3097	0.1199	0.0000	0.1199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1362	1.5080	1.0036	2.0200e-003		0.0645	0.0645		0.0594	0.0594	0.0000	177.1087	177.1087	0.0573	0.0000	178.5407
Total	**0.1362**	**1.5080**	**1.0036**	**2.0200e-003**	**0.3097**	**0.0645**	**0.3742**	**0.1199**	**0.0594**	**0.1793**	**0.0000**	**177.1087**	**177.1087**	**0.0573**	**0.0000**	**178.5407**

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	2.7100e-003	2.0000e-003	0.0227	7.0000e-005	7.1300e-003	5.0000e-005	7.1800e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2118	6.2118	1.7000e-004	0.0000	6.2160
Total	**2.7100e-003**	**2.0000e-003**	**0.0227**	**7.0000e-005**	**7.1300e-003**	**5.0000e-005**	**7.1800e-003**	**1.8900e-003**	**5.0000e-005**	**1.9400e-003**	**0.0000**	**6.2118**	**6.2118**	**1.7000e-004**	**0.0000**	**6.2160**

3.3 Grading - 2021

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					0.1208	0.0000	0.1208	0.0468	0.0000	0.0468	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1362	1.5080	1.0036	2.0200e-003		0.0645	0.0645		0.0594	0.0594	0.0000	177.1085	177.1085	0.0573	0.0000	178.5405
Total	**0.1362**	**1.5080**	**1.0036**	**2.0200e-003**	**0.1208**	**0.0645**	**0.1853**	**0.0468**	**0.0594**	**0.1061**	**0.0000**	**177.1085**	**177.1085**	**0.0573**	**0.0000**	**178.5405**

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	2.7100e-003	2.0000e-003	0.0227	7.0000e-005	7.1300e-003	5.0000e-005	7.1800e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2118	6.2118	1.7000e-004	0.0000	6.2160
Total	**2.7100e-003**	**2.0000e-003**	**0.0227**	**7.0000e-005**	**7.1300e-003**	**5.0000e-005**	**7.1800e-003**	**1.8900e-003**	**5.0000e-005**	**1.9400e-003**	**0.0000**	**6.2118**	**6.2118**	**1.7000e-004**	**0.0000**	**6.2160**

3.3 Grading - 2022

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					0.1772	0.0000	0.1772	0.0471	0.0000	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.4079	0.3049	6.5000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	57.2613	57.2613	0.0185	0.0000	57.7243
Total	**0.0381**	**0.4079**	**0.3049**	**6.5000e-004**	**0.1772**	**0.0172**	**0.1944**	**0.0471**	**0.0158**	**0.0629**	**0.0000**	**57.2613**	**57.2613**	**0.0185**	**0.0000**	**57.7243**

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	8.2000e-004	5.8000e-004	6.7600e-003	2.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	1.9349	1.9349	5.0000e-005	0.0000	1.9362
Total	**8.2000e-004**	**5.8000e-004**	**6.7600e-003**	**2.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**1.9349**	**1.9349**	**5.0000e-005**	**0.0000**	**1.9362**

3.3 Grading - 2022

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					0.0691	0.0000	0.0691	0.0184	0.0000	0.0184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.4079	0.3049	6.5000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	57.2613	57.2613	0.0185	0.0000	57.7243
Total	**0.0381**	**0.4079**	**0.3049**	**6.5000e-004**	**0.0691**	**0.0172**	**0.0863**	**0.0184**	**0.0158**	**0.0342**	**0.0000**	**57.2613**	**57.2613**	**0.0185**	**0.0000**	**57.7243**

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	8.2000e-004	5.8000e-004	6.7600e-003	2.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	1.9349	1.9349	5.0000e-005	0.0000	1.9362
Total	**8.2000e-004**	**5.8000e-004**	**6.7600e-003**	**2.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**1.9349**	**1.9349**	**5.0000e-005**	**0.0000**	**1.9362**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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	0.0295	1.0138	0.2505	2.7600e-003	0.0697	1.8600e-003	0.0715	0.0201	1.7800e-003	0.0219	0.0000	267.4066	267.4066	0.0164	0.0000	267.8171
Worker	0.1827	0.1299	1.5017	4.7600e-003	0.5120	3.7300e-003	0.5158	0.1360	3.4300e-003	0.1394	0.0000	430.0160	430.0160	0.0108	0.0000	430.2860
Total	**0.2122**	**1.1437**	**1.7523**	**7.5200e-003**	**0.5817**	**5.5900e-003**	**0.5873**	**0.1561**	**5.2100e-003**	**0.1613**	**0.0000**	**697.4226**	**697.4226**	**0.0272**	**0.0000**	**698.1031**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

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	0.0295	1.0138	0.2505	2.7600e-003	0.0697	1.8600e-003	0.0715	0.0201	1.7800e-003	0.0219	0.0000	267.4066	267.4066	0.0164	0.0000	267.8171
Worker	0.1827	0.1299	1.5017	4.7600e-003	0.5120	3.7300e-003	0.5158	0.1360	3.4300e-003	0.1394	0.0000	430.0160	430.0160	0.0108	0.0000	430.2860
Total	**0.2122**	**1.1437**	**1.7523**	**7.5200e-003**	**0.5817**	**5.5900e-003**	**0.5873**	**0.1561**	**5.2100e-003**	**0.1613**	**0.0000**	**697.4226**	**697.4226**	**0.0272**	**0.0000**	**698.1031**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

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	0.0220	0.7628	0.2240	2.6700e-003	0.0697	8.7000e-004	0.0705	0.0201	8.3000e-004	0.0209	0.0000	259.3463	259.3463	0.0143	0.0000	259.7031
Worker	0.1720	0.1175	1.3846	4.5800e-003	0.5120	3.6300e-003	0.5157	0.1360	3.3400e-003	0.1393	0.0000	413.9788	413.9788	9.7300e-003	0.0000	414.2222
Total	**0.1940**	**0.8803**	**1.6086**	**7.2500e-003**	**0.5817**	**4.5000e-003**	**0.5862**	**0.1561**	**4.1700e-003**	**0.1603**	**0.0000**	**673.3251**	**673.3251**	**0.0240**	**0.0000**	**673.9253**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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	0.0220	0.7628	0.2240	2.6700e-003	0.0697	8.7000e-004	0.0705	0.0201	8.3000e-004	0.0209	0.0000	259.3463	259.3463	0.0143	0.0000	259.7031
Worker	0.1720	0.1175	1.3846	4.5800e-003	0.5120	3.6300e-003	0.5157	0.1360	3.3400e-003	0.1393	0.0000	413.9788	413.9788	9.7300e-003	0.0000	414.2222
Total	**0.1940**	**0.8803**	**1.6086**	**7.2500e-003**	**0.5817**	**4.5000e-003**	**0.5862**	**0.1561**	**4.1700e-003**	**0.1603**	**0.0000**	**673.3251**	**673.3251**	**0.0240**	**0.0000**	**673.9253**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	7.4000e-004	6.7200e-003	8.0800e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.1593	1.1593	2.7000e-004	0.0000	1.1661
Total	**7.4000e-004**	**6.7200e-003**	**8.0800e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**1.1593**	**1.1593**	**2.7000e-004**	**0.0000**	**1.1661**

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	8.0000e-005	2.9300e-003	8.4000e-004	1.0000e-005	2.7000e-004	0.0000	2.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.9940	0.9940	5.0000e-005	0.0000	0.9953
Worker	6.3000e-004	4.1000e-004	4.9700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5398	1.5398	3.0000e-005	0.0000	1.5407
Total	**7.1000e-004**	**3.3400e-003**	**5.8100e-003**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**2.5338**	**2.5338**	**8.0000e-005**	**0.0000**	**2.5360**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	7.4000e-004	6.7200e-003	8.0800e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.1592	1.1592	2.7000e-004	0.0000	1.1661
Total	**7.4000e-004**	**6.7200e-003**	**8.0800e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**1.1592**	**1.1592**	**2.7000e-004**	**0.0000**	**1.1661**

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	8.0000e-005	2.9300e-003	8.4000e-004	1.0000e-005	2.7000e-004	0.0000	2.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.9940	0.9940	5.0000e-005	0.0000	0.9953
Worker	6.3000e-004	4.1000e-004	4.9700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5398	1.5398	3.0000e-005	0.0000	1.5407
Total	**7.1000e-004**	**3.3400e-003**	**5.8100e-003**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**2.5338**	**2.5338**	**8.0000e-005**	**0.0000**	**2.5360**

3.5 Paving (Food Garden & Apartments) - 2022

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	0.0237	0.2392	0.3135	4.9000e-004		0.0122	0.0122		0.0112	0.0112	0.0000	43.0593	43.0593	0.0139	0.0000	43.4074
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0290**	**0.2392**	**0.3135**	**4.9000e-004**		**0.0122**	**0.0122**		**0.0112**	**0.0112**	**0.0000**	**43.0593**	**43.0593**	**0.0139**	**0.0000**	**43.4074**

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	1.2600e-003	9.0000e-004	0.0104	3.0000e-005	3.5400e-003	3.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	2.9715	2.9715	7.0000e-005	0.0000	2.9734
Total	**1.2600e-003**	**9.0000e-004**	**0.0104**	**3.0000e-005**	**3.5400e-003**	**3.0000e-005**	**3.5600e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.9715**	**2.9715**	**7.0000e-005**	**0.0000**	**2.9734**

3.5 Paving (Food Garden & Apartments) - 2022

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	0.0237	0.2392	0.3135	4.9000e-004		0.0122	0.0122		0.0112	0.0112	0.0000	43.0592	43.0592	0.0139	0.0000	43.4074
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0290**	**0.2392**	**0.3135**	**4.9000e-004**		**0.0122**	**0.0122**		**0.0112**	**0.0112**	**0.0000**	**43.0592**	**43.0592**	**0.0139**	**0.0000**	**43.4074**

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	1.2600e-003	9.0000e-004	0.0104	3.0000e-005	3.5400e-003	3.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	2.9715	2.9715	7.0000e-005	0.0000	2.9734
Total	**1.2600e-003**	**9.0000e-004**	**0.0104**	**3.0000e-005**	**3.5400e-003**	**3.0000e-005**	**3.5600e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.9715**	**2.9715**	**7.0000e-005**	**0.0000**	**2.9734**

3.6 Paving (Hotel) - 2022

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	0.0722	0.7287	0.9550	1.4900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	131.1805	131.1805	0.0424	0.0000	132.2412
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0775**	**0.7287**	**0.9550**	**1.4900e-003**		**0.0372**	**0.0372**		**0.0342**	**0.0342**	**0.0000**	**131.1805**	**131.1805**	**0.0424**	**0.0000**	**132.2412**

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	3.8500e-003	2.7300e-003	0.0316	1.0000e-004	0.0108	8.0000e-005	0.0109	2.8600e-003	7.0000e-005	2.9400e-003	0.0000	9.0527	9.0527	2.3000e-004	0.0000	9.0584
Total	**3.8500e-003**	**2.7300e-003**	**0.0316**	**1.0000e-004**	**0.0108**	**8.0000e-005**	**0.0109**	**2.8600e-003**	**7.0000e-005**	**2.9400e-003**	**0.0000**	**9.0527**	**9.0527**	**2.3000e-004**	**0.0000**	**9.0584**

3.6 Paving (Hotel) - 2022

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	0.0722	0.7287	0.9550	1.4900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	131.1803	131.1803	0.0424	0.0000	132.2410
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0775**	**0.7287**	**0.9550**	**1.4900e-003**		**0.0372**	**0.0372**		**0.0342**	**0.0342**	**0.0000**	**131.1803**	**131.1803**	**0.0424**	**0.0000**	**132.2410**

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	3.8500e-003	2.7300e-003	0.0316	1.0000e-004	0.0108	8.0000e-005	0.0109	2.8600e-003	7.0000e-005	2.9400e-003	0.0000	9.0527	9.0527	2.3000e-004	0.0000	9.0584
Total	**3.8500e-003**	**2.7300e-003**	**0.0316**	**1.0000e-004**	**0.0108**	**8.0000e-005**	**0.0109**	**2.8600e-003**	**7.0000e-005**	**2.9400e-003**	**0.0000**	**9.0527**	**9.0527**	**2.3000e-004**	**0.0000**	**9.0584**

3.7 Building Construction (Hotel) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

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	4.6600e-003	0.1615	0.0474	5.7000e-004	0.0148	1.8000e-004	0.0149	4.2600e-003	1.8000e-004	4.4300e-003	0.0000	54.9204	54.9204	3.0200e-003	0.0000	54.9960
Worker	0.0216	0.0147	0.1736	5.7000e-004	0.0642	4.6000e-004	0.0646	0.0171	4.2000e-004	0.0175	0.0000	51.8915	51.8915	1.2200e-003	0.0000	51.9220
Total	**0.0262**	**0.1763**	**0.2210**	**1.1400e-003**	**0.0789**	**6.4000e-004**	**0.0796**	**0.0213**	**6.0000e-004**	**0.0219**	**0.0000**	**106.8119**	**106.8119**	**4.2400e-003**	**0.0000**	**106.9180**

3.7 Building Construction (Hotel) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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	4.6600e-003	0.1615	0.0474	5.7000e-004	0.0148	1.8000e-004	0.0149	4.2600e-003	1.8000e-004	4.4300e-003	0.0000	54.9204	54.9204	3.0200e-003	0.0000	54.9960
Worker	0.0216	0.0147	0.1736	5.7000e-004	0.0642	4.6000e-004	0.0646	0.0171	4.2000e-004	0.0175	0.0000	51.8915	51.8915	1.2200e-003	0.0000	51.9220
Total	**0.0262**	**0.1763**	**0.2210**	**1.1400e-003**	**0.0789**	**6.4000e-004**	**0.0796**	**0.0213**	**6.0000e-004**	**0.0219**	**0.0000**	**106.8119**	**106.8119**	**4.2400e-003**	**0.0000**	**106.9180**

3.7 Building Construction (Hotel) - 2024

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

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	4.5900e-003	0.1624	0.0464	5.7000e-004	0.0149	1.8000e-004	0.0151	4.2900e-003	1.7000e-004	4.4600e-003	0.0000	55.1473	55.1473	3.0000e-003	0.0000	55.2223
Worker	0.0206	0.0135	0.1631	5.6000e-004	0.0647	4.5000e-004	0.0651	0.0172	4.2000e-004	0.0176	0.0000	50.5699	50.5699	1.1300e-003	0.0000	50.5980
Total	**0.0252**	**0.1759**	**0.2095**	**1.1300e-003**	**0.0795**	**6.3000e-004**	**0.0802**	**0.0215**	**5.9000e-004**	**0.0221**	**0.0000**	**105.7172**	**105.7172**	**4.1300e-003**	**0.0000**	**105.8203**

3.7 Building Construction (Hotel) - 2024

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

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	4.5900e-003	0.1624	0.0464	5.7000e-004	0.0149	1.8000e-004	0.0151	4.2900e-003	1.7000e-004	4.4600e-003	0.0000	55.1473	55.1473	3.0000e-003	0.0000	55.2223
Worker	0.0206	0.0135	0.1631	5.6000e-004	0.0647	4.5000e-004	0.0651	0.0172	4.2000e-004	0.0176	0.0000	50.5699	50.5699	1.1300e-003	0.0000	50.5980
Total	**0.0252**	**0.1759**	**0.2095**	**1.1300e-003**	**0.0795**	**6.3000e-004**	**0.0802**	**0.0215**	**5.9000e-004**	**0.0221**	**0.0000**	**105.7172**	**105.7172**	**4.1300e-003**	**0.0000**	**105.8203**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	1.4097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8305	27.8305	1.6700e-003	0.0000	27.8721
Total	**1.4306**	**0.1420**	**0.1974**	**3.2000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**27.8305**	**27.8305**	**1.6700e-003**	**0.0000**	**27.8721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0289	0.0198	0.2328	7.7000e-004	0.0861	6.1000e-004	0.0867	0.0229	5.6000e-004	0.0234	0.0000	69.6144	69.6144	1.6400e-003	0.0000	69.6554
Total	**0.0289**	**0.0198**	**0.2328**	**7.7000e-004**	**0.0861**	**6.1000e-004**	**0.0867**	**0.0229**	**5.6000e-004**	**0.0234**	**0.0000**	**69.6144**	**69.6144**	**1.6400e-003**	**0.0000**	**69.6554**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	1.4097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8304	27.8304	1.6700e-003	0.0000	27.8721
Total	**1.4306**	**0.1420**	**0.1974**	**3.2000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**27.8304**	**27.8304**	**1.6700e-003**	**0.0000**	**27.8721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0289	0.0198	0.2328	7.7000e-004	0.0861	6.1000e-004	0.0867	0.0229	5.6000e-004	0.0234	0.0000	69.6144	69.6144	1.6400e-003	0.0000	69.6554
Total	**0.0289**	**0.0198**	**0.2328**	**7.7000e-004**	**0.0861**	**6.1000e-004**	**0.0867**	**0.0229**	**5.6000e-004**	**0.0234**	**0.0000**	**69.6144**	**69.6144**	**1.6400e-003**	**0.0000**	**69.6554**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2910					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0274	0.0407	7.0000e-005		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	5.7448	5.7448	3.2000e-004	0.0000	5.7529
Total	**0.2951**	**0.0274**	**0.0407**	**7.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**5.7448**	**5.7448**	**3.2000e-004**	**0.0000**	**5.7529**

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	5.6600e-003	3.7200e-003	0.0448	1.5000e-004	0.0178	1.2000e-004	0.0179	4.7200e-003	1.1000e-004	4.8300e-003	0.0000	13.8971	13.8971	3.1000e-004	0.0000	13.9048
Total	**5.6600e-003**	**3.7200e-003**	**0.0448**	**1.5000e-004**	**0.0178**	**1.2000e-004**	**0.0179**	**4.7200e-003**	**1.1000e-004**	**4.8300e-003**	**0.0000**	**13.8971**	**13.8971**	**3.1000e-004**	**0.0000**	**13.9048**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2910					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0274	0.0407	7.0000e-005		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	5.7448	5.7448	3.2000e-004	0.0000	5.7529
Total	**0.2951**	**0.0274**	**0.0407**	**7.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**5.7448**	**5.7448**	**3.2000e-004**	**0.0000**	**5.7529**

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	5.6600e-003	3.7200e-003	0.0448	1.5000e-004	0.0178	1.2000e-004	0.0179	4.7200e-003	1.1000e-004	4.8300e-003	0.0000	13.8971	13.8971	3.1000e-004	0.0000	13.9048
Total	**5.6600e-003**	**3.7200e-003**	**0.0448**	**1.5000e-004**	**0.0178**	**1.2000e-004**	**0.0179**	**4.7200e-003**	**1.1000e-004**	**4.8300e-003**	**0.0000**	**13.8971**	**13.8971**	**3.1000e-004**	**0.0000**	**13.9048**

3.9 Architecural Coating (Hotel) - 2024

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	1.7007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**1.7243**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

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	4.1200e-003	2.7000e-003	0.0326	1.1000e-004	0.0129	9.0000e-005	0.0130	3.4400e-003	8.0000e-005	3.5200e-003	0.0000	10.1140	10.1140	2.3000e-004	0.0000	10.1196
Total	**4.1200e-003**	**2.7000e-003**	**0.0326**	**1.1000e-004**	**0.0129**	**9.0000e-005**	**0.0130**	**3.4400e-003**	**8.0000e-005**	**3.5200e-003**	**0.0000**	**10.1140**	**10.1140**	**2.3000e-004**	**0.0000**	**10.1196**

3.9 Architecural Coating (Hotel) - 2024

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	1.7007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**1.7243**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

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	4.1200e-003	2.7000e-003	0.0326	1.1000e-004	0.0129	9.0000e-005	0.0130	3.4400e-003	8.0000e-005	3.5200e-003	0.0000	10.1140	10.1140	2.3000e-004	0.0000	10.1196
Total	**4.1200e-003**	**2.7000e-003**	**0.0326**	**1.1000e-004**	**0.0129**	**9.0000e-005**	**0.0130**	**3.4400e-003**	**8.0000e-005**	**3.5200e-003**	**0.0000**	**10.1140**	**10.1140**	**2.3000e-004**	**0.0000**	**10.1196**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6045	2.9822	5.5949	0.0209	1.7512	0.0157	1.7669	0.4692	0.0146	0.4837	0.0000	1,936.5942	1,936.5942	0.0974	0.0000	1,939.0293
Unmitigated	0.7411	3.7467	9.0457	0.0375	3.3811	0.0272	3.4083	0.9059	0.0253	0.9311	0.0000	3,477.2423	3,477.2423	0.1554	0.0000	3,481.1271

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,395.20	1,395.20	1395.20	4,767,610	2,469,264
City Park	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	1,254.02	1,254.02	1254.02	2,271,081	1,176,249
Health Club	0.00	0.00	0.00		
Hotel	780.00	780.00	780.00	1,861,213	963,969
Parking Lot	0.00	0.00	0.00		
Total	3,429.22	3,429.22	3,429.22	8,899,905	4,609,482

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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
City Park	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Fast Food Restaurant w/o Drive Thru	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Health Club	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Hotel	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825
Parking Lot	0.551360	0.042151	0.204257	0.114482	0.014139	0.005783	0.021875	0.035696	0.002143	0.001676	0.004899	0.000713	0.000825

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Install Energy Efficient Appliances

Norco Valley Square Project - South Coast AQMD Air District, Annual

	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	725.4157	725.4157	0.0300	6.2000e-003	728.0109
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,011.5889	1,011.5889	0.0418	8.6400e-003	1,015.2078
NaturalGas Mitigated	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	626.9888	626.9888	0.0120	0.0115	630.7147
NaturalGas Unmitigated	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	626.9888	626.9888	0.0120	0.0115	630.7147

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					
Apartments Mid Rise	4.73411e+006	0.0255	0.2181	0.0928	1.3900e-003		0.0176	0.0176		0.0176	0.0176	0.0000	252.6299	252.6299	4.8400e-003	4.6300e-003	254.1312
City Park	0	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
Fast Food Restaurant w/o Drive Thru	2.37893e+006	0.0128	0.1166	0.0980	7.0000e-004		8.8600e-003	8.8600e-003		8.8600e-003	8.8600e-003	0.0000	126.9487	126.9487	2.4300e-003	2.3300e-003	127.7031
Health Club	435593	2.3500e-003	0.0214	0.0179	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.2449	23.2449	4.5000e-004	4.3000e-004	23.3831
Hotel	4.2007e+006	0.0227	0.2059	0.1730	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	224.1654	224.1654	4.3000e-003	4.1100e-003	225.4975
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0634**	**0.5620**	**0.3817**	**3.4600e-003**		**0.0438**	**0.0438**		**0.0438**	**0.0438**	**0.0000**	**626.9888**	**626.9888**	**0.0120**	**0.0115**	**630.7147**

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					
Apartments Mid Rise	4.73411e+006	0.0255	0.2181	0.0928	1.3900e-003		0.0176	0.0176		0.0176	0.0176	0.0000	252.6299	252.6299	4.8400e-003	4.6300e-003	254.1312
City Park	0	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
Fast Food Restaurant w/o Drive Thru	2.37893e+006	0.0128	0.1166	0.0980	7.0000e-004		8.8600e-003	8.8600e-003		8.8600e-003	8.8600e-003	0.0000	126.9487	126.9487	2.4300e-003	2.3300e-003	127.7031
Health Club	435593	2.3500e-003	0.0214	0.0179	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.2449	23.2449	4.5000e-004	4.3000e-004	23.3831
Hotel	4.2007e+006	0.0227	0.2059	0.1730	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	224.1654	224.1654	4.3000e-003	4.1100e-003	225.4975
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0634**	**0.5620**	**0.3817**	**3.4600e-003**		**0.0438**	**0.0438**		**0.0438**	**0.0438**	**0.0000**	**626.9888**	**626.9888**	**0.0120**	**0.0115**	**630.7147**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.46167e+006	465.7185	0.0192	3.9800e-003	467.3846
City Park	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	380799	121.3307	5.0100e-003	1.0400e-003	121.7648
Health Club	136081	43.3583	1.7900e-003	3.7000e-004	43.5135
Hotel	1.134e+006	361.3167	0.0149	3.0900e-003	362.6093
Parking Lot	62345.5	19.8646	8.2000e-004	1.7000e-004	19.9357
Total		**1,011.5889**	**0.0418**	**8.6500e-003**	**1,015.2078**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.28366e+006	409.0032	0.0169	3.4900e-003	410.4664
City Park	-144032	-45.8916	-0.0019	-0.0004	-46.0558
Fast Food Restaurant w/o Drive Thru	236767	75.4391	3.1100e-003	6.4000e-004	75.7090
Health Club	-7950.62	-2.5332	-0.0001	0.0000	-2.5423
Hotel	989968	315.4251	0.0130	2.6900e-003	316.5536
Parking Lot	-81686.2	-26.0270	-0.0011	-0.0002	-26.1201
Total		**725.4157**	**0.0300**	**6.1900e-003**	**728.0108**

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

No Hearths Installed

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	2.0586	0.0381	3.3074	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.2200e-003	0.0000	5.5413
Unmitigated	2.1666	0.0541	4.2878	3.3700e-003		0.1783	0.1783		0.1783	0.1783	21.4155	5.4109	26.8264	0.1053	0.0000	29.4597

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	0.1701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7886					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1080	0.0160	0.9804	3.2000e-003		0.1599	0.1599		0.1599	0.1599	21.4155	0.0000	21.4155	0.1001	0.0000	23.9183
Landscaping	0.1000	0.0381	3.3074	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.2200e-003	0.0000	5.5413
Total	**2.1666**	**0.0541**	**4.2878**	**3.3800e-003**		**0.1783**	**0.1783**		**0.1783**	**0.1783**	**21.4155**	**5.4109**	**26.8265**	**0.1053**	**0.0000**	**29.4596**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7886					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.1000	0.0381	3.3074	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.2200e-003	0.0000	5.5413
Total	**2.0586**	**0.0381**	**3.3074**	**1.8000e-004**		**0.0183**	**0.0183**		**0.0183**	**0.0183**	**0.0000**	**5.4109**	**5.4109**	**5.2200e-003**	**0.0000**	**5.5413**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	178.8893	0.7195	0.0183	202.3261
Unmitigated	203.2981	0.8985	0.0227	232.5214

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	20.8493 / 13.1441	139.6421	0.6849	0.0172	161.8827
City Park	0 / 8.81696	31.2110	1.2900e-003	2.7000e-004	31.3227
Fast Food Restaurant w/o Drive Thru	2.64074 / 0.168558	12.3903	0.0865	2.1300e-003	15.1883
Health Club	0.79311 / 0.486099	5.2628	0.0261	6.5000e-004	6.1086
Hotel	3.04401 / 0.338224	14.7919	0.0998	2.4600e-003	18.0190
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**203.2981**	**0.8985**	**0.0227**	**232.5214**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	16.6794 / 13.1441	121.0194	0.5483	0.0138	138.8452
City Park	0 / 8.81696	31.2110	1.2900e-003	2.7000e-004	31.3227
Fast Food Restaurant w/o Drive Thru	2.11259 / 0.168558	10.0316	0.0692	1.7100e-003	12.2704
Health Club	0.634488 / 0.486099	4.5544	0.0209	5.3000e-004	5.2323
Hotel	2.43521 / 0.338224	12.0730	0.0798	1.9700e-003	14.6555
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**178.8893**	**0.7195**	**0.0183**	**202.3261**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	59.2815	3.5034	0.0000	146.8674
Unmitigated	59.2815	3.5034	0.0000	146.8674

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
City Park	0.48	0.0974	5.7600e-003	0.0000	0.2414
Fast Food Restaurant w/o Drive Thru	75.16	15.2568	0.9017	0.0000	37.7981
Health Club	53.44	10.8478	0.6411	0.0000	26.8751
Hotel	52.56	10.6692	0.6305	0.0000	26.4325
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**59.2815**	**3.5034**	**0.0000**	**146.8674**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
City Park	0.48	0.0974	5.7600e-003	0.0000	0.2414
Fast Food Restaurant w/o Drive Thru	75.16	15.2568	0.9017	0.0000	37.7981
Health Club	53.44	10.8478	0.6411	0.0000	26.8751
Hotel	52.56	10.6692	0.6305	0.0000	26.4325
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**59.2815**	**3.5034**	**0.0000**	**146.8674**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Norco Valley Square Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	671.00	Space	4.00	178,130.00	0
City Park	7.40	Acre	7.40	322,600.00	0
Fast Food Restaurant w/o Drive Thru	8.70	1000sqft	0.20	8,700.00	0
Health Club	13.41	1000sqft	0.30	13,407.00	0
Hotel	120.00	Room	1.77	70,000.00	0
Apartments Mid Rise	320.00	Dwelling Unit	5.43	398,042.00	915

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	353.65	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Norco Valley Square Project - South Coast AQMD Air District, Annual

Project Characteristics - Intensity factors adjusted for 2030

Land Use - Square footage for apartments (avg 890 sf per unit; 398042 gross sf for residential from client), hotel (70,000 sf) and food hall (8,700 sf) obtained from site plans; total acreage adjusted for site plans
Parking spaces obtained from the total of 671 spaces in updated PD 9/8/20
Health Club includes lounge, fitness center, leasing office. obtained from the total sf of 13,407 in updated PD 9/8/20
City Park includes all open space and 800 sf restroom/storage area

Construction Phase - Coating adjusted to reflect start date approximately halfway into building construction
Construction phase based on data request:
Phase II four month overlap with Phase I for conservative analysis
Phase III overlap with Phase II for conservative analysis

Trips and VMT - Worker trips for building construction and architectural phase to account for the actual construction/coating occurring in that phase using CalEEMod Appendix A calculation details for worker trips

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - weekday daily trip rate obtained from traffic study; adjusted trip rate includes internal capture

Woodstoves - 0 fireplaces per data request

Area Coating - SCAQMD Rule 1113

Energy Use - Title-24 Electricity Energy Intensity reduced by 30% for commercial use per 2019 Title 24 standards

Water And Wastewater -

Solid Waste - 25% reduction to account for AB 341

Construction Off-road Equipment Mitigation - Water 3x daily per data request

Mobile Land Use Mitigation - 320 DU per 11.3 residential acres & 34 jobs per 7.2 commercial acres; avg 0.1 miles to bus stops; avg distance to edge is 0.75 miles

Area Mitigation - SCAQMD Rule 1113

Energy Mitigation - kwH calculated in Solar PV spreadsheet

Water Mitigation - 20 percent reduction in indoor water use based on Title 24 Green Building Standards

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	263.00
tblConstructionPhase	NumDays	20.00	262.00
tblConstructionPhase	NumDays	300.00	521.00

Norco Valley Square Project - South Coast AQMD Air District, Annual

tblConstructionPhase	NumDays	300.00	522.00
tblConstructionPhase	NumDays	30.00	86.00
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	10.00	67.00
tblEnergyUse	T24E	12.38	8.67
tblEnergyUse	T24E	6.47	4.53
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	272.00	0.00
tblFireplaces	NumberNoFireplace	32.00	0.00
tblFireplaces	NumberWood	16.00	0.00
tblLandUse	LandUseSquareFeet	268,400.00	178,130.00
tblLandUse	LandUseSquareFeet	322,344.00	322,600.00
tblLandUse	LandUseSquareFeet	13,410.00	13,407.00
tblLandUse	LandUseSquareFeet	174,240.00	70,000.00
tblLandUse	LandUseSquareFeet	320,000.00	398,042.00
tblLandUse	LotAcreage	6.04	4.00
tblLandUse	LotAcreage	0.31	0.30
tblLandUse	LotAcreage	4.00	1.77
tblLandUse	LotAcreage	8.42	5.43
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	147.20	110.40
tblSolidWaste	SolidWasteGenerationRate	0.64	0.48

tblSolidWaste	SolidWasteGenerationRate	100.21	75.16
tblSolidWaste	SolidWasteGenerationRate	76.44	53.44
tblSolidWaste	SolidWasteGenerationRate	65.70	52.56
tblTripsAndVMT	VendorTripNumber	131.00	85.00
tblTripsAndVMT	VendorTripNumber	131.00	18.00
tblTripsAndVMT	WorkerTripNumber	479.00	359.00
tblTripsAndVMT	WorkerTripNumber	479.00	45.00
tblTripsAndVMT	WorkerTripNumber	96.00	72.00
tblTripsAndVMT	WorkerTripNumber	96.00	8.00
tblVehicleTrips	HO_TTP	40.60	41.00
tblVehicleTrips	HS_TTP	19.20	19.00
tblVehicleTrips	HW_TTP	40.20	40.00
tblVehicleTrips	ST_TR	6.39	4.36
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	696.00	144.14
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	6.50
tblVehicleTrips	SU_TR	5.86	4.36
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	500.00	144.14
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	6.50
tblVehicleTrips	WD_TR	6.65	4.36
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	716.00	144.14
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	6.50

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					
2021	0.2717	2.8685	1.7559	3.4200e-003	0.9287	0.1331	1.0618	0.4562	0.1225	0.5787	0.0000	301.0928	301.0928	0.0938	0.0000	303.4385
2022	0.5844	4.5536	5.5017	0.0138	0.7755	0.1775	0.9530	0.2076	0.1655	0.3731	0.0000	1,244.1256	1,244.1256	0.1746	0.0000	1,248.4909
2023	2.0886	4.9584	6.4833	0.0165	0.7467	0.1954	0.9421	0.2003	0.1842	0.3845	0.0000	1,480.2743	1,480.2743	0.1749	0.0000	1,484.6474
2024	2.2481	2.1403	2.6930	5.4100e-003	0.1111	0.0909	0.2019	0.0298	0.0860	0.1159	0.0000	475.2122	475.2122	0.0790	0.0000	477.1878
Maximum	**2.2481**	**4.9584**	**6.4833**	**0.0165**	**0.9287**	**0.1954**	**1.0618**	**0.4562**	**0.1842**	**0.5787**	**0.0000**	**1,480.2743**	**1,480.2743**	**0.1749**	**0.0000**	**1,484.6474**

2.1 Overall Construction

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					
2021	0.2717	2.8685	1.7559	3.4200e-003	0.3706	0.1331	0.5037	0.1802	0.1225	0.3026	0.0000	301.0924	301.0924	0.0938	0.0000	303.4381
2022	0.5844	4.5536	5.5017	0.0138	0.6674	0.1775	0.8449	0.1789	0.1655	0.3444	0.0000	1,244.1250	1,244.1250	0.1746	0.0000	1,248.4903
2023	2.0886	4.9584	6.4833	0.0165	0.7467	0.1954	0.9421	0.2003	0.1842	0.3845	0.0000	1,480.2735	1,480.2735	0.1749	0.0000	1,484.6466
2024	2.2481	2.1403	2.6930	5.4100e-003	0.1111	0.0909	0.2019	0.0298	0.0860	0.1159	0.0000	475.2118	475.2118	0.0790	0.0000	477.1874
Maximum	**2.2481**	**4.9584**	**6.4833**	**0.0165**	**0.7467**	**0.1954**	**0.9421**	**0.2003**	**0.1842**	**0.3845**	**0.0000**	**1,480.2735**	**1,480.2735**	**0.1749**	**0.0000**	**1,484.6466**

	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**	**26.00**	**0.00**	**21.09**	**34.10**	**0.00**	**20.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-1-2021**	**9-30-2021**	1.4625	1.4625
2	**10-1-2021**	**12-31-2021**	1.6288	1.6288
3	**1-1-2022**	**3-31-2022**	1.6089	1.6089
4	**4-1-2022**	**6-30-2022**	0.8953	0.8953
5	**7-1-2022**	**9-30-2022**	1.3127	1.3127
6	**10-1-2022**	**12-31-2022**	1.3152	1.3152
7	**1-1-2023**	**3-31-2023**	1.5014	1.5014
8	**4-1-2023**	**6-30-2023**	1.8340	1.8340

9	**7-1-2023**	**9-30-2023**	1.8541	1.8541
10	**10-1-2023**	**12-31-2023**	1.8620	1.8620
11	**1-1-2024**	**3-31-2024**	1.3336	1.3336
12	**4-1-2024**	**6-30-2024**	1.0028	1.0028
13	**7-1-2024**	**9-30-2024**	1.0138	1.0138
		Highest	1.8620	1.8620

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	2.1660	0.0540	4.2822	3.3700e-003		0.1783	0.1783		0.1783	0.1783	21.4155	5.4109	26.8264	0.1053	0.0000	29.4590
Energy	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	1,136.2827	1,136.2827	0.0336	0.0158	1,141.8361
Mobile	0.5947	3.4174	7.1423	0.0337	3.3796	0.0206	3.4001	0.9053	0.0191	0.9244	0.0000	3,137.1168	3,137.1168	0.1290	0.0000	3,140.3419
Waste						0.0000	0.0000		0.0000	0.0000	59.2815	0.0000	59.2815	3.5034	0.0000	146.8674
Water						0.0000	0.0000		0.0000	0.0000	8.6697	97.9875	106.6572	0.8946	0.0219	135.5358
Total	**2.8241**	**4.0334**	**11.8062**	**0.0405**	**3.3796**	**0.2426**	**3.6222**	**0.9053**	**0.2411**	**1.1464**	**89.3666**	**4,376.7980**	**4,466.1646**	**4.6660**	**0.0377**	**4,594.0401**

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	2.0581	0.0380	3.3018	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.1900e-003	0.0000	5.5407
Energy	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	992.2061	992.2061	0.0275	0.0146	997.2425
Mobile	0.4798	2.8144	4.3953	0.0188	1.7504	0.0119	1.7623	0.4689	0.0111	0.4799	0.0000	1,756.7566	1,756.7566	0.0813	0.0000	1,758.7882
Waste						0.0000	0.0000		0.0000	0.0000	59.2815	0.0000	59.2815	3.5034	0.0000	146.8674
Water						0.0000	0.0000		0.0000	0.0000	6.9357	86.5717	93.5074	0.7160	0.0176	116.6396
Total	**2.6012**	**3.4145**	**8.0787**	**0.0225**	**1.7504**	**0.0741**	**1.8244**	**0.4689**	**0.0732**	**0.5421**	**66.2172**	**2,840.9453**	**2,907.1625**	**4.3334**	**0.0321**	**3,025.0784**

	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	**7.89**	**15.35**	**31.57**	**44.57**	**48.21**	**69.48**	**49.63**	**48.21**	**69.65**	**52.72**	**25.90**	**35.09**	**34.91**	**7.13**	**14.70**	**34.15**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2021	10/1/2021	5	67	Phase I
2	Grading	Grading	10/4/2021	1/31/2022	5	86	Phase I
3	Building Construction (Food Garden and Apartments)	Building Construction	1/3/2022	1/1/2024	5	521	Phase II
4	Paving (Food Garden & Apartments)	Paving	2/1/2022	3/31/2022	5	43	Phase I
5	Paving (Hotel)	Paving	7/1/2022	12/30/2022	5	131	Phase III
6	Building Construction (Hotel)	Building Construction	1/2/2023	12/31/2024	5	522	Phase III
7	Architectural Coating (Food Garden and Apartments)	Architectural Coating	3/1/2023	3/1/2024	5	263	Phase II
8	Architecural Coating (Hotel)	Architectural Coating	1/1/2024	12/31/2024	5	262	Phase III

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 215

Acres of Paving: 4

Residential Indoor: 806,035; Residential Outdoor: 268,678; Non-Residential Indoor: 139,361; Non-Residential Outdoor: 46,454; Striped Parking Area: 10,656 (Architectural Coating – sqft)

OffRoad Equipment

Norco Valley Square Project - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction (Food Garden and Apartments)	Cranes	1	7.00	231	0.29
Building Construction (Food Garden and Apartments)	Forklifts	3	8.00	89	0.20
Building Construction (Food Garden and Apartments)	Generator Sets	1	8.00	84	0.74
Building Construction (Food Garden and Apartments)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Food Garden and Apartments)	Welders	1	8.00	46	0.45
Paving (Food Garden & Apartments)	Pavers	2	8.00	130	0.42
Paving (Food Garden & Apartments)	Paving Equipment	2	8.00	132	0.36
Paving (Food Garden & Apartments)	Rollers	2	8.00	80	0.38
Paving (Hotel)	Pavers	2	8.00	130	0.42
Paving (Hotel)	Paving Equipment	2	8.00	132	0.36
Paving (Hotel)	Rollers	2	8.00	80	0.38
Building Construction (Hotel)	Cranes	1	7.00	231	0.29
Building Construction (Hotel)	Forklifts	3	8.00	89	0.20
Building Construction (Hotel)	Generator Sets	1	8.00	84	0.74
Building Construction (Hotel)	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction (Hotel)	Welders	1	8.00	46	0.45
Architectural Coating (Food Garden and Apartments)	Air Compressors	1	6.00	78	0.48
Architecural Coating (Hotel)	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Food Garden and Ap	9	359.00	85.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Food Garden & Apartments)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving (Hotel)	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (Hotel)	9	45.00	18.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating (Food Garden and Ap	1	72.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architecural Coating (Hotel)	1	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

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					0.6052	0.0000	0.6052	0.3327	0.0000	0.3327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1303	1.3567	0.7087	1.2700e-003		0.0685	0.0685		0.0630	0.0630	0.0000	112.0097	112.0097	0.0362	0.0000	112.9153
Total	**0.1303**	**1.3567**	**0.7087**	**1.2700e-003**	**0.6052**	**0.0685**	**0.6737**	**0.3327**	**0.0630**	**0.3957**	**0.0000**	**112.0097**	**112.0097**	**0.0362**	**0.0000**	**112.9153**

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	2.5100e-003	1.8600e-003	0.0210	6.0000e-005	6.6200e-003	5.0000e-005	6.6700e-003	1.7600e-003	5.0000e-005	1.8000e-003	0.0000	5.7626	5.7626	1.5000e-004	0.0000	5.7665
Total	**2.5100e-003**	**1.8600e-003**	**0.0210**	**6.0000e-005**	**6.6200e-003**	**5.0000e-005**	**6.6700e-003**	**1.7600e-003**	**5.0000e-005**	**1.8000e-003**	**0.0000**	**5.7626**	**5.7626**	**1.5000e-004**	**0.0000**	**5.7665**

3.2 Site Preparation - 2021

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					0.2360	0.0000	0.2360	0.1297	0.0000	0.1297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1303	1.3567	0.7087	1.2700e-003		0.0685	0.0685		0.0630	0.0630	0.0000	112.0095	112.0095	0.0362	0.0000	112.9152
Total	**0.1303**	**1.3567**	**0.7087**	**1.2700e-003**	**0.2360**	**0.0685**	**0.3045**	**0.1297**	**0.0630**	**0.1928**	**0.0000**	**112.0095**	**112.0095**	**0.0362**	**0.0000**	**112.9152**

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	2.5100e-003	1.8600e-003	0.0210	6.0000e-005	6.6200e-003	5.0000e-005	6.6700e-003	1.7600e-003	5.0000e-005	1.8000e-003	0.0000	5.7626	5.7626	1.5000e-004	0.0000	5.7665
Total	**2.5100e-003**	**1.8600e-003**	**0.0210**	**6.0000e-005**	**6.6200e-003**	**5.0000e-005**	**6.6700e-003**	**1.7600e-003**	**5.0000e-005**	**1.8000e-003**	**0.0000**	**5.7626**	**5.7626**	**1.5000e-004**	**0.0000**	**5.7665**

3.3 Grading - 2021

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					0.3097	0.0000	0.3097	0.1199	0.0000	0.1199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1362	1.5080	1.0036	2.0200e-003		0.0645	0.0645		0.0594	0.0594	0.0000	177.1087	177.1087	0.0573	0.0000	178.5407
Total	**0.1362**	**1.5080**	**1.0036**	**2.0200e-003**	**0.3097**	**0.0645**	**0.3742**	**0.1199**	**0.0594**	**0.1793**	**0.0000**	**177.1087**	**177.1087**	**0.0573**	**0.0000**	**178.5407**

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	2.7100e-003	2.0000e-003	0.0227	7.0000e-005	7.1300e-003	5.0000e-005	7.1800e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2118	6.2118	1.7000e-004	0.0000	6.2160
Total	**2.7100e-003**	**2.0000e-003**	**0.0227**	**7.0000e-005**	**7.1300e-003**	**5.0000e-005**	**7.1800e-003**	**1.8900e-003**	**5.0000e-005**	**1.9400e-003**	**0.0000**	**6.2118**	**6.2118**	**1.7000e-004**	**0.0000**	**6.2160**

3.3 Grading - 2021

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					0.1208	0.0000	0.1208	0.0468	0.0000	0.0468	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1362	1.5080	1.0036	2.0200e-003		0.0645	0.0645		0.0594	0.0594	0.0000	177.1085	177.1085	0.0573	0.0000	178.5405
Total	**0.1362**	**1.5080**	**1.0036**	**2.0200e-003**	**0.1208**	**0.0645**	**0.1853**	**0.0468**	**0.0594**	**0.1061**	**0.0000**	**177.1085**	**177.1085**	**0.0573**	**0.0000**	**178.5405**

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	2.7100e-003	2.0000e-003	0.0227	7.0000e-005	7.1300e-003	5.0000e-005	7.1800e-003	1.8900e-003	5.0000e-005	1.9400e-003	0.0000	6.2118	6.2118	1.7000e-004	0.0000	6.2160
Total	**2.7100e-003**	**2.0000e-003**	**0.0227**	**7.0000e-005**	**7.1300e-003**	**5.0000e-005**	**7.1800e-003**	**1.8900e-003**	**5.0000e-005**	**1.9400e-003**	**0.0000**	**6.2118**	**6.2118**	**1.7000e-004**	**0.0000**	**6.2160**

3.3 Grading - 2022

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					0.1772	0.0000	0.1772	0.0471	0.0000	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.4079	0.3049	6.5000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	57.2613	57.2613	0.0185	0.0000	57.7243
Total	**0.0381**	**0.4079**	**0.3049**	**6.5000e-004**	**0.1772**	**0.0172**	**0.1944**	**0.0471**	**0.0158**	**0.0629**	**0.0000**	**57.2613**	**57.2613**	**0.0185**	**0.0000**	**57.7243**

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	8.2000e-004	5.8000e-004	6.7600e-003	2.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	1.9349	1.9349	5.0000e-005	0.0000	1.9362
Total	**8.2000e-004**	**5.8000e-004**	**6.7600e-003**	**2.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**1.9349**	**1.9349**	**5.0000e-005**	**0.0000**	**1.9362**

3.3 Grading - 2022

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					0.0691	0.0000	0.0691	0.0184	0.0000	0.0184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.4079	0.3049	6.5000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	57.2613	57.2613	0.0185	0.0000	57.7243
Total	**0.0381**	**0.4079**	**0.3049**	**6.5000e-004**	**0.0691**	**0.0172**	**0.0863**	**0.0184**	**0.0158**	**0.0342**	**0.0000**	**57.2613**	**57.2613**	**0.0185**	**0.0000**	**57.7243**

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	8.2000e-004	5.8000e-004	6.7600e-003	2.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	1.9349	1.9349	5.0000e-005	0.0000	1.9362
Total	**8.2000e-004**	**5.8000e-004**	**6.7600e-003**	**2.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**1.9349**	**1.9349**	**5.0000e-005**	**0.0000**	**1.9362**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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	0.0295	1.0138	0.2505	2.7600e-003	0.0697	1.8600e-003	0.0715	0.0201	1.7800e-003	0.0219	0.0000	267.4066	267.4066	0.0164	0.0000	267.8171
Worker	0.1827	0.1299	1.5017	4.7600e-003	0.5120	3.7300e-003	0.5158	0.1360	3.4300e-003	0.1394	0.0000	430.0160	430.0160	0.0108	0.0000	430.2860
Total	**0.2122**	**1.1437**	**1.7523**	**7.5200e-003**	**0.5817**	**5.5900e-003**	**0.5873**	**0.1561**	**5.2100e-003**	**0.1613**	**0.0000**	**697.4226**	**697.4226**	**0.0272**	**0.0000**	**698.1031**

3.4 Building Construction (Food Garden and Apartments) - 2022

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	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

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	0.0295	1.0138	0.2505	2.7600e-003	0.0697	1.8600e-003	0.0715	0.0201	1.7800e-003	0.0219	0.0000	267.4066	267.4066	0.0164	0.0000	267.8171
Worker	0.1827	0.1299	1.5017	4.7600e-003	0.5120	3.7300e-003	0.5158	0.1360	3.4300e-003	0.1394	0.0000	430.0160	430.0160	0.0108	0.0000	430.2860
Total	**0.2122**	**1.1437**	**1.7523**	**7.5200e-003**	**0.5817**	**5.5900e-003**	**0.5873**	**0.1561**	**5.2100e-003**	**0.1613**	**0.0000**	**697.4226**	**697.4226**	**0.0272**	**0.0000**	**698.1031**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

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	0.0220	0.7628	0.2240	2.6700e-003	0.0697	8.7000e-004	0.0705	0.0201	8.3000e-004	0.0209	0.0000	259.3463	259.3463	0.0143	0.0000	259.7031
Worker	0.1720	0.1175	1.3846	4.5800e-003	0.5120	3.6300e-003	0.5157	0.1360	3.3400e-003	0.1393	0.0000	413.9788	413.9788	9.7300e-003	0.0000	414.2222
Total	**0.1940**	**0.8803**	**1.6086**	**7.2500e-003**	**0.5817**	**4.5000e-003**	**0.5862**	**0.1561**	**4.1700e-003**	**0.1603**	**0.0000**	**673.3251**	**673.3251**	**0.0240**	**0.0000**	**673.9253**

3.4 Building Construction (Food Garden and Apartments) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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	0.0220	0.7628	0.2240	2.6700e-003	0.0697	8.7000e-004	0.0705	0.0201	8.3000e-004	0.0209	0.0000	259.3463	259.3463	0.0143	0.0000	259.7031
Worker	0.1720	0.1175	1.3846	4.5800e-003	0.5120	3.6300e-003	0.5157	0.1360	3.3400e-003	0.1393	0.0000	413.9788	413.9788	9.7300e-003	0.0000	414.2222
Total	**0.1940**	**0.8803**	**1.6086**	**7.2500e-003**	**0.5817**	**4.5000e-003**	**0.5862**	**0.1561**	**4.1700e-003**	**0.1603**	**0.0000**	**673.3251**	**673.3251**	**0.0240**	**0.0000**	**673.9253**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	7.4000e-004	6.7200e-003	8.0800e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.1593	1.1593	2.7000e-004	0.0000	1.1661
Total	**7.4000e-004**	**6.7200e-003**	**8.0800e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**1.1593**	**1.1593**	**2.7000e-004**	**0.0000**	**1.1661**

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	8.0000e-005	2.9300e-003	8.4000e-004	1.0000e-005	2.7000e-004	0.0000	2.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.9940	0.9940	5.0000e-005	0.0000	0.9953
Worker	6.3000e-004	4.1000e-004	4.9700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5398	1.5398	3.0000e-005	0.0000	1.5407
Total	**7.1000e-004**	**3.3400e-003**	**5.8100e-003**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**2.5338**	**2.5338**	**8.0000e-005**	**0.0000**	**2.5360**

3.4 Building Construction (Food Garden and Apartments) - 2024

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	7.4000e-004	6.7200e-003	8.0800e-003	1.0000e-005		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	1.1592	1.1592	2.7000e-004	0.0000	1.1661
Total	**7.4000e-004**	**6.7200e-003**	**8.0800e-003**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**1.1592**	**1.1592**	**2.7000e-004**	**0.0000**	**1.1661**

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	8.0000e-005	2.9300e-003	8.4000e-004	1.0000e-005	2.7000e-004	0.0000	2.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.9940	0.9940	5.0000e-005	0.0000	0.9953
Worker	6.3000e-004	4.1000e-004	4.9700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.5398	1.5398	3.0000e-005	0.0000	1.5407
Total	**7.1000e-004**	**3.3400e-003**	**5.8100e-003**	**3.0000e-005**	**2.2400e-003**	**1.0000e-005**	**2.2500e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**2.5338**	**2.5338**	**8.0000e-005**	**0.0000**	**2.5360**

3.5 Paving (Food Garden & Apartments) - 2022

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	0.0237	0.2392	0.3135	4.9000e-004		0.0122	0.0122		0.0112	0.0112	0.0000	43.0593	43.0593	0.0139	0.0000	43.4074
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0290**	**0.2392**	**0.3135**	**4.9000e-004**		**0.0122**	**0.0122**		**0.0112**	**0.0112**	**0.0000**	**43.0593**	**43.0593**	**0.0139**	**0.0000**	**43.4074**

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	1.2600e-003	9.0000e-004	0.0104	3.0000e-005	3.5400e-003	3.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	2.9715	2.9715	7.0000e-005	0.0000	2.9734
Total	**1.2600e-003**	**9.0000e-004**	**0.0104**	**3.0000e-005**	**3.5400e-003**	**3.0000e-005**	**3.5600e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.9715**	**2.9715**	**7.0000e-005**	**0.0000**	**2.9734**

3.5 Paving (Food Garden & Apartments) - 2022

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	0.0237	0.2392	0.3135	4.9000e-004		0.0122	0.0122		0.0112	0.0112	0.0000	43.0592	43.0592	0.0139	0.0000	43.4074
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0290**	**0.2392**	**0.3135**	**4.9000e-004**		**0.0122**	**0.0122**		**0.0112**	**0.0112**	**0.0000**	**43.0592**	**43.0592**	**0.0139**	**0.0000**	**43.4074**

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	1.2600e-003	9.0000e-004	0.0104	3.0000e-005	3.5400e-003	3.0000e-005	3.5600e-003	9.4000e-004	2.0000e-005	9.6000e-004	0.0000	2.9715	2.9715	7.0000e-005	0.0000	2.9734
Total	**1.2600e-003**	**9.0000e-004**	**0.0104**	**3.0000e-005**	**3.5400e-003**	**3.0000e-005**	**3.5600e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.9715**	**2.9715**	**7.0000e-005**	**0.0000**	**2.9734**

3.6 Paving (Hotel) - 2022

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	0.0722	0.7287	0.9550	1.4900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	131.1805	131.1805	0.0424	0.0000	132.2412
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0775**	**0.7287**	**0.9550**	**1.4900e-003**		**0.0372**	**0.0372**		**0.0342**	**0.0342**	**0.0000**	**131.1805**	**131.1805**	**0.0424**	**0.0000**	**132.2412**

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	3.8500e-003	2.7300e-003	0.0316	1.0000e-004	0.0108	8.0000e-005	0.0109	2.8600e-003	7.0000e-005	2.9400e-003	0.0000	9.0527	9.0527	2.3000e-004	0.0000	9.0584
Total	**3.8500e-003**	**2.7300e-003**	**0.0316**	**1.0000e-004**	**0.0108**	**8.0000e-005**	**0.0109**	**2.8600e-003**	**7.0000e-005**	**2.9400e-003**	**0.0000**	**9.0527**	**9.0527**	**2.3000e-004**	**0.0000**	**9.0584**

3.6 Paving (Hotel) - 2022

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	0.0722	0.7287	0.9550	1.4900e-003		0.0372	0.0372		0.0342	0.0342	0.0000	131.1803	131.1803	0.0424	0.0000	132.2410
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0775**	**0.7287**	**0.9550**	**1.4900e-003**		**0.0372**	**0.0372**		**0.0342**	**0.0342**	**0.0000**	**131.1803**	**131.1803**	**0.0424**	**0.0000**	**132.2410**

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	3.8500e-003	2.7300e-003	0.0316	1.0000e-004	0.0108	8.0000e-005	0.0109	2.8600e-003	7.0000e-005	2.9400e-003	0.0000	9.0527	9.0527	2.3000e-004	0.0000	9.0584
Total	**3.8500e-003**	**2.7300e-003**	**0.0316**	**1.0000e-004**	**0.0108**	**8.0000e-005**	**0.0109**	**2.8600e-003**	**7.0000e-005**	**2.9400e-003**	**0.0000**	**9.0527**	**9.0527**	**2.3000e-004**	**0.0000**	**9.0584**

3.7 Building Construction (Hotel) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

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	4.6600e-003	0.1615	0.0474	5.7000e-004	0.0148	1.8000e-004	0.0149	4.2600e-003	1.8000e-004	4.4300e-003	0.0000	54.9204	54.9204	3.0200e-003	0.0000	54.9960
Worker	0.0216	0.0147	0.1736	5.7000e-004	0.0642	4.6000e-004	0.0646	0.0171	4.2000e-004	0.0175	0.0000	51.8915	51.8915	1.2200e-003	0.0000	51.9220
Total	**0.0262**	**0.1763**	**0.2210**	**1.1400e-003**	**0.0789**	**6.4000e-004**	**0.0796**	**0.0213**	**6.0000e-004**	**0.0219**	**0.0000**	**106.8119**	**106.8119**	**4.2400e-003**	**0.0000**	**106.9180**

3.7 Building Construction (Hotel) - 2023

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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	4.6600e-003	0.1615	0.0474	5.7000e-004	0.0148	1.8000e-004	0.0149	4.2600e-003	1.8000e-004	4.4300e-003	0.0000	54.9204	54.9204	3.0200e-003	0.0000	54.9960
Worker	0.0216	0.0147	0.1736	5.7000e-004	0.0642	4.6000e-004	0.0646	0.0171	4.2000e-004	0.0175	0.0000	51.8915	51.8915	1.2200e-003	0.0000	51.9220
Total	**0.0262**	**0.1763**	**0.2210**	**1.1400e-003**	**0.0789**	**6.4000e-004**	**0.0796**	**0.0213**	**6.0000e-004**	**0.0219**	**0.0000**	**106.8119**	**106.8119**	**4.2400e-003**	**0.0000**	**106.9180**

3.7 Building Construction (Hotel) - 2024

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

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	4.5900e-003	0.1624	0.0464	5.7000e-004	0.0149	1.8000e-004	0.0151	4.2900e-003	1.7000e-004	4.4600e-003	0.0000	55.1473	55.1473	3.0000e-003	0.0000	55.2223
Worker	0.0206	0.0135	0.1631	5.6000e-004	0.0647	4.5000e-004	0.0651	0.0172	4.2000e-004	0.0176	0.0000	50.5699	50.5699	1.1300e-003	0.0000	50.5980
Total	**0.0252**	**0.1759**	**0.2095**	**1.1300e-003**	**0.0795**	**6.3000e-004**	**0.0802**	**0.0215**	**5.9000e-004**	**0.0221**	**0.0000**	**105.7172**	**105.7172**	**4.1300e-003**	**0.0000**	**105.8203**

3.7 Building Construction (Hotel) - 2024

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

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	4.5900e-003	0.1624	0.0464	5.7000e-004	0.0149	1.8000e-004	0.0151	4.2900e-003	1.7000e-004	4.4600e-003	0.0000	55.1473	55.1473	3.0000e-003	0.0000	55.2223
Worker	0.0206	0.0135	0.1631	5.6000e-004	0.0647	4.5000e-004	0.0651	0.0172	4.2000e-004	0.0176	0.0000	50.5699	50.5699	1.1300e-003	0.0000	50.5980
Total	**0.0252**	**0.1759**	**0.2095**	**1.1300e-003**	**0.0795**	**6.3000e-004**	**0.0802**	**0.0215**	**5.9000e-004**	**0.0221**	**0.0000**	**105.7172**	**105.7172**	**4.1300e-003**	**0.0000**	**105.8203**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	1.4097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8305	27.8305	1.6700e-003	0.0000	27.8721
Total	**1.4306**	**0.1420**	**0.1974**	**3.2000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**27.8305**	**27.8305**	**1.6700e-003**	**0.0000**	**27.8721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0289	0.0198	0.2328	7.7000e-004	0.0861	6.1000e-004	0.0867	0.0229	5.6000e-004	0.0234	0.0000	69.6144	69.6144	1.6400e-003	0.0000	69.6554
Total	**0.0289**	**0.0198**	**0.2328**	**7.7000e-004**	**0.0861**	**6.1000e-004**	**0.0867**	**0.0229**	**5.6000e-004**	**0.0234**	**0.0000**	**69.6144**	**69.6144**	**1.6400e-003**	**0.0000**	**69.6554**

3.8 Architectural Coating (Food Garden and Apartments) - 2023

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	1.4097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.1420	0.1974	3.2000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	27.8304	27.8304	1.6700e-003	0.0000	27.8721
Total	**1.4306**	**0.1420**	**0.1974**	**3.2000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**27.8304**	**27.8304**	**1.6700e-003**	**0.0000**	**27.8721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0289	0.0198	0.2328	7.7000e-004	0.0861	6.1000e-004	0.0867	0.0229	5.6000e-004	0.0234	0.0000	69.6144	69.6144	1.6400e-003	0.0000	69.6554
Total	**0.0289**	**0.0198**	**0.2328**	**7.7000e-004**	**0.0861**	**6.1000e-004**	**0.0867**	**0.0229**	**5.6000e-004**	**0.0234**	**0.0000**	**69.6144**	**69.6144**	**1.6400e-003**	**0.0000**	**69.6554**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2910					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0274	0.0407	7.0000e-005		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	5.7448	5.7448	3.2000e-004	0.0000	5.7529
Total	**0.2951**	**0.0274**	**0.0407**	**7.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**5.7448**	**5.7448**	**3.2000e-004**	**0.0000**	**5.7529**

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	5.6600e-003	3.7200e-003	0.0448	1.5000e-004	0.0178	1.2000e-004	0.0179	4.7200e-003	1.1000e-004	4.8300e-003	0.0000	13.8971	13.8971	3.1000e-004	0.0000	13.9048
Total	**5.6600e-003**	**3.7200e-003**	**0.0448**	**1.5000e-004**	**0.0178**	**1.2000e-004**	**0.0179**	**4.7200e-003**	**1.1000e-004**	**4.8300e-003**	**0.0000**	**13.8971**	**13.8971**	**3.1000e-004**	**0.0000**	**13.9048**

3.8 Architectural Coating (Food Garden and Apartments) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2910					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0274	0.0407	7.0000e-005		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	5.7448	5.7448	3.2000e-004	0.0000	5.7529
Total	**0.2951**	**0.0274**	**0.0407**	**7.0000e-005**		**1.3700e-003**	**1.3700e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**5.7448**	**5.7448**	**3.2000e-004**	**0.0000**	**5.7529**

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	5.6600e-003	3.7200e-003	0.0448	1.5000e-004	0.0178	1.2000e-004	0.0179	4.7200e-003	1.1000e-004	4.8300e-003	0.0000	13.8971	13.8971	3.1000e-004	0.0000	13.9048
Total	**5.6600e-003**	**3.7200e-003**	**0.0448**	**1.5000e-004**	**0.0178**	**1.2000e-004**	**0.0179**	**4.7200e-003**	**1.1000e-004**	**4.8300e-003**	**0.0000**	**13.8971**	**13.8971**	**3.1000e-004**	**0.0000**	**13.9048**

3.9 Architecural Coating (Hotel) - 2024

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	1.7007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**1.7243**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

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	3.6600e-003	2.4000e-003	0.0290	1.0000e-004	0.0115	8.0000e-005	0.0116	3.0500e-003	7.0000e-005	3.1300e-003	0.0000	8.9902	8.9902	2.0000e-004	0.0000	8.9952
Total	**3.6600e-003**	**2.4000e-003**	**0.0290**	**1.0000e-004**	**0.0115**	**8.0000e-005**	**0.0116**	**3.0500e-003**	**7.0000e-005**	**3.1300e-003**	**0.0000**	**8.9902**	**8.9902**	**2.0000e-004**	**0.0000**	**8.9952**

3.9 Architecural Coating (Hotel) - 2024

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	1.7007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.1597	0.2371	3.9000e-004		7.9800e-003	7.9800e-003		7.9800e-003	7.9800e-003	0.0000	33.4476	33.4476	1.8800e-003	0.0000	33.4947
Total	**1.7243**	**0.1597**	**0.2371**	**3.9000e-004**		**7.9800e-003**	**7.9800e-003**		**7.9800e-003**	**7.9800e-003**	**0.0000**	**33.4476**	**33.4476**	**1.8800e-003**	**0.0000**	**33.4947**

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	3.6600e-003	2.4000e-003	0.0290	1.0000e-004	0.0115	8.0000e-005	0.0116	3.0500e-003	7.0000e-005	3.1300e-003	0.0000	8.9902	8.9902	2.0000e-004	0.0000	8.9952
Total	**3.6600e-003**	**2.4000e-003**	**0.0290**	**1.0000e-004**	**0.0115**	**8.0000e-005**	**0.0116**	**3.0500e-003**	**7.0000e-005**	**3.1300e-003**	**0.0000**	**8.9902**	**8.9902**	**2.0000e-004**	**0.0000**	**8.9952**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4798	2.8144	4.3953	0.0188	1.7504	0.0119	1.7623	0.4689	0.0111	0.4799	0.0000	1,756.7566	1,756.7566	0.0813	0.0000	1,758.7882
Unmitigated	0.5947	3.4174	7.1423	0.0337	3.3796	0.0206	3.4001	0.9053	0.0191	0.9244	0.0000	3,137.1168	3,137.1168	0.1290	0.0000	3,140.3419

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,395.20	1,395.20	1395.20	4,764,726	2,467,770
City Park	0.00	0.00	0.00		
Fast Food Restaurant w/o Drive Thru	1,254.02	1,254.02	1254.02	2,271,081	1,176,249
Health Club	0.00	0.00	0.00		
Hotel	780.00	780.00	780.00	1,861,213	963,969
Parking Lot	0.00	0.00	0.00		
Total	3,429.22	3,429.22	3,429.22	8,897,021	4,607,988

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
Apartments Mid Rise	14.70	5.90	8.70	40.00	19.00	41.00	86	11	3
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Fast Food Restaurant w/o Drive	16.60	8.40	6.90	1.50	79.50	19.00	51	37	12
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
City Park	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Fast Food Restaurant w/o Drive Thru	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Health Club	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Hotel	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757
Parking Lot	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Install Energy Efficient Appliances

Norco Valley Square Project - South Coast AQMD Air District, Annual

	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	365.2173	365.2173	0.0155	3.1000e-003	366.5278
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	509.2939	509.2939	0.0216	4.3200e-003	511.1214
NaturalGas Mitigated	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	626.9888	626.9888	0.0120	0.0115	630.7147
NaturalGas Unmitigated	0.0634	0.5620	0.3817	3.4600e-003		0.0438	0.0438		0.0438	0.0438	0.0000	626.9888	626.9888	0.0120	0.0115	630.7147

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					
Apartments Mid Rise	4.73411e+006	0.0255	0.2181	0.0928	1.3900e-003		0.0176	0.0176		0.0176	0.0176	0.0000	252.6299	252.6299	4.8400e-003	4.6300e-003	254.1312
City Park	0	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
Fast Food Restaurant w/o Drive Thru	2.37893e+006	0.0128	0.1166	0.0980	7.0000e-004		8.8600e-003	8.8600e-003		8.8600e-003	8.8600e-003	0.0000	126.9487	126.9487	2.4300e-003	2.3300e-003	127.7031
Health Club	435593	2.3500e-003	0.0214	0.0179	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.2449	23.2449	4.5000e-004	4.3000e-004	23.3831
Hotel	4.2007e+006	0.0227	0.2059	0.1730	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	224.1654	224.1654	4.3000e-003	4.1100e-003	225.4975
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0634**	**0.5620**	**0.3817**	**3.4600e-003**		**0.0438**	**0.0438**		**0.0438**	**0.0438**	**0.0000**	**626.9888**	**626.9888**	**0.0120**	**0.0115**	**630.7147**

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					
Apartments Mid Rise	4.73411e+006	0.0255	0.2181	0.0928	1.3900e-003		0.0176	0.0176		0.0176	0.0176	0.0000	252.6299	252.6299	4.8400e-003	4.6300e-003	254.1312
City Park	0	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
Fast Food Restaurant w/o Drive Thru	2.37893e+006	0.0128	0.1166	0.0980	7.0000e-004		8.8600e-003	8.8600e-003		8.8600e-003	8.8600e-003	0.0000	126.9487	126.9487	2.4300e-003	2.3300e-003	127.7031
Health Club	435593	2.3500e-003	0.0214	0.0179	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.2449	23.2449	4.5000e-004	4.3000e-004	23.3831
Hotel	4.2007e+006	0.0227	0.2059	0.1730	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	224.1654	224.1654	4.3000e-003	4.1100e-003	225.4975
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0634**	**0.5620**	**0.3817**	**3.4600e-003**		**0.0438**	**0.0438**		**0.0438**	**0.0438**	**0.0000**	**626.9888**	**626.9888**	**0.0120**	**0.0115**	**630.7147**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.46167e+006	234.4703	9.9500e-003	1.9900e-003	235.3117
City Park	0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant w/o Drive Thru	380799	61.0851	2.5900e-003	5.2000e-004	61.3043
Health Club	136081	21.8292	9.3000e-004	1.9000e-004	21.9075
Hotel	1.134e+006	181.9083	7.7200e-003	1.5400e-003	182.5610
Parking Lot	62345.5	10.0010	4.2000e-004	8.0000e-005	10.0369
Total		**509.2939**	**0.0216**	**4.3200e-003**	**511.1214**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.28366e+006	205.9165	8.7300e-003	1.7500e-003	206.6554
City Park	-144032	-23.1045	-0.0010	-0.0002	-23.1875
Fast Food Restaurant w/o Drive Thru	236767	37.9805	1.6100e-003	3.2000e-004	38.1168
Health Club	-7950.62	-1.2754	-0.0001	0.0000	-1.2800
Hotel	989968	158.8037	6.7400e-003	1.3500e-003	159.3736
Parking Lot	-81686.2	-13.1035	-0.0006	-0.0001	-13.1505
Total		**365.2173**	**0.0155**	**3.1000e-003**	**366.5278**

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

No Hearths Installed

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	2.0581	0.0380	3.3018	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.1900e-003	0.0000	5.5407
Unmitigated	2.1660	0.0540	4.2822	3.3700e-003		0.1783	0.1783		0.1783	0.1783	21.4155	5.4109	26.8264	0.1053	0.0000	29.4590

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	0.1701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7886					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1080	0.0160	0.9804	3.2000e-003		0.1599	0.1599		0.1599	0.1599	21.4155	0.0000	21.4155	0.1001	0.0000	23.9183
Landscaping	0.0994	0.0380	3.3018	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.1900e-003	0.0000	5.5407
Total	**2.1660**	**0.0540**	**4.2822**	**3.3800e-003**		**0.1783**	**0.1783**		**0.1783**	**0.1783**	**21.4155**	**5.4109**	**26.8265**	**0.1053**	**0.0000**	**29.4590**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.7886					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0994	0.0380	3.3018	1.8000e-004		0.0183	0.0183		0.0183	0.0183	0.0000	5.4109	5.4109	5.1900e-003	0.0000	5.5407
Total	**2.0580**	**0.0380**	**3.3018**	**1.8000e-004**		**0.0183**	**0.0183**		**0.0183**	**0.0183**	**0.0000**	**5.4109**	**5.4109**	**5.1900e-003**	**0.0000**	**5.5407**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	93.5074	0.7160	0.0176	116.6396
Unmitigated	106.6572	0.8946	0.0219	135.5358

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	20.8493 / 13.1441	73.5885	0.6822	0.0166	95.5935
City Park	0 / 8.81696	15.7135	6.7000e-004	1.3000e-004	15.7699
Fast Food Restaurant w/o Drive Thru	2.64074 / 0.168558	6.6540	0.0863	2.0800e-003	9.4316
Health Club	0.79311 / 0.486099	2.7745	0.0260	6.3000e-004	3.6115
Hotel	3.04401 / 0.338224	7.9266	0.0995	2.4000e-003	11.1293
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**106.6571**	**0.8946**	**0.0219**	**135.5358**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	16.6794 / 13.1441	63.5558	0.5460	0.0133	81.1767
City Park	0 / 8.81696	15.7135	6.7000e-004	1.3000e-004	15.7699
Fast Food Restaurant w/o Drive Thru	2.11259 / 0.168558	5.3833	0.0690	1.6700e-003	7.6056
Health Club	0.634488 / 0.486099	2.3929	0.0208	5.1000e-004	3.0631
Hotel	2.43521 / 0.338224	6.4619	0.0796	1.9200e-003	9.0244
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**93.5074**	**0.7160**	**0.0176**	**116.6396**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	59.2815	3.5034	0.0000	146.8674
Unmitigated	59.2815	3.5034	0.0000	146.8674

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
City Park	0.48	0.0974	5.7600e-003	0.0000	0.2414
Fast Food Restaurant w/o Drive Thru	75.16	15.2568	0.9017	0.0000	37.7981
Health Club	53.44	10.8478	0.6411	0.0000	26.8751
Hotel	52.56	10.6692	0.6305	0.0000	26.4325
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**59.2815**	**3.5034**	**0.0000**	**146.8674**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
City Park	0.48	0.0974	5.7600e-003	0.0000	0.2414
Fast Food Restaurant w/o Drive Thru	75.16	15.2568	0.9017	0.0000	37.7981
Health Club	53.44	10.8478	0.6411	0.0000	26.8751
Hotel	52.56	10.6692	0.6305	0.0000	26.4325
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**59.2815**	**3.5034**	**0.0000**	**146.8674**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Solar PV Requirements for Low-Rise Residential Buildings
(2019 California Energy Code Section 150.1(b)14)

Equation 150.1-C	kWPV = (CFA x A)/1000 + (NDwell x B)

Inputs		
Climate Zone		10
A	Adjustment Factor from Table 150.1-C	0.627
B	Dwelling Adjustment Factor from Table 150.1-C	1.41

Unit Type	Conditioned Floor Area (CFA)	Number of Dwelling Units (Ndwell)	kWPV (KWdc Size of the PV System)
A1	750	70	99
A2	750	105	149
B1	950	58	82
B2	1000	6	9
B2	1050	72	102
C1	1300	9	14
			0
			0
			0
			0
			0
			0
			0
			0
			0
Total Size of PV System (kW)		320	455
kW to kWh Conversion Factor			1900
Amount of Electricity Generated (kWh/yr)			864,190

Table 150.1-C		
Climate Zone	A - CFA	B - Dwelling Units
1	0.793	1.27
2	0.621	1.22
3	0.628	1.12
4	0.586	1.21
5	0.585	1.06
6	0.594	1.23
7	0.572	1.15
8	0.586	1.37
9	0.613	1.36
10	0.627	1.41
11	0.836	1.44
12	0.613	1.40
13	0.894	1.51
14	0.741	1.26
15	1.56	1.47
16	0.59	1.22

Sources	
Climate Zones	California Energy Commission. "California Building Climate Zone Areas." Last modified: November 2017. https://www.energy.ca.gov/maps/renewable/building_climate_zones.html
2019 California Energy Code	California Energy Commission. 2018. 2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings. December 2018. https://www.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf
kWh per kW PV Solar System (see page 12 of PDF)	United States Department of Energy. 2003. A Consumer's Guide: Get Your Power from the Sun. https://www.nrel.gov/docs/fy04osti/35297.pdf

N2O Operational GHG Emission Mobile Calculations

Project Code & Title: 19-08717 Norco Valley Square Project

Vehicle Population Breakdown*	
12642012	Gasoline vehicles
662745	Diesel vehicles
95.0%	Gasoline vehicle %
5.0%	Diesel vehicle %

VMT per Vehicle Type	
4607988	Project VMT (CalEEMod output)
4378452	Gasoline vehicle VMT
229536	Diesel vehicle VMT

Gasoline Vehicles	
95.0%	Gasoline vehicle %
2.8144	Tons per year mobile NOX emissions (annual output in CalEEMod)
2.67	Gasoline vehicle tons per year NOX emissions
0.1215	Tons per year N2O emissions for gasoline vehicles**
0.1102	Metric tons per year N2O emissions for gasoline vehicles

Diesel Vehicles	
1.60	grams N2O per gallon of fuel for diesel vehicles**
23.38	Diesel average miles per gallon*
0.06843	grams per mile N2O for diesel vehicles
15707.7	grams per year N2O for diesel vehicles
0.0157077	Metric tons per year N2O emissions for diesel vehicles

CO2e Emissions from N2O	
0.1259	Metric tons per year from gasoline + diesel vehicles
298	GWP of N2O***
37.5	**CO2e emissions per year from N2O emissions from gasoline + diesel vehicles**

Sources
***Vehicle population source:** EMFAC2017 (v1.0.2) Emissions Inventory Region Type: Air District Region: South Coast AQMD Calendar Year: 2030 Season: Annual Vehicle Classification: EMFAC2011 Categories ****Methodology source:** EMFAC2017 Volume III - Technical Documentation https://www.arb.ca.gov/msei/emfac2011-faq.htm *****GWP source:** Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Climate Change 2007: The Physical Science Basis. Contrbution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

Post-2020, Pre-2030 Projects

	2012	2025	2030
Percent procurement	20.6	49.06	60
CO2 (lbs/MWh)	702	450.42	353.65
CH4 (lbs/MWh)	0.029	0.02	0.015
N2O (lbs/MWh)	0.00617	0.00	0.003

Sources for Historical Renewables Procurement			
PG&E	2009	14.1%	California Public Utilities Commission (CPUC). 2011. Renewa
SDG&E	2009	10.2%	California Public Utilities Commission (CPUC). 2011. Renewa
SCE	2012	20.6%	Southern California Edison. 2012. 2012 Corporate Responsil
Other Utilities			California Energy Commission. https://ww2.energy.ca.gov/p

Post-2030, Pre-2045 Projects

	2009	2030	2035	2045
Percent procurement	14	60	73.33	100
CO2 (lbs/MWh)	641.35	353.65	235.77	0
CH4 (lbs/MWh)	0.029	0.015	0.010	0
N2O (lbs/MWh)	0.006	0.003	0.002	0

ables Portfolio Standard Quarterly Report. 1st Quarter 2011. http://www.cpuc.ca.gov/WorkArea/Downl
ables Portfolio Standard Quarterly Report. 1st Quarter 2011. http://www.cpuc.ca.gov/WorkArea/Downl
bility & Sustainability. https://www1.sce.com/wps/wcm/connect/68145014-2eba-40c2-8587-6482ce05

6977/CRR_08202013.pdf?MOD=AJPERES&ContentCache=NONE

Appendix B

Energy Fuel Consumption Calculation Spreadsheet

Norco Valley Square Project

Last Updated: 05/14/2020

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Rubber Tired Dozer	3	8	247	0.40	Site Prep	8,397.73
Tractors/Loaders/Backhoes	4	8	97	0.37	Site Prep	4,521.80
Graders	1	8	187	0.41	Grading	2,788.26
Excavators	2	8	158	0.38	Grading	4,366.95
Rubber Tired Dozer	1	8	247	0.40	Grading	3,593.06
Tractors/Loaders/Backhoes	2	8	97	0.37	Grading	2,902.05
Scrapers	2	8	367	0.48	Grading	12,812.82
Cranes	1	7	231	0.29	Building Construction (Food Garden and Apartm	12,914.11
Forklifts	3	8	89	0.20	Building Construction (Food Garden and Apartm	13,079.22
Generator Sets	1	8	84	0.74	Building Construction (Food Garden and Apartm	15,224.80
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction (Food Garden and Apartm	23,075.09
Welders	1	8	46	0.45	Building Construction (Food Garden and Apartm	5,070.04
Pavers	2	8	130	0.42	Paving (Food Garden and Apartements)	1,985.64
Paving Equipment	2	8	132	0.36	Paving (Food Garden and Apartements)	1,728.16
Rollers	2	8	80	0.38	Paving (Food Garden and Apartements)	1,229.07
Pavers	2	8	130	0.42	Paving (Hotel)	6,049.27
Paving Equipment	2	8	132	0.36	Paving (Hotel)	5,264.86
Rollers	2	8	80	0.38	Paving (Hotel)	3,744.36
Cranes	1	7	231	0.29	Building Construction (Hotel)	12,938.90
Forklifts	3	8	89	0.20	Building Construction (Hotel)	13,104.33
Generator Sets	1	8	84	0.74	Building Construction (Hotel)	15,254.03
Tractors/Loaders/Backhoes	3	7	97	0.37	Building Construction (Hotel)	23,119.38
Welders	1	8	46	0.45	Building Construction (Hotel)	5,079.77
Air Compressors	1	6	78	0.48	Architectural Coating (Food Garden and Apartme	3,471.81
Air Compressors	1	6	78	0.48	Architectural Coating (Hotel)	3,458.61
					Total Fuel Used	**205,174.11**
						(Gallons)

Construction Phase	Days of Operation
Site Preparation Phase	67
Grading Phase	86
Building Constrcution (Food Garden and Apartments) Phase	521
Paving (Food Garden and Apartments Phase	43
Paving (Hotel) Phase	131
Building Construction (Hotel) Phase	522
Architectural Coating (Food Garden and Apartments) Phase	263
Architectural Coating (Hotel) Phase	262
Total Days	1895

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Prep Phase	24.0	18	14.7	738.68
Grading Phase	24.0	20	14.7	1053.50
Building Constrcution (Food Garden and	24.0	359	14.7	114561.39
Paving (Food Garden and Apartments	24.0	15	14.7	395.06
Paving (Hotel) Phase	24.0	15	14.7	1203.56
Building Construction (Hotel) Phase	24.0	45	14.7	14387.63
Architectural Coating (Food Garden and	24.0	72	14.7	11598.30
Architectural Coating (Hotel) Phase	24.0	9	14.7	1444.28

Total Fuel Used	**145,382.39**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
		HAULING TRIPS		
Site Prep Phase	7.4	0	20.0	0.00
Grading Phase	7.4	0	20.0	0.00
Building Constrcution (Food Garden and	7.4	0	20.0	0.00
Paving (Food Garden and Apartments	7.4	0	20.0	0.00
Paving (Hotel) Phase	7.4	0	20.0	0.00
Building Construction (Hotel) Phase	7.4	0	20.0	0.00
Architectural Coating (Food Garden and	7.4	0	20.0	0.00
Architectural Coating (Hotel) Phase	7.4	0	20.0	0.00
		Fuel Used		**-**
		VENDOR TRIPS		
Site Prep Phase	7.4	0	6.9	0.00
Grading Phase	7.4	0	6.9	0.00
Building Constrcution (Food Garden and	7.4	85	6.9	41292.77
Paving (Food Garden and Apartments	7.4	0	6.9	0.00
Paving (Hotel) Phase	7.4	0	6.9	0.00
Building Construction (Hotel) Phase	7.4	18	6.9	8761.14
Architectural Coating (Food Garden and	7.4	0	6.9	0.00
Architectural Coating (Hotel) Phase	7.4	0	6.9	0.00
		Total		**50,053.91**

Total Gasoline Consumption (gallons)	**145,382.39**
Total Diesel Consumption (gallons)	**255,228.01**

400,610.40

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Norco Valley Square Project

Last Updated: 09/09/2020

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	4,609,482		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.551361
Light Duty Truck 1 (LDT1)	0.042151
Light Duty Truck 2 (LDT2)	0.204257
Medium Duty Vehicle (MDV)	0.114482
Light Heavy Duty 1 (LHD1)	0.014139
Light Heavy Duty 2 (LHD2)	0.005783
Medium Heavy Duty (MHD)	0.021875
Heavy Heavy Duty (HHD)	0.035696
Other Bus (OBUS)	0.002143
Urban Bus (UBUS)	0.001676
School Bus (SBUS)	0.000713
Motorhome (MH)	0.000825
Motorcycle (MCY)	0.004899

Fuel Economy (MPG)	
Passenger Vehicles	24.0
Light-Med Duty Trucks	17.4
Heavy Trucks/Other	7.4
Motorcycles	43.9

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*55.14%*	*Gasoline*	2541489	0.00	105895.36
Light-Medium Duty Trucks	*36.09%*	*Gasoline*	1663516	0.00	95604.37
Heavy Trucks/Other	*8.29%*	*Diesel*	381896	0.00	51607.51
Motorcycle	*0.49%*	*Gasoline*	22582	0.00	514.39

Total Gasoline Consumption (gallons)	**202014.12**
Total Diesel Consumption (gallons)	**51607.51**

Appendix D

MSHCP Consistency Analysis and Habitat Assessment

Norco Valley Square Project

MSHCP Consistency Analysis and Habitat Assessment

prepared for

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764
Contact: Tim Nguyen

prepared by

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
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April 2020

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Norco Valley Square Project

MSHCP Consistency Analysis and Habitat Assessment

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Appendix A Regional Conservation Authority (RCA) Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Information Tool Summary Report
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Executive Summary

This Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis and Habitat Assessment Report was prepared for the Norco Valley Square Project (project) given the project's location within the MSHCP Plan Area. The report was completed to document existing site conditions and to determine potential impacts to sensitive biological resources covered by the MSHCP as well as those requiring analysis under the California Environmental Quality Act (CEQA). The project site consists of approximately 19.1 acres in the city of Norco (City), Riverside County, California, at the southwest corner of the intersection of Hamner Avenue and Third Street. Rincon Consultants, Inc. (Rincon) understands that the entirety of the project site is currently proposed for development of multi-family residential dwelling units, a hotel and food garden, and outdoor entertainment and recreation amenities.

The Regional Conservation Authority (RCA) MSHCP Information Tool (Riverside County 2020) was queried using the parcel information for the project site to determine potential MSHCP sensitive species survey and conservation requirements for the project. The proposed project does not occur within a survey area for amphibians or mammals, but it does occur within a survey area for burrowing owl (*Athene cunicularia*) and the following Narrow Endemic Plant Species: San Diego ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*), and San Miguel savoy (*Satureja chandleri*). In addition, this MSHCP Consistency Analysis includes assessments for riparian/riverine habitat, riparian/riverine species, and vernal pool/fairy shrimp habitat as well as the urban/wildlands interface.

The project site is mostly disturbed and developed. The easternmost portion of the project site, at the very southwest corner of the Third Street and Hamner Avenue intersection, is currently in use as a recreational vehicle (RV) sales lot (Norco RV Center located at 2350 Hamner Avenue). The remainder of the project site contains remnants of foundations with evidence of previous grading and development but is mostly vegetated by non-native forbs and grasses with a few scattered trees. No remaining intact structures occur on the project site.

The project site contains potentially suitable nesting habitat for burrowing owl. Rincon biologists conducted protocol surveys for the species and mapped eight small mammal burrows within the study area. The study area includes the proposed limits of work (19.1-acre project site) and an additional 500-foot buffer for the burrowing owl habitat assessment and surveys. No burrowing owls or their sign were observed during the surveys. However, due to the presence of suitable burrowing owl habitat within the study area, the project would be required to comply with standard MSHCP conditions for the species.

The project site is heavily disturbed with a history of agricultural use and does not contain habitat for riparian/riverine, vernal pools, or fairy shrimp. The project would be confined to existing developed and disturbed non-native grasslands and does not propose any impacts to urban/wildlands interfaces. As such, no further actions are required pursuant to the MSHCP for these resources.

1 Introduction

This report documents the findings of a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis and Habitat Assessment prepared for compliance with the Western Riverside County MSHCP. This assessment describes existing site conditions and includes a discussion of potential impacts to sensitive biological resources covered by the MSHCP for the 19.1-acre Norco Valley Square Project (project), located in the city of Norco, Riverside County, California (Figure 1). The report also contains the results of an MSHCP-required habitat assessment for burrowing owl (*Athene cunicularia*) and three Narrow Endemic Plant Species and includes an analysis of potential project-related impacts to the study area. The study area includes the proposed limits of work (19.1-acre project site) and an additional 500-foot buffer for the burrowing owl habitat assessment, where accessible.

1.1 Project Location

The 19.1-acre project site is located at the southwest corner of Hamner Avenue and Third Street, within the city of Norco (City). The project site is vacant and disturbed with a history of disturbance from grading and agricultural uses, since as early as the 1940s (Figure 2). The site features a central raised area, numerous concrete pads/foundations, and a recreational vehicle (RV) sales lot that is partially paved and partially covered in gravel. Surrounding land uses include residential development and equestrian paddocks to the west and south, commercial developments to the north and east, and an adjacent concrete-lined channel to the south. The project site occurs within Assessor's Parcel Numbers (APN) 126-050-002, 126-050-004, and 129-380-010 and is located in the United States Geological Survey (USGS) *Corona North, California* 7.5-minute topographic quadrangle.

1.2 Project Description

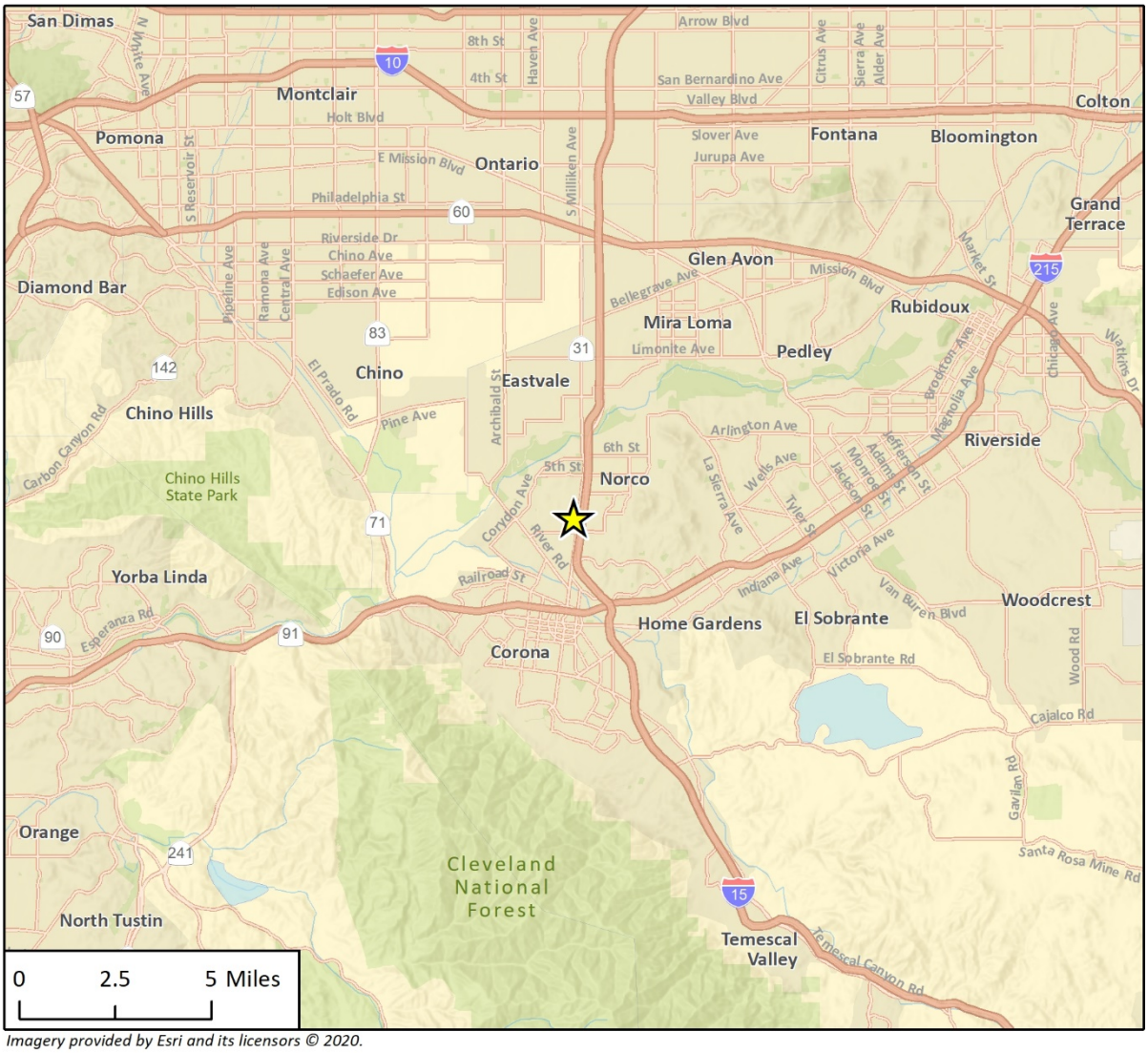
The proposed mixed-use project would include multi-family residential dwelling units, a hotel a food garden, and intermittent outdoor entertainment and recreation amenities (e.g., farmers market, community gatherings, artist exhibit area, children's playground, bocce courts and lawn game areas, fire pit lounges). The residential portion of the project would be constructed on approximately 11.3 acres on the western half of the project site. The hotel, food garden, and outdoor entertainment and recreation space would be constructed on approximately 7.6 acres on the eastern half of the project site. The remaining 0.2 acre would be attributed to landscaping throughout the perimeter of the project site and parking islands.

Project implementation would include grading within the City's right-of-way along Hamner Avenue and Third Street for implementing proposed driveways. Work within the City's right-of-way would require an encroachment permit from the City of Norco. The project would not alter existing roadway circulation and traffic patterns, or existing traffic signals.

Construction of the project is expected to occur over approximately 42 months. Construction activities would be completed in three phases:

- Phase I includes site preparation and grading for the entire project site, as well as installation of wet and dry utilities and asphalt paving for apartments and food garden. Phase I would take nine months total
- Phase II includes building construction and architectural coating for apartment and food garden parcels of the project site. Phase II would occur for 24 months total and may overlap with Phase I
- Phase III involves building construction, architectural coating, installation of wet and dry utilities, and asphalt paving for hotel parcel of project site. Phase III would occur for approximately 30 months and may overlap with Phase II for up to 24 months.

Figure 1 Project Location



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Project Location

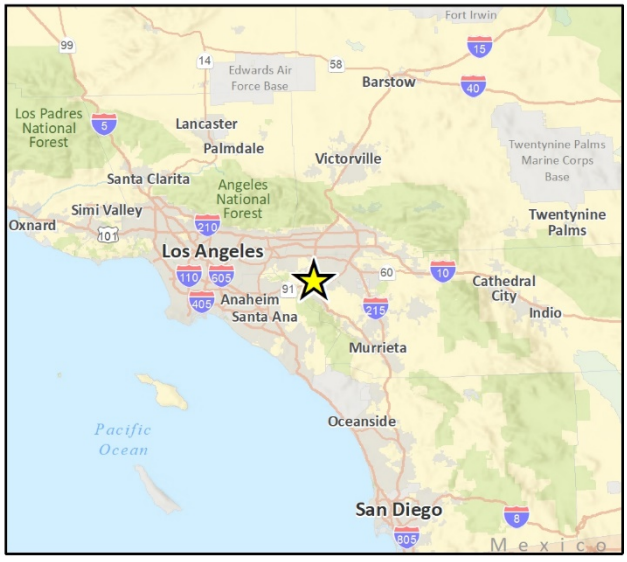


Figure 2 Project Site

Imagery provided by Microsoft Bing and its licensors © 2020.

Fig 2 Project Location

proposed buildings and recreational components, and the fourth phase would include site paving, landscaping, and architectural coating of completed structures.

During the grading phase, the maximum depth of excavation would be approximately 30 feet, and the total amount of exported soil associated with excavation would be approximately 60,000 cubic yards. No soil would be exported from the project site since it would be used as fill and balanced on site. Construction equipment for the project would include earthwork equipment such as graders, rollers, and cranes, as well as small hand and power tools.

2 Methodology

2.1 Western Riverside County MSHCP Consistency Analysis

The proposed project was analyzed to determine consistency with the requirements set forth in the MSHCP (Riverside County 2003). The Regional Conservation Authority (RCA) MSHCP Information Tool (Riverside County 2020) was queried using the parcel information for the study area to determine potential MSHCP sensitive species survey and conservation requirements for the project. According to the RCA MSHCP Information Tool, the MSHCP identifies the project site as requiring habitat assessments and potentially focused surveys for burrowing owl and the following Narrow Endemic Plant Species: San Diego ambrosia (*Ambrosia pumila)*, Brand's phacelia (*Phacelia stellaris*), and San Miguel savory (*Satureja chandleri*) (Appendix A).

To ensure consistency with the requirements set forth in the MSHCP, the study area was assessed, and geographic information systems (GIS) software was used to map the site in relation to MSHCP areas, including criteria cells, conservation areas, and wildlife movement corridors and linkages; study areas for plant, bird, mammal, and amphibian species; Criteria Area Species Study Area (CASSA); and the Narrow Endemic Plant Study Area (NEPSA).

The MSHCP also requires an assessment of potentially significant project effects on riparian/riverine areas and vernal pools, if applicable. According to the MSHCP, the documentation for the assessment shall include mapping and a description of the functions and values of the mapped areas with respect to the species listed in Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools. An assessment of potential indirect impacts to existing or proposed MSHCP conservation areas that may exist on or adjacent to the site through an urban/wildlands interface analysis must also be included.

2.2 Literature Review

Prior to the field visit, a literature review was conducted to establish the environmental and regulatory setting of the proposed project. The background and literature review included review of the U.S. Department of Agriculture (USDA) *Soil Survey for the Western Riverside Area* (2020), *Corona North, California* USGS 7.5-minute topographic quadrangle, literature detailing the habitat requirements of subject species, and aerial photographs (Google Earth 2020) and topographic maps (United States Geological Survey 2018). The MSHCP, species accounts, and other reference materials were reviewed for habitat assessment requirements as well as habitat suitability elements for special-status species. The primary objective of the habitat assessment was to evaluate the study area's potential to support special-status species and determine the applicability of other MSHCP and California Environmental Quality Act (CEQA) requirements to the proposed project.

The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Data Base (CNDDB; CDFW 2020a), Biogeographic Information and Observation System (BIOS; CDFW 2020b) and United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS 2020a) were reviewed to determine if any special-status wildlife, plant or vegetation communities were

previously recorded within five miles of the study area. The National Wetlands Inventory (NWI; USFWS 2020b) was reviewed to determine if any wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the study area. Other resources reviewed included the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants of California (2020), CDFW Special Animals List (2019), and CDFW Special Vascular Plants, Bryophytes, and Lichens List (2020c).

2.3 Field Reconnaissance Survey

A field reconnaissance survey of the study area (i.e., the project site and 500-foot buffer, where accessible) was conducted to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. Rincon Biologist Amy Leigh Trost conducted the reconnaissance survey on January 31, 2020. The biologist surveyed the study area on foot and visually inspected the area with the aid of binoculars (8 x 42) as necessary.

Identification of potentially jurisdictional aquatic resources during the reconnaissance survey included potential wetlands and non-wetland waters that may constitute waters of the U.S., waters of the State, streambeds, and/or riparian/riverine or vernal pool resources. During the survey, the biologist noted general site characteristics, documented vegetation, and took representative photographs. Survey conditions included temperatures between 70 and 77 degrees Fahrenheit (°F), partly cloudy skies, and winds of zero to three miles per hour (mph).

2.3.1 Vegetation Mapping

Vegetation communities observed on site were mapped on a site-specific aerial photograph. All accessible portions of the study area were covered on foot. Vegetation was generally classified using the systems provided in the *Preliminary Descriptions of the Terrestrial Communities of California* (Holland 1986), and modified using *A Manual of California Vegetation, Second Edition* (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions.

2.3.2 Flora

Plant species observed in the study area were noted, and plants that could not be identified in the field were identified later using taxonomic keys. The reconnaissance survey included a directed search for sensitive plants that would have been apparent at the time of the survey. Floral nomenclature for native and non-native plants follows Baldwin et al. (2012) as updated by The Jepson Online Interchange (Jepson Herbarium 2020). For ornamental plants, nomenclature follows U.S. Department of Agriculture (USDA) PLANTS Database (USDA 2019), and for special-status plants follows Baldwin et al. (2012) and California Native Plant Society (CNPS 2020).

2.3.3 Fauna

Animal species observed directly or detected from calls, tracks, scat, nests, or other signs in the study area were noted. The survey was performed during the day; therefore, the identification of nocturnal animals was limited to signs (if present). Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2019) and for mammals, Wilson & Reeder (2005).

2.3.4 Riparian/Riverine Habitat Assessment

MSHCP Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species occurs within the MSHCP Plan Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project's potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. A formal jurisdictional delineation of waters and wetlands was not completed as the project is not proposed to be located within potentially jurisdictional features. Guidelines for determining whether or not these resources exist on site are as follows:

- **Riparian/Riverine Areas** are described by the MSHCP as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved).
- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetland indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and/or vegetation during the drier portion of the growing season."
- **Listed Fairy Shrimp Habitat** is described in the MSHCP as habitat for Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), or Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), and includes ephemeral pools, artificially created habitat, and/or other features determined appropriate by a qualified biologist.

In addition, Section 6.1.2 of the MSHCP states:

> "With the exception of wetlands created for the purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions."

If found, riparian/riverine habitat and vernal pools within the study area were identified, mapped, and recorded during the field reconnaissance survey.

2.3.5 Burrowing Owl Habitat Assessment

The burrowing owl habitat assessment occurred concurrent with the January 31, 2020 field reconnaissance survey. The habitat assessment involved walking through potentially suitable habitat within the study area to provide 100 percent visual coverage of the ground surface. Areas of particular interest included all topographic relief, areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles.

2.3.6 Narrow Endemic Plant Species Habitat Assessment

The Narrow Endemic Plant Species habitat assessment occurred concurrent with the January 31, 2020 field reconnaissance survey. The habitat assessment involved walking through potentially suitable habitat within the study area to provide 100 percent visual coverage of the ground surface.

Special attention was given to areas with a high potential to support Narrow Endemic Plant Species (e.g., relatively undisturbed vegetation communities), if present.

2.4 Focused Burrow and Burrowing Owl Surveys

Due to the presence of suitable burrowing owl habitat identified during the reconnaissance survey/burrowing owl habitat assessment, focused burrow and burrowing owl surveys were conducted in accordance with the Burrowing Owl Survey Instructions for the Western Riverside MSHCP (Riverside County 2005). The focused burrow survey was conducted concurrent with the first burrowing owl survey on March 4, 2020. The additional burrowing owl surveys were conducted on March 6, 2020 and April 1 and 3, 2020. Rincon Biologist, Amy Leigh Trost, walked the entire study area to identify potential burrows and burrowing owl sign. Access to adjacent properties was not granted. Therefore, these areas were surveyed with binoculars to the maximum extent feasible from the edge of the project site. The survey included a systematic search for burrows and burrowing owl sign by walking through potential habitat within the study area. Survey transects were spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines did not exceed 30 meters (approximately 100 feet) and were reduced to account for differences in terrain, vegetation density, and ground surface visibility. Burrow openings large enough to provide entry for burrowing owls were carefully checked for prey remains, cast pellets, white-wash, feathers, or any other indication of burrowing owl presence. Potential burrows, burrowing owl individuals, and/or sign (if observed) were recorded and mapped using Global Positioning System (GPS) coordinates. All surveys were conducted during the time of day and weather conditions that are conducive to observing burrowing owls outside their burrows and detecting burrowing owl sign.

2.5 Narrow Endemic Plant Species Survey

Due to the presence of marginally suitable low-quality non-native grassland habitat, a focused survey for Narrow Endemic Plant Species was conducted on March 7, 2020. Rincon Botanist, Clarissa Rodriguez, conducted the survey during the blooming period for the target species in accordance with Section 6.1.3 of the MSHCP. The Narrow Endemic Plant Species survey was only required in the southern parcel (APN 129-380-010) per the RCA MSHCP Information Tool. The survey was conducted using systematic field techniques by walking meandering transects through the entire study area. Special attention was given to areas with a high potential to support rare plant species (e.g., relatively undisturbed vegetation communities), if present.

3 Existing Conditions

This section provides a brief discussion of the existing conditions observed on site. Site photographs are located in Appendix B. The study area is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 65 to 96 °F during the summer and 41 to 65 °F during the winter. The average annual precipitation in the region is 6 to 11 inches (United States Climate Data 2020).

3.1 Land Use

The project site is mostly disturbed and developed. The easternmost portion of the project site, at the very southwest corner of the Third Street and Hamner Avenue intersection, is currently in use as a RV sales lot (Norco RV Center located at 2350 Hamner Avenue). The remainder of the project site contains remnants of old foundations with evidence of previous grading and development, but no remaining intact structures are present. The project site is mostly vegetated by non-native forbs and grasses with a few scattered trees and exhibits signs of regular mowing.

3.2 Watershed and Drainages

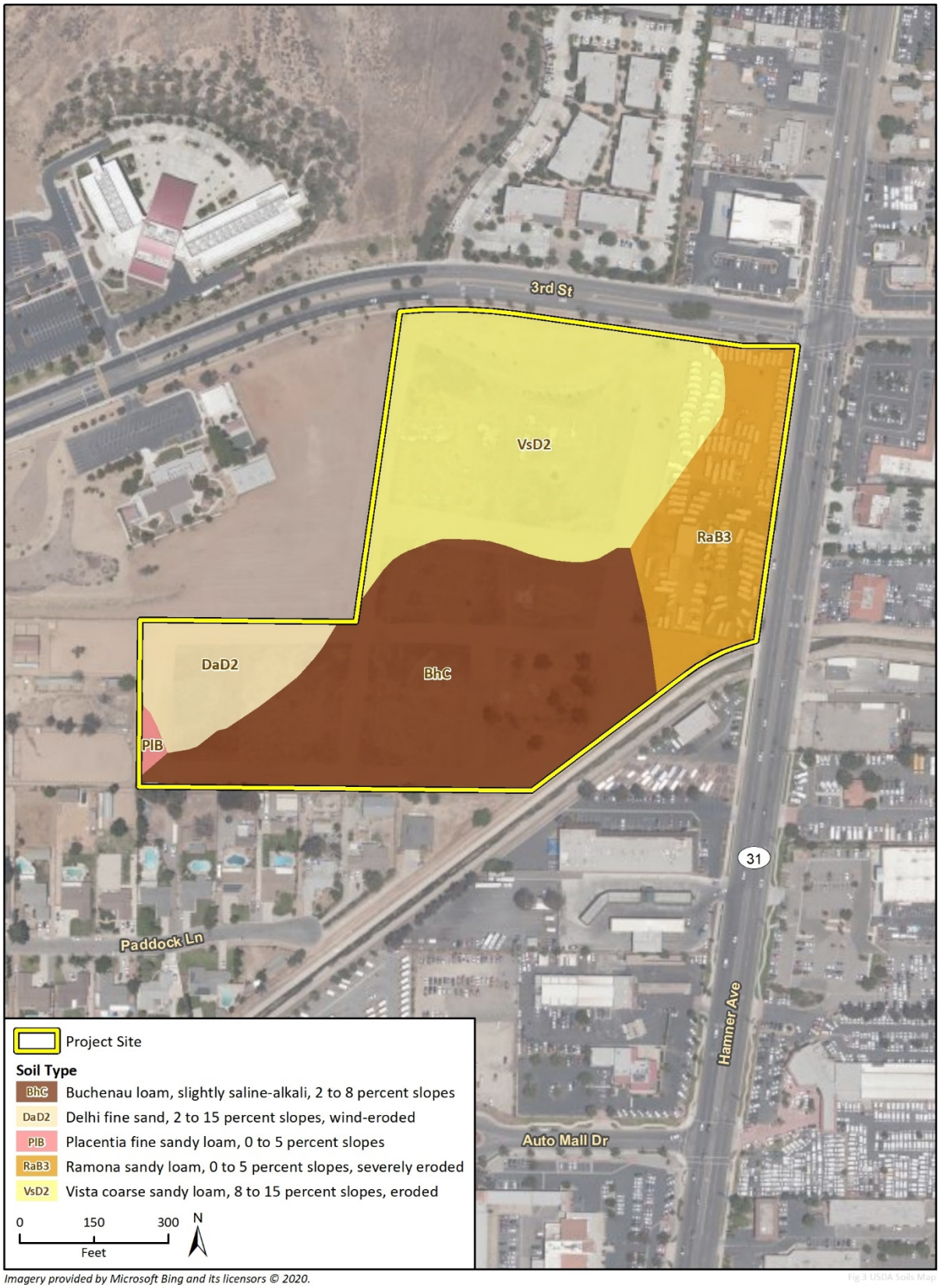
The study area is within the approximate 2,650-square mile Santa Ana River Watershed. The Santa Ana River Watershed spans from portions of the San Jacinto Mountains, San Bernardino Mountains, San Gabriel Mountains, and Santa Ana Mountains, to the cities of Rialto, Lake Elsinore, Anaheim, Huntington Beach, and Irvine. Two major rivers drain the Santa Ana River watershed: the Santa Ana River and the San Jacinto River. No potentially jurisdictional features were observed on site. A concrete-lined channel is located adjacent to the project site on the south side. It is separated from the project site by a chain-link fence. A formal jurisdictional delineation of waters and wetlands was not completed as the project is not proposed to be located within potentially jurisdictional features.

3.3 Topography and Soils

The project site primarily consists of previously developed vacant land that is regularly disturbed by mowing. A large mound is present in the center of the project site with a cement foundation at the top. The remainder of the site is generally flat. Elevations on site range from 600 to 640 feet above mean sea level (msl).

The Natural Resources Conservation Service (NRCS) Web Soil Survey identifies five soil map units in the project site (Figure 3)(USDA 2020). Based on Rincon's observations of soil surface conditions during the reconnaissance survey, the soils on site are generally consistent with those mapped by the NRCS Web Soil Survey. None of the soils that occur within the project site are designated as hydric (USDA 2020). The descriptions of the soil map units are presented below.

Figure 3 USDA Soils Map



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3.3.1 Buchenau Soils

The Buchenau soil series has very dark gray, moderately alkaline, calcareous medium textured A horizons and grayish brown, moderately alkaline and calcareous, medium to moderately fine B2 horizons that overlie a strongly lime cemented hardpan at moderate depth. The Buchenau soils occur on small alluvial fans formed from metasedimentary rocks. They occur at elevations of less than 300 feet to 1,500 feet in a subhumid mesothermal climate with mean annual rainfall of 12 to 15 inches with hot dry summers and cool winters. They are typically used for annual grass pasture and dry farmed grain. Vegetation in this soil series usually consists of saltgrass and annual grasses, forbs, and weeds.

3.3.2 Delhi Soils

The Delhi soil series consists of very deep, somewhat excessively drained soils formed in wind modified material weathered from granitic rock sources. Delhi soils are usually found on floodplains, alluvial fans, and terraces with slopes of 0 to 15 percent. This soil series is commonly used for growing grapes, peaches, truck crops, alfalfa and for homesites. Principal native plants are buckwheat and a few shrubs and trees, though typical vegetation consists of annual grasses and forbs.

3.3.3 Placentia Soils

The Placentia soil series consists of moderately well drained soils that formed in alluvium from granite and other rocks of similar composition and texture. Placentia soils are nearly level to moderately sloping and are found on fans and terraces at elevations of 50 to 2,500 feet. These soils are used for the production of citrus, truck crops, small grain, hay, and forage. Vegetation in uncultivated areas typically consists of annual grasses and forbs.

3.3.4 Ramona Soils

The Ramona soil series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs. The Ramona soils are nearly level to moderately steep. They are typically found on terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium derived mostly from granitic and related rock sources. This soil series is well drained with slow to rapid runoff and moderately slow permeability. They are most frequently used for production of grain, grain-hay, pasture, irrigated citrus, olives, truck crops, and deciduous fruits. Uncultivated areas generally have a cover of annual grasses, forbs, chamise or chaparral.

3.3.5 Vista Soils

The Vista series consists of moderately deep, well drained soils that formed in material weathered from decomposed granitic rocks. Vista soils are typically found on hills and mountainous uplands with slopes of 2 to 85 percent. They are well drained with slow to rapid runoff and moderately rapid permeability. Under irrigation, avocados and citrus are grown in areas of favorable temperature. A few small areas are used for growing winter truck crops. On areas of moderate relief, grain and hay are grown without irrigation. Range is a common use in areas that are not cultivated. The natural vegetation generally consists of annual grasses and forbs and shrubs such as California sagebrush, scrub oak, lilac, chamise, sumac, and flattop buckwheat.

3.4 Vegetation Communities/Land Cover Types

Two land cover types occur within the study area: disturbed non-native grassland and developed (Figure 4). A list of plant species observed within the study area is included as Appendix C.

3.4.1 Disturbed Non-Native Grassland (42200)

Disturbed non-native grassland is the only vegetation community found within the project site. This community is typically dominated by a dense cover of annual grasses that usually include wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). Disturbed habitats are areas which have been significantly modified by human activity. On the project site, disturbed non-native grassland areas are composed mostly of redstem stork's bill (*Erodium circutarium*) and common fiddleneck (*Amsinckia intermedia*) as well as old concrete foundations. Disturbed non-native grassland covers the entire site outside of the RV lot. Scattered emergent trees are also present within this vegetation community including Italian cypress (*Cupressus sempervirens*), Russian olive (*Elaeagnus angustifolia*), red gum (*Eucalyptus camaldulensis*), coast live oak (*Quercus agrifolia*), Peruvian pepper tree (*Schinus mole*), and Mexican fan palm (*Washingtonia robusta*). This vegetation community covers 15.97 acres and constitutes approximately 84% of the project site.

3.4.2 Developed

Developed land cover includes the RV lot that occurs within the northeast corner of the project site. Developed areas have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. This land cover type covers 3.13 acres and constitutes approximately 16% of the project site.

3.5 General Wildlife

The study area provides limited habitat for wildlife species that commonly occur within urban communities in Riverside County. Common urban-adapted avian species such as Say's phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), Eurasian collared-dove (*Streptopelia decaocto*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), California gull (*Larus californicus*), killdeer (*Charadrius vociferus*), song sparrow (*Melospiza melodia*), and yellow-rumped warbler (*Setophaga coronata*) were observed on site during the survey. Botta's pocket gopher (*Thomomys bottae*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Otospermophilus beecheyi*) were the only mammals detected within the study area. Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed within the study area. Sensitive species with potential to occur within the study area are discussed in Section 4.

Figure 4 Vegetation Communities Map

4 Western Riverside County MSHCP Consistency Analysis

4.1 MSHCP Requirements

The MSHCP establishes habitat assessment requirements for certain species of plants, birds, mammals, and amphibians. The proposed project is located within the Eastvale Area Plan. It is not located within a Cell Group or Criteria Cell. The study area does not occur within any required amphibian and mammal habitat assessment areas, but it does occur within required burrowing owl and Narrow Endemic Plant Species habitat assessment areas (Appendix A).

This habitat assessment addresses the potential for sensitive biological resources covered by the MSHCP to occur within the study area. The habitat assessment addresses the presence/absence of riparian/riverine areas and vernal pools in the study area, includes an urban/wildlands interface analysis, and identifies any migratory corridors and linkages located on or in the vicinity of the study area.

4.2 Habitat Assessment

4.2.1 Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat

Section 6.1.2 of the MSHCP describes the process to protect species associated with riparian/riverine areas and vernal pools. As defined in the MSHCP, riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source or areas that contain a freshwater flow during all or a portion of the year. These areas may support one or more species listed in Section 6.1.2 of the MSHCP. Vernal pools are seasonal wetlands that occur in depressions, typically have wetland indicators that represent all three parameters (soils, vegetation, and hydrology), and are defined based on vernal pool indicator plant species during the wetter portion of the growing season but normally lack wetland indicators associated with vegetation and/or hydrology during the drier portion of the growing season.

Based upon the findings of Rincon's reconnaissance survey, no riparian/riverine habitat is present within the project site. The project site is heavily disturbed due to past agricultural uses and is comprised of unvegetated developed areas and disturbed non-native grasslands dominated by exotic upland species not conducive to supporting riparian/riverine habitat. The proposed project would be confined to the existing developed and disturbed non-native grassland areas. No riparian/riverine habitat occurs within the proposed project site; and therefore, no further actions related to riparian/riverine habitat are required pursuant to the MSHCP. A concrete-lined channel borders the project site to the southeast. The channel and is separated from the project site by a chain-link fence and would not be impacted by the proposed project.

No potential vernal pools or fairy shrimp habitat were observed within the project site. The project site is underlain by moderately well drained soils and no areas of ponding or evidence of standing water were observed during the field reconnaissance survey. In addition, areas within the study

area are heavily disturbed due to past agricultural uses and are comprised of unvegetated developed areas and disturbed non-native grasslands dominated by exotic upland species not conducive to supporting vernal pools or vernal pool species. The proposed project would be confined to the existing developed and non-native grassland areas. No vernal pool or fairy shrimp habitat occurs within the proposed project site; and therefore, no further actions related to vernal pools are required pursuant to the MSHCP.

Additionally, based on review of aerial imagery, online data (USFWS 2020b), and the reconnaissance survey, no features subject to the jurisdiction of the United States Army Corps of Engineers, Regional Water Quality Control Board, or CDFW are located within the project site. A project-specific hydrology and drainage study was completed by Fuscoe Engineering, Inc. in April 2020, which assessed the efficacy of proposed on site drainage facilities that would be installed as part of the proposed project to prevent indirect impacts to the adjacent concrete-lined channel.

4.2.2 Burrowing Owl

Burrowing owls are small crepuscular (active primarily during dusk and dawn) owls that typically modify and use burrows made by fossorial (adapted for burrowing or digging) mammals, such as California ground squirrels or American badgers (*Taxidea taxus*). Burrowing owls use a variety of natural and modified habitats for nesting and foraging, typically characterized by low growing vegetation. Burrowing owl habitat includes, but is not limited to, native and non-native grassland, interstitial grassland within shrub lands, shrub lands with low density shrub cover, golf-courses, drainage ditches, unpaved airfields, pastureland, dairies, fallow fields, and agricultural use areas. They also often utilize manmade structures, such as earthen berms; cement culverts; cement, asphalt, rock, or wood debris piles; or openings beneath cement or asphalt pavement. Reasons for their decline include habitat destruction, insecticide poisoning, rodenticide (particularly squirrel eradication), and shooting.

The burrowing owl habitat assessment occurred concurrently with the January 31 field reconnaissance survey. This assessment involved walking through potentially suitable habitat within the study area to achieve 100 percent visual coverage of the ground surface. Areas of particular interest included all topographic relief areas characterized by low growing vegetation, grasslands, shrub lands with low density shrub cover, earthen berms, and any large debris piles. Potential burrows, burrowing owl individuals, and/or sign (if observed) were recorded and mapped using GPS coordinates.

The focused burrow survey was conducted concurrently with the first burrowing owl survey on March 4, 2020. Subsequent focused burrowing owl surveys were conducted on March 6, and April 1 and 3, 2020. The site was tilled between the third survey on April 1, 2020 and the fourth survey on April 3, 2020 pursuant to weed abatement requirements per the City of Norco Municipal Code Article 9.40.020 (*Duty of owner to abate*). Conditions during the surveys are included in Table 1 and small mammal burrows identified are shown in Figure 5.

Table 1 Burrowing Owl Survey Dates and Conditions

Survey #	Surveyor	Date	Time	Temperature (F)	Wind Speed (mph)	Cloud Cover (%)
Survey #1	Amy Leigh Trost	March 4, 2020	0635-0750	52-57	1-5	5-10
Survey #2	Amy Leigh Trost	March 6, 2020	0705-0805	51-57	0-5	10-20
Survey #3	Amy Leigh Trost	April 1, 2020	0700-0800	52-55	1-7	0-10
Survey #4	Amy Leigh Trost	April 3, 2020	0705-0805	52-57	0-5	0-10

In total, eight small mammal burrow sites were recorded within the project site; however, no sign of burrowing owl was observed anywhere within the study area. The eight small mammal burrow sites consisted of Botta's pocket gopher burrows located on the central mound and California ground squirrel burrows along the southern border of the project site.

Pursuant to MSHCP requirements, pre-construction surveys are required on all project sites containing burrows or suitable habitat whether owls were found or not, within 30 days prior to ground disturbance to avoid direct take of burrowing owl. If burrowing owl(s) are found, buffers for occupied burrows shall be established at approximately 500 feet during the breeding season (February 1 to August 31) and at approximately 150 feet for the non-breeding season. These buffers may be adjusted in consultation with the RCA and monitored at the discretion of a qualified biologist. The buffer zone would be clearly marked with flagging and/or construction fencing.

If an occupied burrow cannot be avoided and the burrowing owl(s) must be moved, passive relocation techniques shall be implemented. Passive relocation includes encouraging owls to move from occupied burrows to alternate natural burrows outside of the 500-foot buffer. The MSHCP and CDFW guidance indicates that passive relocation must be conducted between September 1 and February 1 (CDFW 2012). Occupied burrows shall not be disturbed during the breeding season.

If work is delayed (does not occur within 30 days of the initial pre-construction survey) or if project activities are halted for 30 days or more, additional pre-construction burrowing owl surveys may be required.

Figure 5 Small Mammal Burrows

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4.2.3 Narrow Endemic Plant Species

The southern portion of the project site lies within the required habitat assessment area for three Narrow Endemic Plant Species: San Diego ambrosia, Brand's phacelia, and San Miguel savory. Table 2 depicts the Narrow Endemic Plant Species' individual attributes and habitat affinities that must be addressed during habitat suitability assessments (Riverside County 2003). The study area is heavily disturbed due to past agricultural uses and is dominated by disturbed non-native grasslands. The site does not contain habitat types necessary to support Narrow Endemic Plant Species (e.g., floodplain terraces, vernal pools, alkali playas, sandy washes, alluvial floodplains, coastal sagescrub, chaparral, cismontane woodland, riparian woodland). However, due to the presence of marginally suitable non-native grassland habitat, a focused survey for Narrow Endemic Plant Species was conducted on March 7, 2020 during the blooming period for the target species in accordance with Section 6.1.3 of the MSHCP. No Narrow Endemic Plant Species were observed within the project site or study area.

Table 2 Narrow Endemic Plant Species Attributes and Habitat Affinities

Common Name	Annual/ Perennial	Habitat	Soils	Blooming Period	Special Considerations
San Diego ambrosia (*Ambrosia pumila*)	Perennial	Open floodplain terraces or on the watershed margins of vernal pools. This species occurs in a variety of associations dominated by sparse non-native grasslands or ruderal habitat in association with river terraces, vernal pools, and alkali playas.	Garretson gravelly fine sandy loams when in association with floodplains, and on Las Posas loam near silty, alkaline soils of the Willow series	Appears to be primarily a clonal species that does not, under current conditions, favor sexual reproduction	A portion of San Diego ambrosia populations remain dormant in dry years, and because of its vegetative similarity with other Ambrosia spp., it is difficult to inventory in terms of identification, number of individuals, and true spatial extent of populations. Additional multi-year surveys are usually necessary to determine presence or absence of the species in superficially suitable habitats.
Brand's phacelia (*Phacelia stellaris*)	Annual	Sandy washes and/or benches in alluvial flood plains.	Sandy soils	March – June	This species is generally dependent on periodic flooding and sediment transport. Population size may vary from year to year depending upon rainfall.
San Miguel savory (Santa Rosa Plateau, Steele Rock) (*Satureja chandleri*)	Perennial	Coastal sage scrub, chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands.	Rocky, gabbroic, and metavolcanic substrates.	March – May	None

4.3 Urban/Wildlands Interface Guidelines

According to Section 6.1.4 of the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area. The study area is not within or adjacent to a conservation area; therefore, the Urban/Wildlife Interface Guidelines are not applicable. The closest conservation area is located approximately 1.65 miles northwest of the study area and is separated from the project site by residential and commercial developments, and the Naval Surface Warfare Center Corona. The proposed project would be confined to the existing developed and non-native grassland areas. The project site is isolated from urban/wildlands interfaces and would not significantly affect potential conservation lands. Therefore, no further actions related to urban/wildlands interface guidelines are required pursuant to the MSHCP.

Additionally, the project site is not located within a mapped wildlife movement corridor according to the BIOS (CDFW 2020b). Due to the surrounding development and lack of native vegetation communities on site, the project site is not expected to serve as a significant migratory wildlife corridor.

4.4 MSHCP Consistency

With implementation of a pre-construction survey for burrowing owl the proposed project would be consistent with the MSHCP.

5 CEQA Considerations

This section addresses biological resources required to be analyzed under CEQA which are not discussed in the MSHCP analysis above.

5.1 Nesting Birds

California Fish and Game Code 3503 (CFGC) and the Migratory Bird Treaty Act (MBTA) protect native birds and their nests from direct take. The project site contains vegetation suitable for nesting birds and the adjacent properties contain ornamental landscaping that may provide suitable nesting habitat for several avian species. No nesting birds or nesting behavior was observed during the habitat assessment.

5.2 Resources Protected by Local Policies and Ordinances

The City of Norco Municipal Code (Article 12.12.025) restricts the removal of trees planted in the public right-of-way but does not have any policies or ordinances which prevent the removal of trees on private property. The existing street trees along Third Street would remain in place; no public right-of-way street trees are anticipated to be removed as part of the project. However, if the project would result in removal of trees within the public right-of-way, coordination and cooperation with the City may be required and permits for tree removal may need to be obtained.

6 Recommendations

This section discusses the possible adverse impacts to biological resources that may occur from implementation of the proposed project and recommends avoidance, minimization, and mitigation measures that would reduce those impacts.

6.1 Burrowing Owl

Development of the project site generally presents a very low risk to burrowing owl due to the disturbed condition of the site and regular tilling. Due to the overall disturbed nature of the site and the lack of native habitat surrounding the site, the project site only contains marginally suitable low-quality habitat for burrowing owl. No burrowing owls were detected during the focused surveys; however, a pre-construction burrowing owl survey is required under the MSHCP. Implementation of the following recommended measures would assure avoidance and/or minimization of potential impacts to burrowing owls:

- **Burrowing Owl Pre-construction Clearance Survey.** A qualified wildlife biologist shall conduct a pre-construction survey of the impact areas to confirm presence/absence of burrowing owl individuals no more than 30 days prior to construction. The survey methodology will be consistent with the methods outlined in the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (Riverside County 2005). If burrowing owls are detected on site, they shall be avoided or passively relocated in accordance with the CDFW *Staff Report on Burrowing Owl Mitigation* (2012).

6.2 Nesting Birds

The project could adversely affect protected, native nesting birds if construction occurs while they are present on or adjacent to the site through direct mortality or abandonment of nests. The loss of a nest due to construction activities would be a violation of the CFGC. Implementation of the following recommended measure would help assure avoidance and/or minimization of potential impacts to nesting birds and raptors:

- **Pre-construction Nesting Bird Survey.** If project activities must occur during the avian nesting season (February to September), a survey for active nests must be conducted by a qualified biologist, one to two weeks prior to the activities. If active nests are identified and present on site, clearing and construction within 50-250 feet of the nest, depending on the species involved (50 feet for common urban-adapted native birds and up to 250 feet for raptors), shall be postponed until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest site shall be established in the field by a qualified biologist with flagging and stakes or construction fencing. Construction personnel shall be instructed regarding the ecological sensitivity of the fenced area. If construction must occur within this buffer, it shall be conducted at the discretion of a qualified biological monitor to assure that indirect impacts to nesting birds are avoided.

6.3 Resources Protected by Local Policies and Ordinances

The project could result in the removal of trees within the public right-of-way which are protected under the City of Norco Municipal Code (Article 12.12.025). Implementation of the following recommended measure would help assure avoidance and/or minimization of potential impacts to protected trees:

- Prior to cutting, damaging, or destroying any tree within the public right-of way, the applicant shall coordinate with the City of Norco Public Works Department pursuant to the City of Norco Municipal Code.

7 Limitations, Assumptions, and Use Reliance

An MSHCP consistency analysis and habitat assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Additionally, plants may not be identifiable outside the normal blooming period and it may not be possible to detect them during surveys. Plants could also become present if environmental conditions change, such as rain events, and dormant individual blooms. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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9 Certification and List of Preparers

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: April 15, 2019 Signed:

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Narrow Endemic Plant Species Survey

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Appendix A

RCA MSHCP Information Tool Summary Report

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

APN	Cell	Cell Group	Acres[1]	Area Plan	Subunit
126050002	None	None	7.94	Eastvale Area Plan	None
126050004	None	None	8.22	Eastvale Area Plan	None
129380010	None	None	2.26	Eastvale Area Plan	None

[1] Acreages provided by the County of Riverside APN search do not match acreages calculated based on updated mapping coordinate systems.

Habitat Assessments

Habitat assessment shall be required and should address at a minimum potential habitat for the following species:

APN	Amphibian Species	Burrowing Owl	Criteria Area Species	Mammalian Species	Narrow Endemic Plant Species	Special Linkage Area
126050002	No	**Yes**	No	No	No	No
126050004	No	**Yes**	No	No	No	No
129380010	No	**Yes**	No	No	**Yes**	No

Criteria Area Species

The project site is not in a criteria area species study area.

Background

The final MSHCP was approved by the County Board of Supervisors on June 17, 2003. The federal and state permits were issued on June 22, 2004 and implementation of the MSHCP began on June 23, 2004.

For more information concerning the MSHCP, contact your local city or the County of Riverside for the unincorporated areas. Additionally, the Western Riverside County Regional Conservation Authority (RCA), which oversees all the cities and County implementation of the MSHCP, can be reached at:

Western Riverside County Regional Conservation Authority
3403 10th Street, Suite 320
Riverside, California 92501
Phone: (951) 955-9700
Fax: (951) 955-8873
www.wrc-rca.org

Introduction

As urbanization has increased within western Riverside County, state and federal regulations have required that public and private developers obtain “Take permits” from Wildlife Agencies for impacts to endangered, threatened, and rare species and their Habitats. This process, however, has resulted in costly delays in public and private Development projects and an assemblage of

unconnected Habitat areas designated on a project-by-project basis. This piecemeal and uncoordinated effort to mitigate the effects of Development does not sustain wildlife mobility, genetic flow, or ecosystem health, which require large, interconnected natural areas.

A variety of capitalized terms are used in this report. Definitions for those terms are provided at the end of this report.

The MSHCP is a criteria-based plan, focused on preserving individual species through Habitat conservation. The MSHCP is one element of the Riverside County Integrated Project (RCIP), a comprehensive regional planning effort begun in 1999. The purpose of the RCIP is to integrate all aspects of land use, transportation, and conservation planning and implementation in order to develop a comprehensive vision for the future of the County. The overall goal of the MSHCP is rooted in the RCIP Vision Statement and supporting policy directives. The MSHCP will enhance maintenance of biological diversity and ecosystem processes while allowing future economic growth. Preserving a quality of life characterized by well-managed and well-planned growth integrated with an open-space system is a component of the RCIP vision. The MSHCP proposes to conserve approximately 500,000 acres and 146 different species. Approximately 347,000 acres are anticipated to be conserved on existing Public/Quasi-Public Lands, with additional contributions on approximately 153,000 acres from willing sellers. The overall goal of the MSHCP can be supported by the following:

- **Biological Goal:** In the MSHCP Plan Area, conserve Covered Species and their Habitats.
- **Economic Goal:** Improve the future economic development in the County by providing an efficient, streamlined regulatory process through which Development can proceed in an efficient way. The MSHCP and the General Plan will provide the County with a clearly articulated blueprint describing where future Development should and should not occur.
- **Social Goal:** Provide for permanent open space, community edges, and recreational opportunities, which contribute to maintaining the community character of Western Riverside County.

This report has been generated to summarize the guidance in the MSHCP Plan that pertains to this property. Guidelines have been incorporated in the MSHCP Plan to allow applicants to evaluate the application of the MSHCP Criteria within specific locations in the MSHCP Plan Area. Guidance is provided through Area Plan Subunits, Cell Criteria, Cores and Linkages and identification of survey requirements. The guidance and Criteria incorporate flexibility at a variety of levels. The information within this report is composed of three parts: a summary table, Reserve Assembly guidance and survey requirements within the MSHCP Plan Area. The summary table provides specific information on this property to help determine whether it is located within the MSHCP Criteria Area or any study areas. The Reserve Assembly guidance provides direction on assembly of the MSHCP Conservation Area if the property is within the Criteria Area. The survey requirements section describes the surveys that must be conducted on the property if Habitat is present for certain identified species within the Criteria Area or mapped study areas.

Reserve Assembly Guidance Within the Criteria Area

The Reserve Assembly guidance only pertains to properties that are within the Criteria Area. Please check the summary table to determine whether this property is within the Criteria Area. If it is located inside of the Criteria Area, please read both this section and the section about survey

requirements within the MSHCP Plan Area. If the property is located outside the Criteria Area, only read the survey requirements within the MSHCP Plan Area section.

The Area Plan Subunits, Cell Criteria and Cores and Linkages provide guidance on assembly of the MSHCP Conservation Area. The Area Plan Subunits section lists Planning Species and Biological Issues and Considerations that are important to Reserve Assembly within a specific Area Plan Subunit. The Cell Criteria identify applicable Cores or Linkages and describe the focus of desired conservation within a particular Cell or Cell Group. Cores and Linkages guidance includes dimensional data and biological considerations within each identified Core or Linkage.

The following is the Area Plan text and Cell Criteria that pertains specifically to this property. The Area Plan text includes the target acreage for conservation within the entire Area Plan, identification of Cores and Linkages within the entire Area Plan and Area Plan Subunit Planning Species and Biological Issues and Considerations. It is important to keep in mind that the Area Plan Subunits, Cell Criteria and Cores and Linkages are drafted to provide guidance for a geographic area that is much larger than an individual property. The guidance is intended to provide context for an individual property and, therefore, all of the guidance and Criteria do not apply to each individual property. 949-351-5055

Eastvale Area Plan

This section identifies target acreages, applicable Cores and Linkages, Area Plan Subunits and Criteria for the Eastvale Area Plan. For a summary of the methodology and map resources used to develop the target acreages and Criteria for the MSHCP Conservation Area, including this Area Plan, see Section 3.3.1.

Target Acreages

The target conservation acreage for the Eastvale Area Plan is 1,040 - 1,185 acres; it is composed of approximately 895 acres of existing Public/Quasi-Public Lands and 145 - 290 acres of Additional Reserve Lands.

Applicable Cores and Linkages

The MSHCP Conservation Area comprises a variety of existing and proposed Cores, Linkages, Constrained Linkages and Noncontiguous Habitat Blocks (referred to here as “Cores and Linkages”). For descriptions of these Cores and Linkages and more information about the biologically meaningful elements of the MSHCP Conservation Area within the Eastvale Area Plan, see Section 3.2.3 and MSHCP Volume II, Section A.

Cores and Linkages Within the Eastvale Area Plan

- Contains a small portion of Existing Core A

Descriptions of Planning Species, Biological Issues and Considerations and Criteria for each Area Plan Subunit within the Eastvale Area Plan are presented later in this section. These descriptions, combined with the descriptions of the Cores and Linkages referred to above, provide information about biological issues to be considered in conjunction with Reserve Assembly within the Eastvale Area Plan. As noted in Section 3.1, the Area Plan boundaries established as part of the Riverside County General Plan were selected to provide an organizational framework for the Area Plan Subunits and Criteria. While these boundaries are not biologically based, unlike the Cores and

Linkages, they relate specifically to General Plan boundaries and the jurisdictional boundaries of incorporated Cities and were selected to facilitate implementation of the MSHCP in the context of existing institutional and planning boundaries.

Area Plan Subunits

The Eastvale Area Plan contains one Subunit. Target conservation acreages for this Subunit are established, as are a description of the Planning Species, Biological Issues and Considerations, and Criteria for this Subunit. For more information regarding specific conservation objectives for the Planning Species, see Section 9.0. Subunit boundaries are depicted on the Cells and Cell Groupings map displays (Figures 3-4 and 3-5). Table 3-3 presents the Criteria for the Eastvale Area Plan.

Surveys Within the MSHCP Plan Area

Of the 146 species covered by the MSHCP, no surveys will be required by applicants for public and private projects for 106 of these Covered Species. Covered Species for which surveys may be required by applicants for public and private Development projects include 4 birds, 3 mammals, 3 amphibians, 3 crustaceans, 14 Narrow Endemic Plants, and 13 other sensitive plants within the Criteria Area. Of these 40 species, study area maps are provided for 34 species, and surveys will be undertaken within suitable Habitat areas in locations identified on these maps in the MSHCP Plan. The remaining six species are associated with riparian/riverine areas and vernal pools and include least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Riverside fairy shrimp, Santa Rosa Plateau fairy shrimp, and vernal pool fairy shrimp. Although there are no study area maps for these six species, surveys for these species, if necessary, will be undertaken as described below. It is the goal of the MSHCP to provide for conservation of Covered Species within the approximately 500,000-acre MSHCP Conservation Area (comprised of approximately 347,000 acres of existing Public/Quasi-Public Lands and 153,000 acres of new conservation on private lands). Conservation that may be identified to be desirable as a result of survey findings is not intended to increase the overall 500,000 acres of conservation anticipated under the MSHCP. Please refer to Section 6.0 of the MSHCP Plan, Volume I for more specific information regarding species survey requirements.

As projects are proposed within the MSHCP Plan Area, an assessment of the potentially significant effects of those projects on riparian/riverine areas and vernal pools will be performed as currently required by the California Environmental Quality Act (CEQA) using available information augmented by project-specific mapping. If the mapping identifies suitable habitat for any of the six species associated with riparian/riverine areas and vernal pools listed above and the proposed project design does not incorporate avoidance of the identified habitat, focused surveys for these six species will be conducted, and avoidance and minimization measures will be implemented in accordance with the species-specific objectives for these species. For more specific information regarding survey requirements for species associated with riparian/riverine areas and vernal pools, please refer to Section 6.1.2 of the MSHCP Plan, Volume I.

Habitat conservation is based on the particular Habitat requirements of each species as well as the known distribution data for each species. The existing MSHCP database does not, however, provide the level of detail sufficient to determine the extent of the presence or distribution of Narrow Endemic Plant Species within the MSHCP Plan Area. Since conservation planning decisions for these plant species will have a substantial effect on their status, additional information regarding the presence of these plant species must be gathered during the long-term implementation of the MSHCP to ensure that appropriate conservation of the Narrow Endemic Plants occurs. For more

specific information regarding survey requirements for Narrow Endemic Plants, please refer to Section 6.1.3 of the MSHCP Plan, Volume I.

In addition to the Narrow Endemic Plant Species, additional surveys may be needed for certain species in conjunction with Plan implementation in order to achieve coverage for these species. The MSHCP must meet the Federal Endangered Species Act issuance criteria for Habitat Conservation Plans (HCP) which require, among other things, that the HCP disclose the impacts likely to result from the proposed Taking, and measures the applicant will undertake to avoid, minimize, and mitigate such impacts. For these species in which coverage is sought under the MSHCP, existing available information is not sufficient to make findings necessary to satisfy these issuance criteria for Take authorization. Survey requirements are incorporated in the MSHCP to provide the level of information necessary to receive coverage for these species in the MSHCP.

Efforts have been made prior to approval of the MSHCP and will be made during the early baseline studies to be conducted as part of the MSHCP management and monitoring efforts to collect as much information as possible regarding the species requiring additional surveys. As data are collected and conclusions can be made regarding the presence of occupied Habitat within the MSHCP Conservation Area for these species, it is anticipated that survey requirements may be modified or waived. Please refer to Sections 6.1.3 and 6.3.2 of the MSHCP Plan, Volume I for more specific information regarding survey requirements.

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Appendix B

Site Photographs

Photograph 1. RV park at northeast corner of project site, facing east.

Photograph 2. Northeast corner of project site, west of RV park, facing south.

Photograph 3. Old concrete foundation within the project site, facing west.

Photograph 4. Old concrete foundation on top of central mound, facing north.

Photograph 5. Concrete-lined channel south of the project site, facing southwest. Channel is separated from site by an existing chain-link fence.

Photograph 6. Small mammal burrow complex #6, facing west.

Photograph 7. Small mammal burrow complex #7, facing north.

Photograph 8. Small mammal burrow complex #8, facing east.

Photograph 9. Northwest corner of the project site, facing south.

Photograph 10. Emergent trees within non-native grassland in northwest corner of the project site, facing east.

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Appendix C

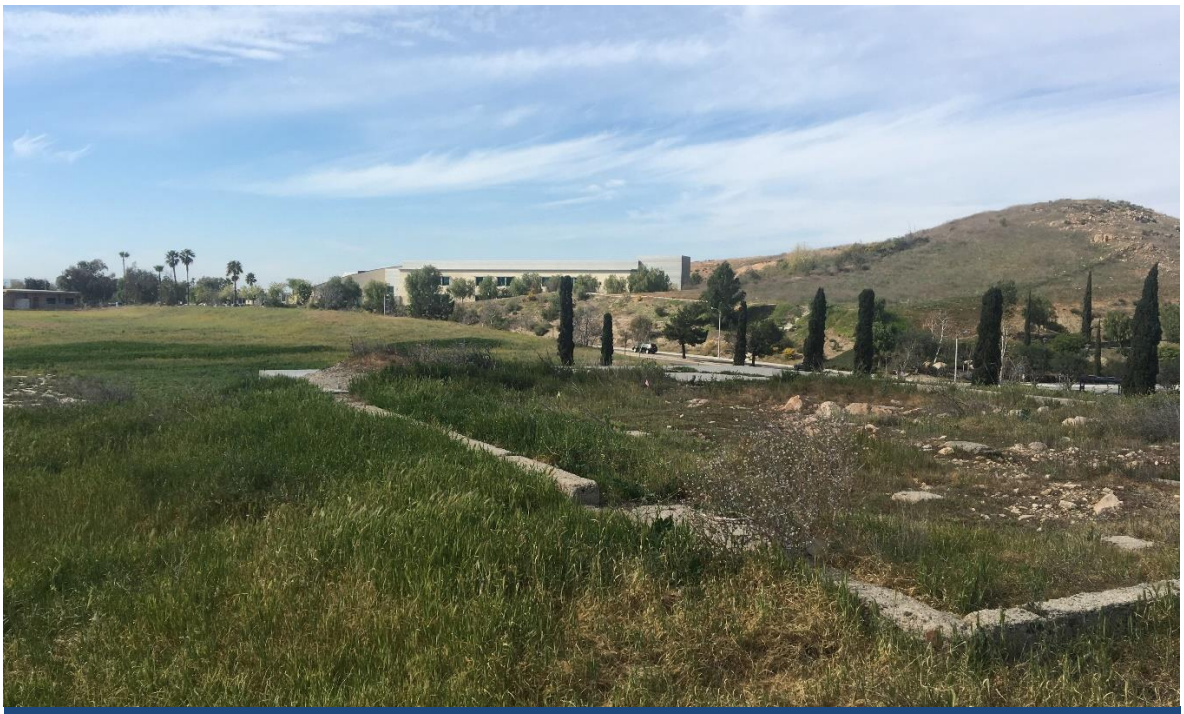
Observed Plant Species List

Observed Plant Species List

Scientific Name	Common Name	Status
Trees		
Cupressus sempervirens	Italian cypress	None
Elaeagnus angustifolia	Russian olive	None
Eucalyptus camaldulensis	red gum	None
Quercus agrifolia	coast live oak	None
Schinus molle	Peruvian pepper tree	None
Washingtonia robusta	Mexican fan palm	None
Herbs		
Amsinckia menziesii	Menzies' fiddleneck	None
Amsinckia intermedia	common fiddleneck	None
Brassica nigra	black mustard	None
Cylindropuntia sp.	cholla species	None
Erodium cicutarium	redstem stork's bill	None
Helianthus annuus	hairy leaved sunflower	None
Heterotheca grandiflora	telegraph weed	None
Lasthenia sp.	goldfields	None
Lupinus bicolor	lupine	None
Malva parviflora	cheeseweed	None
Sisymbrium irio	London rocket	None
Solanum sp.	nightshade species	None
Urtica urens	annual stinging nettle	None
Verbesina encelioides	golden crownbeard	None
Grasses		
Avena fatua	wild oat	None
Bromus diandrus	ripgut brome	None
Bromus madritensis	red brome	None
Hordeum murinum	foxtail barley	None
Schismus barbatus	old han schismus	None

Appendix E

Cultural Resources Assessment Report



Norco Valley Square Project

Cultural Resources Assessment Report

prepared for

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March 2020

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Appendix A: Records Search Results

Appendix B: Sacred Lands File Search Results

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Executive Summary

Frontier Enterprises retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Norco Valley Square Project (project) in the city of Norco, Riverside County, California. This study has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines as part of the City's CEQA process.

The current study includes a Phase I cultural resources investigation inclusive of a cultural resources records search, Native American outreach, and field survey resulting in the recordation and evaluation of one archaeological resource: historic period foundations/concrete pads. Research completed under the current study concluded the resource does not possess significant historical associations and is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) under all four criteria (A-D/1-4); as such it is not a historical resource and its demolition would not result in a significant adverse impact under CEQA. The background research and field survey completed by Rincon also concluded there are no other known archaeological or built environment resources in the project site. Based on the results of the cultural resources assessment, Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA. No further cultural resources work is recommended for the project. Rincon presents the following in case of unanticipated discovery of cultural resources during project development as a best management practice. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under the NHPA and/or CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner would notify the Native American Heritage Commission, which would determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

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1 Introduction

Frontier Enterprises retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Norco Valley Square Project (project) in the city of Norco, Riverside County, California (Figure 1). The purpose of this report is to document the tasks conducted by Rincon; specifically, a cultural resources records search, Native American outreach, field survey, and documentation and evaluation of potential project-related impacts to cultural resources. The study was completed in accordance with the requirements of the California Environmental Quality Act (CEQA) and applicable state and local guidelines and regulations. The City of Norco (City) is the CEQA lead agency for the current project.

1.1 Project Location

The 19.1-acre project site is located in southwestern Riverside County, in the south central portion of Norco. The project site is identified as Assessor's Parcel Numbers 126-050-002, 126-050-004, and 129-380-010 and is depicted on Township 03S, Range 07W, Section 12 of the United States Geological Survey *Corona North* CA 7.5-minute quadrangle.

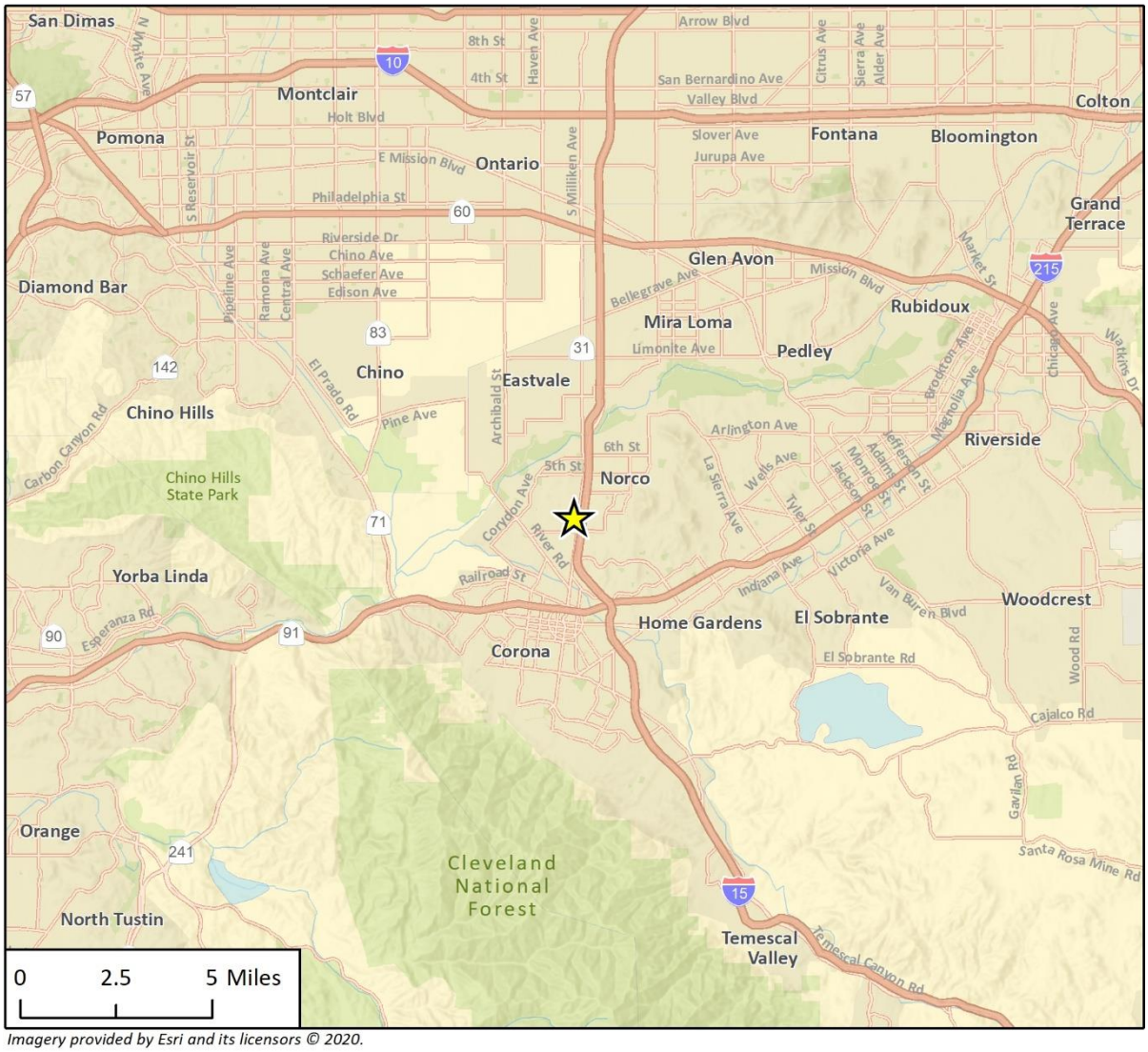
The project site was developed previously (Figure 2) and was used historically for agriculture since as early as the 1940s (NETROnline 2020). The site currently features a central raised area, numerous fragmented concrete pads/foundations, and a recreational vehicle (RV) sales lot that is paved and covered in gravel. Surrounding land uses include residential development, including equestrian paddocks, to the west and south, commercial developments to the north and east, and an adjacent concrete-lined channel to the south.

1.2 Project Description

The proposed mixed-use project would include multi-family residential units, a hotel and food garden, and outdoor entertainment and recreation amenities (e.g., farmers market, community gatherings, artist exhibit area, bocce courts and lawn game areas, open space park, and horse paddock). The residential portion of the project would be constructed on approximately 11.3 acres on the western half of the project site. The hotel, food garden, and outdoor entertainment and recreation space would be constructed on approximately 7.6 acres on the eastern half of the project site.

Project implementation would include grading in the City's right-of-way along Hamner Avenue and Third Street to implement proposed driveways. Work in the City's right-of-way would be limited to existing developed areas and would require an encroachment permit from the City.

Figure 1 Regional Location



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Project Location

N

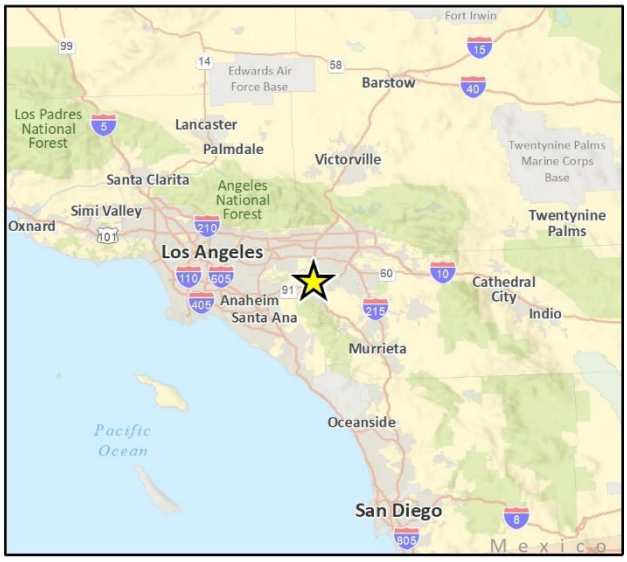

Figure 2 Project Site

Imagery provided by Microsoft Bing and its licensors © 2020.

Construction of the project is expected to occur over approximately 42 months. Construction activities would be completed in four phases. The first phase would include initial site preparation and demolition of the existing blacktop surface in the northeast corner of the project site, the second phase would include site grading, the third phase would include construction of the proposed buildings and recreational components, and the third phase would include site paving, landscaping, and architectural coating of completed structures.

During the grading phase, the maximum depth of excavation would be approximately 30 feet, and the total amount of excavated soil would be approximately 60,000 cubic yards. No soil would be exported from the project site since it would be used as fill and balanced on site. Construction equipment for the project would include earthwork equipment such as graders, rollers, and cranes, as well as small hand and power tools.

1.2 Regulatory Setting

1.2.1 California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (PRC Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is one listed or determined to be eligible for listing in the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered *historically significant* 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 to 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

If it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to allow any or all resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

1.2.2 Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called tribal cultural resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC Section 21084.2). AB 52 further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and requires that they meet either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC Section 5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California tribes regarding TCRs that must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed under the jurisdiction of the lead agency.

Project Personnel

Rincon Cultural Resources Principal Investigator Breana Campbell-King, MA, Registered Professional Archaeologist (RPA), served as principal investigator for the study and provided program-level oversight for this project. Ms. Campbell-King meets the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology (National Park Service 1983). Rincon Principal and Senior Archaeologist, Christopher Duran, MA, RPA, provided quality control for this report. Archaeologist Mark Strother, MA, conducted the field survey, completed the Native American outreach, and is the primary author of this report. Architectural Historian James Williams, MA, is a contributing author of this report. Archaeologist Lindsay Porras, MA, conducted the records search. Rincon GIS Analysts Annette Tran and Audrey Brown prepared the figures found in the report. Senior Rincon Technical Editor April Durham, PhD provided technical editing.

2 Natural and Cultural Setting

2.1 Natural Setting

The project site is in southwestern Riverside County. This region has a Mediterranean climate with mild winters, warm to hot summers, and minimal rainfall. The project site is mostly disturbed and developed. The easternmost portion of the project site, at the very southwest corner of the Third Street and Hamner Avenue intersection, is currently used as an RV sales lot (Norco RV Center located at 2350 Hamner Avenue). The remainder of the project site contains remnants of old foundations with evidence of previous grading and development but is mostly vegetated by grasses with a few scattered trees.

2.2 Cultural Setting

2.2.1 Prehistory

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes in all or portions of southern California (c.f., Jones and Klar 2007; Moratto 1984). Wallace (1955, 1978) devised a prehistoric chronology for the southern California region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The composite prehistoric chronological sequence for southern California that follows is based on Wallace (1955), Warren (1968), and later studies (Koerper and Drover 1983).

2.2.1.1 Early Man Horizon (ca. 10,000 – 6000 BCE)

Numerous pre-8000 BCE sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Erlandson 1991; Johnson et al. 2002; Jones and Klar 2007; Moratto 1984; Rick et al. 2001:609). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Arnold et al. 2004; Johnson et al. 2002). On nearby San Miguel Island, human occupation at Daisy Cave (SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest on the Pacific Coast (Arnold et al. 2004).

Few Clovis or Folsom style fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987). Although there is a paucity of large projectile points for this area during this period, Early Man Horizon sites are generally associated with a greater emphasis on hunting than later horizons. Recent data indicate that the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6000 BCE. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at that time, including a greater emphasis on plant foods and small game.

2.2.1.2 Milling Stone Horizon (6000 – 3000 BCE)

Wallace (1955:219) defined the Milling Stone Horizon as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns." The dominance of such artifact types indicates a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources was consumed including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, yucca, agave, and seeds and other plant products (Kowta 1969; Reinman 1964). Variability in artifact collections over time and from the coast to inland sites indicates that Milling Stone Horizon subsistence strategies adapted to environmental conditions (Byrd and Raab 2007:220). Locally available tool stone is the primary material for lithic artifacts associated with Milling Stone Horizon sites and ground stone tools, such as manos and metates, and chopping, scraping, and cutting tools are very common. Kowta (1969) attributes the presence of numerous scraper-plane tools in Milling Stone Horizon collections to the processing of agave or yucca for food or fiber. The mortar and pestle, associated with acorns or other foods processed by pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts that are considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found within sites dating between 4000 and 1000 BCE (Moratto 1984:149), though possibly as far back as 5500 BCE (Couch et al. 2009). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but many scholars have postulated ritualistic or ceremonial uses (c.f., Dixon 1968:64-65; Eberhart 1961:367) based on the materials used and their location near to burials and other established ceremonial artifacts as compared to typical habitation debris. Like cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often purposefully buried, or "cached." They are most common in sites along the coastal drainages from southern Ventura County southward and are particularly abundant at some Orange County sites, although a few specimens have been found inland as far east as Cajon Pass (Dixon 1968:63; Moratto 1984:149). Cogged stones have been collected in Riverside County and their distribution appears to center on the Santa Ana River basin (Eberhart 1961).

2.2.1.3 Intermediate Horizon (3000 BCE – 500 CE)

Wallace's Intermediate Horizon dates from approximately 3000 BCE – 500 CE and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods indicated by a shift in tool use. During the Intermediate Horizon, a noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammal, and sea mammal remains along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (e.g., Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate typically included fully flexed burials oriented toward the north or west (Warren 1968:2-3).

2.2.1.4 Late Prehistoric Horizon (500 CE – Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955:223).

Warren (1968) attributes this dramatic change in material culture, burial practices, and subsistence focus to the westward migration of desert people he called the Takic, or Numic, Tradition in Los Angeles, Orange, and western Riverside counties. This Takic Tradition was formerly referred to as the "Shoshonean wedge" (Warren 1968), but this nomenclature is no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups (Heizer 1978:5; Shipley 1978:88, 90). Modern Gabrielino/Tongva in western Riverside County are generally considered by archaeologists to be descendants of these prehistoric Uto-Aztecan, Takic-speaking populations that settled along the California coast during the Late Prehistoric Horizon.

2.2.2 Ethnographic Overview

The project site is situated in a region historically occupied by a Native American group known as the Cahuilla, though near the boundary with the Juaneño and Luiseño (Heizer 1978; Bean 1978; Kroeber 1925). The term Cahuilla likely derived from the native word *káwiya*, meaning "master" or "boss" (Bean 1978:575). Traditional Cahuilla ethnographic territory extended west to east from the present-day city of Riverside to the central portion of the Salton Sea in the Colorado Desert, and south to north from the southern extent of the San Jacinto Valley to the San Bernardino Mountains.

The Cahuilla, like their neighbors to west, the Luiseño and Juaneño, and the Cupeño to the south, are speakers of a Cupan language. Cupan languages are part of the Takic linguistic subfamily of the Uto-Aztecan language family. It is thought that the Cahuilla migrated to southern California approximately 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada mountain ranges of east-central California with other Takic speaking social groups (Moratto 1984:559).

Cahuilla social organization was hierarchical and contained three primary levels (Bean 1978:580). The highest level was the cultural nationality, encompassing everyone speaking a common language. The next level included the two patrimoieties of the Wildcats (*tuktum*) and the Coyotes (*'istam*). Every clan of the Cahuilla was in one or the other of these moieties. The lowest level consisted of the numerous political-ritual-corporate units called sibs, or a patrilineal clan (Bean 1978:580).

Cahuilla villages were usually located in canyons or on alluvial fans near a source of accessible water. Each lineage group maintained their own houses (*kish*) and granaries, and constructed ramadas for work and cooking. Sweat houses and song houses (for non-religious music) were also often present. Each community also had a separate house for the lineage or clan leader. A ceremonial house, or *kíšhámnawet*, associated with the clan leader was where major religious ceremonies were held. Houses and ancillary structures were often spaced apart, and a "village" could extend over a mile or two. Each lineage had ownership rights to various resource collecting locations, "including food collecting, hunting, and other areas. Individuals also owned specific areas

or resources, e.g., plant foods, hunting areas, mineral collecting places, or sacred spots used only by shamans, healers and the like" (Bean 1990:2).

The Cahuilla hunted a variety of game, including mountain sheep, cottontail, jackrabbit, mice, and wood rats, as well as predators such as mountain lion, coyote, wolf, bobcat, and fox. Various birds were also consumed, including quail, duck, and dove, plus various types of reptiles, amphibians, and insects. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. For the hunt, these included the bow and arrow, traps, nets, slings and blinds for hunting land mammals and birds, and nets for fishing. Rabbits and hares were commonly brought down by the throwing stick; however, when communal hunts were organized for these animals, the Cahuilla often utilized clubs and very large nets.

Foodstuffs were processed using a variety of tools, including portable stone mortars, bedrock mortars and pestles, basket hopper mortars, manos and metates, bedrock grinding slicks, hammerstones and anvils, and many others. Food was consumed from a number of woven and carved wood vessels and pottery vessels. The ground meal and unprocessed hard seeds were stored in large finely woven baskets, and the unprocessed mesquite beans were stored in large granaries woven of willow branches and raised off the ground on platforms to keep it from vermin. Pottery vessels were made by the Cahuilla, and traded from the Yuman-speaking groups across the Colorado River and to the south.

The Cahuilla had adopted limited agricultural practices by the time Euro-Americans traveled into their territory. Bean (1978:578) has suggested that their "proto-agricultural techniques and a marginal agriculture" consisting of beans, squash and corn may have been adopted from the Colorado River groups to the east. Certainly, by the time of the first Romero Expedition in 1823-24, they were observed growing corn, pumpkins, and beans in small gardens localized around springs in the Thermal area of the Coachella Valley (Bean and Mason 1962:104). The introduction of European plants such as barley and other grain crops suggest an interaction with the missions or local Mexican rancheros. Despite the increasing use and diversity of crops, no evidence indicates that this small-scale agriculture was anything more than a supplement to Cahuilla subsistence, and it apparently did not alter social organization.

By 1819, several Spanish mission outposts, known as *assistencias*, were established near Cahuilla territory at San Bernardino and San Jacinto. Cahuilla interactions with Europeans at this time were not as intense as it was for native groups living along the coast. This was likely due to the local topography and lack of water, which made the area less attractive to colonists. By the 1820s, European interaction increased as mission ranchos were established in the region and local Cahuilla were employed to work on them.

Between 1875 and 1891, the United States established ten reservations for the Cahuilla within their traditional territory. These reservations include Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez (Bean 1978:585). Four of the reservations are shared with other groups, including the Chemehuevi, Cupeño, and Serrano.

2.2.3 Historic Overview

Post-European contact history for California is divided generally into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present).

2.2.3.1 Spanish Period (1769-1822)

Spanish exploration of what was known as Alta (upper) California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). Spanish entry into what was to become Riverside County did not occur until 1774 when Juan Bautista de Anza led an expedition from Sonora, Mexico to Monterey in northern California (Lech 1998).

In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish between 1769 and 1823. The establishment of the missions marks the first sustained occupation of Alta California by the Spanish. In addition to the missions, four presidios and three pueblos (towns) were established throughout the state (State Lands Commission 1982).

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the subsequent Mexican Period. To manage and expand their herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population (Engelhardt 1927a). The missions were responsible for overseeing local Indians who assisted with the ranching as well as converting the population to Christianity (Engelhardt 1927b). The influx of European settlers brought the local Native American population in contact with European diseases against which they had no immunity, resulting in catastrophic reduction in native populations throughout the state (McCawley 1996).

2.2.3.2 Mexican Period (1822-1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810-1821) reached California in 1822. This period saw the federalization of mission lands in California with the passage of the Secularization Act of 1833. This Act enabled Mexican governors in California to distribute former mission lands to individuals as land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time (Shumway 2007). Fifteen of these land grants (ranchos) were in Riverside County.

2.2.3.3 American Period (1848-Present)

The American Period began officially with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for ceded territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming, and pay an additional $3.25 million to settle American citizens claims against Mexico. Settlement of southern California continued dramatically in the early American Period. Americans bought or otherwise acquired many ranchos in the county, after which most were subdivided into agricultural parcels or towns.

The discovery of gold in northern California in 1848 led to the California Gold Rush, despite the first California gold being discovered previously in southern California at Placerita Canyon in 1842 (Guinn 1977; Workman 1935:26). Southern California remained dominated by cattle ranches in the early American period, though droughts and increased population resulted in farming and other more urban professions supplanting ranching through the late nineteenth century. In 1850, California was admitted into the United States and by 1853, the population of the state exceeded 300,000.

Thousands of settlers and immigrants continued to move into the state, particularly after completion of the transcontinental railroad in 1869.

Norco

The project is in Norco, Riverside County, California. Although present-day Norco was not part of any mission rancho, the Mission San Gabriel, 33 miles northwest of the project site, used the area to graze cattle. In 1846, Mexican governor Pio Pico granted these lands, known as La Sierra, to Senora Vicenta Sepulveda, marking one of the few occasions land grants were given to a woman. Officially named Rancho La Sierra Sepulveda, the grant totaled 17,774 acres (Bash and Bash 2013).

In 1872, La Sierra Sepulveda was sold to the Stearns Rancho Company, who used the lands almost exclusively for raising alfalfa. Established in 1909, Citrus Belt was the first community within Norco Valley and was home to Anglo pioneers in search of land and opportunity. Due to the difficulty of farming along the Santa Ana River flood plain within the Santa Ana winds-exposed and frost-prone valley, the population remained sparse. The community was bought in the early 1920s by Rex Clark, who renamed it Norco in 1923, and attempted to revitalize the economy through poultry farming (Bash and Bash 2013).

Although Clark's plan to develop a downtown was derailed by the Great Depression, Norco underwent a period of population growth and economic expansion during the 1940s and 50s spurred by the construction of a major US Naval Hospital within the City's limits. Despite moderate suburbanization, Norco prioritizes rural lifeways by fostering an equestrian-oriented community. Today, Norco promotes itself as "Horsetown USA," maintains a transportation infrastructure that consists of horse trails throughout town, and its community members have consistently voted to protect animal keeping rights controlled through zoning and lot size (City of Norco 2020a). Local government strives to balance this ethos with its need to stimulate economic growth through residential and commercial development (Bash and Bash 2013; City of Norco 2020b).

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3 Background Research

Background research for the cultural resources assessment included record searches, a review of historical maps and aerial photographs, and Native American outreach. A summary of findings of each of these efforts is provided below.

3.1 Cultural Resources Record Search

Rincon conducted a search of the California Historical Resources Information System (CHRIS) at the Eastern Information Center (EIC) located at the University of California, Riverside on February 10, 2020. The search was performed to identify previously recorded cultural resources, as well as previously conducted cultural resources studies within the project site and a 1.0-mile radius surrounding it. The CHRIS search included a review of previous cultural resource studies and recorded resources, as well as a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, and the Archaeological Determinations Eligibility list.

The EIC records search identified 31 previously recorded cultural resources within a 1.0-mile radius of the project site; none of which are located within the project site (Table 1). Additionally, 40 previously conducted cultural resources studies were performed within a 1.0-mile radius of the project site, none of which include the project site (Appendix A).

Table 1 Previously Recorded Resources within a 1.0-mile radius of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status
33-001230	CA-RIV-001230	Prehistoric site	Sparse lithic scatter (no cultural material identified during 1984 site update)	Eastvold 1977; Drover 1984	Not evaluated
33-002315	CA-RIV-002315	Prehistoric site	Four bedrock milling features	Feickert and Bjornsen 1980; Drover 1987	Not evaluated
33-002316	CA-RIV-002316	Prehistoric site	One bedrock milling feature	Feickert and Bjornsen 1980; McCarthy 1985; Drover 1987	Not evaluated
33-002317	CA-RIV-002317	Prehistoric site	Six bedrock milling features	Feickert and Bjornsen 1980; Drover 1987	Not evaluated

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status
33-003002	CA-RIV-003002	Prehistoric site	One bedrock milling feature	McCarthy 1985; Drover 1987	Not evaluated
33-009101	-	Historic building	Lake Narconian Club	Urbas 1999	NRHP Nominated
33-012123	-	Historic building	U.S. Navy office building	Crawford 1992	Found NRHP/CRHR ineligible
33-019896	-	Historic site	Foundations/footings	Goodwin 2011	NRHP/CRHR ineligible
33-019897	-	Historic site	Foundations/footings	Goodwin 2011	NRHP/CRHR ineligible
33-019898	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019899	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019900	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019901	-	Historic building	Single family residence	Tibbet 2011	Ineligible for local listing
33-019902	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019903	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019905	-	Historic building	Commercial building	Tibbet 2011	NRHP/CRHR ineligible
33-019906	-	Historic building	Norco Egg Ranch	Tibbet 2011	Appears to be eligible for local listing
33-019907	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/CRHR Status
33-019908	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019909	-	Historic building	Multi-family property	Tibbet 2011	NRHP/CRHR ineligible
33-019910	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019911	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019912	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019913	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019914	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-019937	-	Historic building	Single family residence	Tibbet 2011	NRHP/CRHR ineligible
33-021037	-	Historic feature	Light pole	Crawford 2011	NRHP/CRHR ineligible
33-024099	-	Historic canal	South Norco Channel	Evans 2014	NRHP/CRHR ineligible
33-024100	-	Historic feature	Concrete weir box	Evans 2014	NRHP/CRHR ineligible
33-028176	-	Prehistoric isolate	Mano	Moslak 2018	NRHP/CRHR ineligible
33-028889	-	Historic District	Formerly the Lake Narconian Resort, presently a Naval Hospital	Wilkman 2019	Appears NRHP eligible

Sources: Eastern Information Center February 2020

3.2 Historical Imagery Review

A review of historical aerial photographs indicates the entirety of the project site and much of the surrounding vicinity was used for agriculture as early as 1948 (NETROnline 2020). Aerial photographs taken in 1966 and 1967 depict several small structures near the south-central and north-central portions of the project site. The structures are no longer present in 2002 aerial photographs, at which point foundations are visible. The structures were likely razed sometime between 1994 and 2002. The northern extent of the project site remained agricultural in character until as late as 1967 and was developed into a drive-in theatre in 1968 (Cinema Treasures 2020). Aerial photographs depict that much of the theatre's infrastructure had been removed by 1994, subsequent to the construction of Third Street. The western third of the project site adjacent to Hamner Avenue is depicted as developed in 1994, and the RV sales lot appears to be in place by 2009 (NETROnline 2020).

3.3 Native American Outreach

Rincon contacted the Native American Heritage Commission (NAHC) on February 6, 2020, to request a Sacred Lands File (SLF) search of the project site and a 1.0-mile radius surrounding it. As part of this request, Rincon asked the NAHC to provide a list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of cultural resources within the project site. The NAHC responded on February 20, 2020, stating the results of the SLF search were positive with instructions to contact the relevant local Native American groups (Appendix B). An SLF search is completed by topographic quadrangle. A positive SLF result is returned if any sacred sites are identified within the quadrangle, but no specific locational information is provided. Thus, the sacred site may be located a considerable distance from the current project site. The positive SLF result may be related to the fact that there are six prehistoric resources previously recorded within 1.0-mile of the project site. According to the EIC records search results, no prehistoric resources have been recorded within the project site.

Rincon sent letters to the 29 NAHC-listed contacts on March 2, 2020. To date, no responses have been received. As the CEQA lead agency, the City of Norco will conduct Native American consultation for the project in compliance with AB 52.

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4 Field Survey

4.1 Methods

On February 18, 2020, Rincon Archaeologist Mark Strother, MA, performed a field survey of the project site. Mr. Strother carefully examined areas for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration potentially indicative of the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were also visually inspected. Transect spacing throughout the exposed surfaces of the project site was no more than 15 meters. Mr. Strother documented the field survey using field notes and digital photographs. Copies of both are maintained at the Rincon's Riverside office.

4.2 Results

Overall, ground visibility was poor (approximately 0 to 5 percent) as much of the project site is covered with high grasses (Figures 3 and 4), remnant foundations (Figure 5), and paved surfaces (Figure 6) with minimal areas of exposed ground surface (Figure 7). Exposed soils throughout the project site consisted of a medium-brown sandy silt. Except for a central raised area, the remainder of the project site appears to have been previously graded. The entire project site is disturbed from past agricultural activities and other means of development. No prehistoric or built environment resources were identified during the survey. One historic-period archaeological site, RIN-S-1 (temporary site number), consisting of 14 historic-period features was identified within the project site and is evaluated below for listing in the NRHP and CRHR. Department of Parks and Recreation 523 Series Forms are provided in Appendix C.

Figure 3 Portion of Western Extent of Project Site, View South

Figure 4 Portion of Southern Extent of Project Site, View North

Figure 5 Central Portion of the Project Site, View Northwest

Figure 6 Portion of Eastern Extent of Project Site, View Northwest across Hamner Avenue

Figure 7 Portion of Northern Extent of Project Site, View East

RIN-S-1 History and Evaluation

The 14 historic-period features that comprise RIN-S-1 are situated on three adjacent and vacant parcels (Assessor Parcel Numbers 129-380-010, 121-050-002 and 121-050-004). Features 1 through 12 are concrete building foundations associated with former farm properties and Features 13 and 14 are a rock alignment and a driveway, respectively.

Table 2 Historic Period Archaeological Features at RIN-S-1

Feature No.	Historic Period Feature Description	Length and Width of Feature	Height of Feature
1	Concrete slab foundation	24 feet by 26 feet	Flush with ground level
2	Concrete slab foundation	20 feet by 24 feet	Flush with ground level
3	Concrete slab foundation	50 feet by 42 feet	Flush with ground level
4	Concrete slab foundation	15 feet by 24 feet	Flush with ground level
5	Concrete slab foundation	15 feet by 60 feet	Flush with ground level
6	Concrete building foundation	16 feet by 11 feet	4 feet at highest point
7	Concrete pillars (9)	9 inch diameter	1-2 feet
8	Concrete building foundation	3.3 feet by 9.5 feet	Flush with ground level
9	Concrete building foundation	50 feet by 50 feet	Flush with ground level
10	Concrete perimeter building foundation	60 feet by 10 feet	Flush with ground level
11	Concrete perimeter building foundation	30 feet by 40 feet	Flush with ground level
12	Concrete perimeter building foundation	16 feet by 24 feet	1-2 feet

Feature No.	Historic Period Feature Description	Length and Width of Feature	Height of Feature
13	Rock alignment	30 feet by 2 feet	1-3 feet
14	Paved driveway	300 feet by 40 feet	Flush with ground level

The two southernmost parcels contain Features 1 through 13 (Figures 8 through 20). Based on historical aerial photographs, these foundations were likely developed for a combination of agricultural and residential structures in the twentieth century, with the earliest examples dating from sometime prior to 1948 (NETROnline 2020). Such uses would have been consistent with patterns of settlement during the pre-World War II history of the community of Norco. Beginning in the 1920s, the North Corona Land Company began selling farm-residence properties, and the town was soon settled by families who tended gardens and raised chickens and rabbits on modest farms (City of Norco 2020c). Taken in 1948, the earliest available aerial photograph indicates the two southernmost subject parcels were two of the many farms located along Hamner Avenue. Aerial photographs taken in 1966 and 1967 depict several new buildings and probable livestock pens were constructed on parcel 121-050-002 and crop fields were possibly fallow. A comparison of photographs suggests the buildings were razed sometime between 1994 and 2002 (NETROnline 2020). The inscription "J.E. LEWIS CONTRACTOR" is stamped into one of the building foundations. Research for the current study uncovered no information of consequence regarding Lewis.

Figure 8 Feature 1, View Southwest

Figure 9 Feature 2, View Northeast

Figure 10 Feature 3, View West

Figure 11 Feature 4, View Northeast

Figure 12 Feature 5, View East

Figure 13 Feature 6, View Northeast

Figure 14 Feature 7, View Northeast

Figure 15 Feature 8, View Northwest

Figure 16 Feature 9, View Southwest

Figure 17 Feature 10, View Southeast

Figure 18 Feature 11, View Southeast

Figure 19 Feature 12, View East

Figure 20 Feature 13, View Northwest

The northernmost parcel was originally part of a larger property that most recently contained a single-screen drive-in theater. As late as 1967, the property remained agricultural in character. In 1968, Crest Drive-In Theater was developed on the property. A contemporary description of the property remarked that it was "set in a natural amphitheater encircled by eucalyptus, palm and cypress trees." In the early years of the theater's operation, it was run by the National General Theatre and Mann Theatre companies. After 1977, it is presumed independent exhibitors owned and operated the drive-in. The drive-in remained in business at least as late as 1988 (Cinema Treasures 2020). By 1994, historic aerial photographs depict the construction of Third Street through the area dividing the property into two parcels on opposite sides of the street. The southern parcel, which is presently under evaluation, was the location of the screen and the vehicular entrance. By 1994, the screen had been demolished (NETROnline 2020). At the time of the field survey for the current evaluation, the only remnants of the drive-in located on parcel 129-0380-010 are Feature 14, the poured concrete vehicular entrance and several cypress trees flanking the driveway (Figure 21).

Figure 21 Feature 14 , View East

Research did not suggest any of the features were an important physical expression of specific events or periods in the city's history. Thus, the features do not meet the eligibility criteria for listing under NRHP Criterion A or CRHR Criterion 1. Likewise, research did not indicate that any persons associated with the farm properties or drive-in theatre can be considered significant to local, state, or national history. Therefore, the features do not meet the eligibility criteria for listing under NRHP Criterion B or CRHR Criterion 2. The building foundations and structural remnants that are present on the project site are so fragmentary that the original function associated with these remains is no longer recognizable. Furthermore, the historic features lack any technological, architectural, or engineering merits. As such, the features do not meet the eligibility criteria for listing under NRHP

Criterion C or CRHR Criterion 3. Lastly, the remnant features at this location are fragmentary pieces of former farms and a component of a drive-in theatre and are unable to yield any new information important to the study of the construction or use of facilities of their particular type or vintage in local, state, or national history. Therefore, the features are not eligible for listing on the NRHP and CRHR under Criterion D and Criterion 4.

5 Findings and Recommendations

The current study included a cultural resources records search, Native American outreach that includes a positive SLF result, and field survey, and resulted in the recordation and evaluation of one historic-period archaeological site, RIN-S-1, consisting of 12 remnant foundations, one rock alignment, and one driveway. Research completed under the current study concluded the features do not possess significant architectural or historical associations and are not eligible for listing in the NRHP or CRHR; as such their demolition would not result in a significant adverse impact under CEQA. The background research and field survey concluded there are no known prehistoric archaeological resources or built environment resources within the project site. Although the SLF search yielded positive results, there is no indication that a sacred site exists within the subject property. Additionally, no tribal entities responded to the positive SLF results. Based on the results of the cultural resources assessment, Rincon recommends a finding of ***no impact to historical and archaeological resources*** under CEQA. No further cultural resources work is recommended for the project.

Rincon presents the following in case of unanticipated discovery of cultural resources during project development as a best management practice. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

5.1 Unanticipated Discovery of Cultural Resources

If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service 1983) should be contacted immediately to evaluate the find. If the discovery proves to be significant under the NHPA and/or CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any significant impacts/adverse effects.

5.2 Human Remains

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner would notify the Native American Heritage Commission, which would determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

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Appendix A

Confidential Records Search Results

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-001230	CA-RIV-001230			Prehistoric		1977 (I. Eastvold); 1984 (C. Drover, E. Drover)	RI-00534, RI-01872
P-33-002315	CA-RIV-002315			Prehistoric		1980 (Hans H. Feickert and Arne Bjornsen); 1987 (C.E. Drover)	RI-01108, RI-10280
P-33-002316	CA-RIV-002316			Prehistoric		1980 (Hans H. Feickert and Arne Bjornsen); 1985 (D. McCarthy); 1987 (C.E. Drover)	RI-01108, RI-10280
P-33-002317	CA-RIV-002317			Prehistoric		1980 (Hans H. Feickert); 1987 (C.E. Drover)	RI-01108
P-33-003002	CA-RIV-003002			Prehistoric		1985 (D. McCarthy); 1987 (C.E. Drover)	RI-01108, RI-01913, RI-10280
P-33-009101			Building	Historic			RI-04333, RI-04334
P-33-012123			Building	Historic			
P-33-019896	CA-RIV-010121	Other - LSA-APG1101-S-1	Site	Historic	AH02	2011 (R. Goodwin, LSA Associates)	
P-33-019897	CA-RIV-010122	Other - LSA-APG1101-S-2	Site	Historic	AH02	2011 (R. Goodwin, LSA Associates)	
P-33-019898		Other - 2441 First Street		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019899		Resource Name - 2503 First Street	Building	Historic	HP02	2011 (C. Tibbet, LSA Associates)	
P-33-019900		Other - 2214 Second Street		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019901		Other - 2138 Second Street		Historic		2011 (C. Tibbet, LSA Assosicates)	
P-33-019902		Other - 2266 Second Street		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019903		Other - 2390 Second Street		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019905		Other - 1500 Mountain Avenue		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019906		Other - 1658 Mountain Avenue		Historic		2011 (C. Tibbet, LSA Associates)	
P-33-019907		Other - 1751 Mountain Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019908		Other - 1433 Pacific Avenue	Building	Historic	HP02	2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019909		Other - 1541 and 1463 Pacific Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019910		Other - 1445 Pacific Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-019911		Other - 1475 Pacific Avenue	Building	Historic	HP02	2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019912		Other - 1577 Pacific Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019913		Other - 1619 Pacific Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019914		Other - 1765 Pacific Avenue		Historic		2011 (Casey Tibbet, LSA Associates, Inc.)	
P-33-019937		Other - 1661 Mountain Avenue		Historic		2011 (Casey Tibbet, LSA Associates Inc.)	
P-33-021037		Other - T-Mobile IE24029E/Parmenter Park		Historic		2011 (K. A. Crawford, Crawford Historic Services)	RI-08804
P-33-024099		Other - South Norco Channel; Other - AE-3000-JS-1H	Structure	Historic	HP20	2014 (Mitch Evans, Josh Smallwood, Applied EarthWorks)	
P-33-024100		Other - Concrete Weir Box; Other - AE-3000-JS-2H	Structure	Historic	AH06	2014 (Mitch Evans, Josh Smallwood, Applied EarthWorks)	
P-33-028176		Other - AE-3841-ISO-1	Other	Prehistoric	AP16	2018 (KEN MOSLAK, APPLIED EARTHWORKS, INC.)	RI-10457
P-33-028889		Other - Norconian Property; Other - Norconian Resort Supreme; Other - Naval Hospital Corona; Other - Detachment Norco	District	Historic	HP34	2019 (Bill Wilkman, Wilkman Historical Services (WHS))	RI-10726

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-00026	NADB-R - 1080025; Voided - MF-0032	1971	Margie Akin	A Survey of the Archaeological Resources of the Santa Ana and San Jacinto River Basins	Department of Anthropology, U.C. Riverside	
RI-00059	NADB-R - 1080067; Voided - MF-0055	1972	Alex Kirkish and Lesley McCoy	A Preliminary Report On The Archaeological Survey Of The Santa Ana River Region	Archaeological Research Unit, U.C> Riverside	
RI-00535	NADB-R - 1080574; Voided - MF-0466	1979	Lowell John Bean., Sylvia Brakke Vane, Matthew C. Hall, Harry Lawton, Richard Logan, Lee Gooding Massey, John Oxendine, Charles Rozaire, and David P. Whistler	Cultural Resources and the Devers-Mira 500 kV Transmission Line Route (Valley to Mira Loma Section)	Cultural Systems Research, Incorporated, Menlo Park, CA	33-000114, 33-000630, 33-000714, 33-000807, 33-000984, 33-001078, 33-001241, 33-001442, 33-001448, 33-001449, 33-001450, 33-001649, 33-001651, 33-001652, 33-001653, 33-001654, 33-001656
RI-01108	NADB-R - 1081208; Voided - MF-1051	1987	Christopher E. Drover	Environmental Impact Evaluation: An Archaeological Assessment of the Proposed Riverside Community College District Site and Dean Homes Residential Development, Norco, California	Consulting Archaeologist, Tustin, CA	33-001229, 33-002315, 33-002316, 33-002317, 33-003002
RI-01109	NADB-R - 1081209; Voided - MF-1051	1980	Hans H. Feickert	Intensive Cultural Resources Survey on the Norco Naval Reservation, Riverside County, California	California State Lands Commission, Sacramento, CA	33-001229
RI-01872	NADB-R - 1082247; Voided - MF-2032	1984	DROVER, CHRISTOPHER E.	AN ARCHAEOLOGICAL ASSESSMENT OF PROPOSED INSTALLATION OF WASTEWATER TREATMENT FACILITIES FOR NORCO, CALIFORNIA	AUTHOR(S)	33-001230
RI-01913	NADB-R - 1082287; Voided - MF-2070	1985	MCCARTHY, DANIEL F.	AN ARCHAEOLOGICAL ASSESSMENT OF A PORTION OF A PROPOSED INTERCEPTOR SEWER PIPELINE RIGHT-OF-WAY IN THE NORCO- CORONA AREA, RIVERSIDE COUNTY, CALIFORNIA	ARCHAEOLOGICAL RESEARCH UNIT, U.C. RIVERSIDE	33-003002
RI-02886	NADB-R - 1083492; Voided - MF-3085	1989	LERCH, MICHAEL, K.	CULTURAL RESOURCES ASSESSMENT OF THE I-15 FREEWAY CORRIDOR LAND GATEWAY SPECIFICPLAN CITY OF NORCO, RIVERSIDE COUNTY, CALIFORNIA.	MICHAEL K. LERCH AND ASSOCIATES	
RI-02902	NADB-R - 1083243; Other - DACW09-88-D-0007; Voided - MF-3102	1989	Mark T. Swanson and Roger G. Hatheway	The Prado Dam and Reservoir, Riverside and San Bernardino Counties, California.	Greenwood and Associates	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-03490	NADB-R - 1084161; Voided - MF-3748	1991	MCINTOSH, BEVERLY CHILDS	The Juan Bautista De Anza Trail Past, Present and Future, Baja to Riverside, California	n/a	
RI-03544	Caltrans - 08-RIV-I15, PM 42.3/43.4; NADB-R - 1084240; Voided - MF-3808	1992	WLODARSKI, ROBERT	NEGATIVE ARCHAEOLOGICAL SURVEY REPORT (08-RIV-I15, PM 42.3/43.4)	H.E.A.R.T., Calabass, CA	
RI-03604	NADB-R - 1084327; Voided - MF-3878	1992	Carleton S. Jones	The Development of Cultural Complexity Among the Luiseno: A Thesis Presented to the Department of Anthropology, California State University, Long Beach in Partial Fulfillment of the Requirements for the Degree, Master of Arts	California State University, Long Beach	
RI-03918	NADB-R - 1084850; Voided - MF-4289	1995	WHITE, ROBERT S.	AN ARCHAEOLOGICAL ASSESSMENT OF THE SOUTH NORCO CHANNEL STAGE 3 PROJECT, LOCATED IN THE CITY OF NORCO, RIVERSIDE COUNTY	ARCHAEOLOGICAL ASSOCIATES, Sun City, CA	
RI-04087	NADB-R - 1085254; Voided - MF-4549	1998	WLODARSKI, ROBERT J.	A PHASE I ARCHAEOLOGY STUDY: NORCO SENIOR HOUSING PROJECT (PHASE II) (2 ACRE PARCEL OF LAND), CITY OF NORCO, RIVERSIDE COUNTY, CALIFORNIA.	HEART	
RI-04333	NADB-R - 1085665; Voided - MF-4830	1999	URBAS, ANDREA	Letter Report: Department Of Corrections/California Rehabilitation Center, Norco, Riverside County, "Proposed Demolition Of 28 Temporary WWII Barracks." Determination of Eligibility and Effect.	AUTHOR	33-009101, 33-009102, 33-009103
RI-04334	NADB-R - 1085666; Other - CSP930; Voided - MF-4830	2000	URBAS, ANDREA	LETTER REPORT: DEPARTMENT OF CORRECTIONS/CALIFORNIA REHABILITATION CENTER, NORCO, RIVERSIDE COUNTY, "REPLACEMENT OF 28 TEMPORARY WWI BARRACKS," DETERMINATION OF EFFECT ON THE NORCONIAN CLUB, PROJECT #CSP930.	AUTHOR	33-009101, 33-009102, 33-009103
RI-04762	NADB-R - 1083854; Voided - MF-3495	1990	BARKER, LEO R. and ANN E. HUSTON, EDITORS	DEATH VALLEY TO DEADWOOD; KENNECOTT TO CRIPPLE CREEK. PROCEEDINGS OF THE HISTORIC MINING CONFERENCE, JANUARY 23-27, 1989, DEATH VALLEY NATIONAL MONUMENT	Division of National Register Programs National Park Service	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-04979	NADB-R - 1086341; Submitter - Job No. 10-02-04-710	2003	Jeanette A. McKenna	A PHASE I CULTURAL RESOURCES INVESTIGATION OF THE WYLE LABORATORIES PROPERTY IN THE CITY OF NORCO, RIVERSIDE COUNTY, CALIFORNIA	MCKENNA ET AL., Whittier, CA	33-000106, 33-012615, 33-012616
RI-05409	NADB-R - 1086772; Submitter - CRM TECH Contract #740	2001	LOVE, BRUCE, BAI "TOM" TANG, MICHAEL HOGAN, and MARIAM DAHDUL	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT, ARLINGTON DESALTER AND PIPELINE, CITIES OF RIVERSIDE, CORONA, AND NORCO, RIVERSIDE COUNTY, CALIFORNIA	CRM TECH	33-011195
RI-05663	NADB-R - 1087026; Submitter - CA-8871B	2005	Lorna Billat	Letter Report: Historic Commission for Nextel of California (Nextel) Wireless Telecommunications Service (WTS) Facility Project Trail/ CA-8871A, in Norco, Riverside County, California	EarthTouch, Inc.	
RI-06063	NADB-R - 1087426	2004	MCGINNIS, PATRICK, and MICHAEL BAKSH	CULTURAL RESOURCES SURVEY REPORT FOR THE TRUST TO FEE TRANSFER OF SIX ACRES OF ALOTTED LANDS, EASTERN END OF VERONA ROAD, AGUA CALIENTE INDIAN RESERVATION, RIVERSIDE COUNTY, CALIFORNIA	TIERRA ENVIRONMENTAL SERVICES, INC.	
RI-06083	NADB-R - 1087446	2004	Lorna Billat	Letter Report: Proposed Cellular Tower Project in Riverside County, California, Site Name/Number: CA-8871/Trail	EarthTouch, Inc.	
RI-07155		2003	Caprice D. Harper	Cultural Resource Assessment for Cingular Wireless Facility No. SB 260-02 in Norco, Riverside County, California	LSA Associates, Inc.	
RI-07181		2003	Pletka, Nichole	Cultural Resource Assessment: AT&T Wireless Services, Facility NO. 24002C, Norco, Riverside County, California.	LSA	
RI-07447		2007	Bonner, H. Wayne and Aislin-Kay, Marnie	Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Telecommunications Facility Candidate LA2311A (Storage Stop), 3475 Second Street, Norco, Riverside County, California	MBA	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-07981		2008	Evelyn N. Chandler, Cary D. Cotterman, and Jennifer M. Howard	Cultural Resources Inventory of Proposed Pole Replacements in the City of Chino Hills, San Bernardino County and the Cities of Corona and Norco, Riverside County, California (DWO 6034-4800, AI 8-4850 and 8-4852)	ECORP CONSULTING, INC., Redlands, CA	
RI-08042	Submitter - 1632c	2008	Amy Glover, Veronica Harper, and Sherri Gust	Phase I Cultural Resources Assessment Report for the Norco High School Project in Norco, California	Cogstone Resource Management Inc, Santa Ana	
RI-08663	Submitter - IE24029-E	2011	Wayne H. Bonner, Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24029-E	Michael Brandman Associates	
RI-08766		2011	Casey Tibbet, Riordan Goodwin, and Jennifer Thornton	Cultural Resources Assessment, Norco Ranch Commerce Park, City of Norco, Riverside County, California	LSA	
RI-08774		2012	Joan George	Cultural Resources Records Serach for the Riverside County Flood Control and Water Conservation District South Norco Channel, Line S-1 Project	Applied EarthWorks	
RI-09374		2015	Tiffany Clark and Josh Smallwood	Cultural Resources Report For the Proposed Riverside County Flood Control and Water Conservation District South Norco Channel, Line S-1 In The City Of Norco, Riverside County, California	Helix Environmental Planning, Inc.	
RI-09617		2014	Don C. Perez	Cultural Resources Survey CLV6237	EBI Consulting	
RI-09979	Other - CM 209-02	1998	Roger D. Mason and Wayne H. Bonner	Cultural Resources Records Search and Literature Review for a Pacific Bell Mobile Services Telecommunications Facility: CM 209-02 City of Norco, California	Chambers Group, Inc.	
RI-10155	Other - KIM1701	2017	DAVID BRUNZELL	CULTURAL RESOURCES ASSESSMENT SHEA RANCH PROJECT CORONA, RIVERSIDE COUNTY, CALIFORNIA	BCRCONSULTING LLC	
RI-10262		2017	Don C. Perez	Archaeological Sensitivity Assessment RV90XSA44B/ 9CAB012573-B Tara Lane & Town and Country Road Norco, CA 92860 Riverside County EBI Project No. 6117004639	EBI Consulting	
RI-10457		2018	Kholood Abdo-Hintzman	Phase I Cultural Resource Assessment for the 1550 Second Street Automotive Dealership Project, City of Norco, Riverside County, California	Applied EarthWorks, Inc.	33-028176

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-10590	OHP OTIS Report Nbr - FCC_2018_0712_006 ; Other - CASPR No 3551699330	2018	Sarah A. Williams and Carrie D. Wills	Cultural Resources Records Search and Site Visit Results for AT&T Mobility, LLC Candidate CLV6237 (Parmeter Park), Reservoir Drive, Norco, Riverside County, California, CASPR No 3551699330	Environmental Assessment Specialists, Inc.	
RI-10691		1979	Alan Curl	Phase I Survey of the City of Riverside Final Report	Riverside Municiple Museum	
RI-10697	; Other - N6946-01; Other - TCNS #124334, Mustang	2015	Heather R. Puckett	Cultural Resources Summary for the Proposed Verizon Wireless, Inc., Property at the Mustang Site, at 2081 2nd Street, Norco, Riverside County, California 92860	TETRA TECH	
RI-10703		2015	Carrie D. Wills and Sarah A. Williams	Cultural Resources Records Search and Site Visit Results for Cellco Partnership and their Controlled Affiliates doing business as Verision Wireless Canidate 'Pinto', Reservoir Drive, Norco, Riverside County, California	Helix Enviornmental Planning	

Appendix B

Sacred Lands File Search Results

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
Marshall McKay
Wintun

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Joseph Myers
Pomo

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 20, 2020

Mark Strother
Rincon Consultants, Inc.

Via Email to: mstrother@rinconconsultants.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Norco Valley Square #19-08717 Project, Riverside County

Dear Mr. Strother:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the tribes on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Riverside County
2/20/2020

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
wmicklin@leaningrock.net

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of 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 consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Norco Valley Square #19-08717 Project, Riverside County.

Native American Heritage Commission
Tribal Consultation List
Riverside County
2/20/2020

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Jamul Indian Village
Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Pechanga Band of Luiseno Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of 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 consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Norco Valley Square #19-08717 Project, Riverside County.

Appendix C

California DPR 523 Series Forms

Native American Heritage Commission
Tribal Consultation List
Riverside County
2/20/2020

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Vanyume
Phone: (503) 539 - 0933 — Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
tmchair@torresmartinez.org

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

This list is current only as of the date of this document. Distribution of this list does not relieve any person of 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 consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Norco Valley Square #19-08717 Project, Riverside County.

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**

PRIMARY RECORD

Trinomial
NRHP Status Code 6Z

Other Listings
Review Code **Reviewer** **Date**

 *__Resource Name or #:__ RIN-S-1

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☐ **Unrestricted** ***a. County:** Riverside
and
***b. USGS 7.5' Quad:** *Cornona North* **Date:** 1967 (rev. 1982) **T** 3S; **R** 7W; **¼ of** **¼ of Sec** 13 **;** S.B.**B.M.**
c. Address: N/A City: Norco Zip: 92860
d. UTM: Zone: ; mE/mN (G.P.S.)
e. Other Locational Data: The subject site is located southwest of the intersection of 3rd Street and Hamner Avenue (APNs: 129-380-010; 126-050-002, and 126-050-004) Elevation: 603-641'

***P3a. Description:**
The subject property consists of three vacant parcels containing a total of 14 historic-era built-environment features. Of these, twelve are building foundations, one is a rock alignment, and one is a concrete private drive. Materials used in the features' construction include poured and formed concrete, wood planks, metal bolts, cinder blocks and cobbles and boulders. Research did not suggest that any of the features are an important physical expression of specific events or periods in the city's history. Thus, the features do not meet the eligibility criteria for listing under NRHP Criterion A or CRHR Criterion 1. Likewise, research did not indicate that any persons associated with the farm properties or drive-in theatre can be considered significant to local, state, or national history. Therefore, the features do not meet the eligibility criteria for listing under NRHP Criterion B or CRHR Criterion 2. The building foundations and structural remnants that are present on the project site are so fragmentary that the original function associated with these remains is no longer recognizable. Furthermore, the historic features lack any technological, architectural, or engineering merits. As such, the features do not meet the eligibility criteria for listing under NRHP Criterion C or CRHR Criterion 3. Lastly, the remnant features at this location are fragmentary pieces of former farms and a component of a drive-in theatre and are unable to yield any new information important to the study of the construction or use of facilities of their particular type or vintage in local, state, or national history. Therefore, the features are not eligible for listing on the NRHP and CRHR under Criterion D and Criterion 4.

***P3b. Resource Attributes:** AH2. Foundations; AH3. Landscaping
***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo:

Overview of site taken from near 3rd Street, view northwest.

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both

***P7. Owner and Address:**
N/A

***P8. Recorded by:**
Mark Strother
Rincon Consultants, Inc.
180 N. Ashwood
Ventura, CA 93003

***P9. Date Recorded:** 2/24/2020

***P10. Survey Type:** Intensive pedestrian

***P11. Report Citation:**
Strother, M., B. Campbell-King, J. Williams, and C. Duran
2020 Norco Valley Square Project Cultural Resources Assessment, City of Norco, Riverside County, California. Rincon Consultants Project No. 19-08717. Report on file at the Eastern Information Center, University of California, Riverside, California

***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):

ARCHAEOLOGICAL SITE RECORD

***A1. Dimensions: a. Length:** 295 m. **(**N-S**) × b. Width:** 360 m. **(**E-W**)**
Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ■ Other: Google Earth
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: Positive identification through survey

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined ■ Disturbances ■ Vegetation ☐ Other (Explain):

A2. Depth: Unknown ☐ None ☐ Unknown Method of Determination: No related surface artifacts observed. The possibility of a subsurface deposit is low.

***A3. Human Remains:** ☐ Present ☐ Absent ☐ Possible ☐ Unknown (Explain): None observed

***A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.):
See continuation sheet, p. 5.

***A5. Cultural Constituents (**Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
Same as above.

***A6. Were Specimens Collected?** ■ No ☐ Yes
***A7. Site Condition:** ☐ Good ☐ Fair ■ Poor :
All historic-era buildings have been razed and the debris removed from the site. Some features are partially overgrown with vegetation.

***A8. Nearest Water** (Type, distance, and direction.)**:** 0.5-miles

***A9. Elevation:** 603-641 feet.

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.)**:** The project site is located in southwestern Riverside County. This region has a Mediterranean climate with mild winters, warm to hot summers, and minimal rainfall. The project site is mostly disturbed and developed. The easternmost portion of the project site, at the very southwest corner of the Third Street and Hamner Avenue intersection, is currently in use as a RV sales lot (Norco RV Center located at 2350 Hamner Avenue). The remainder of the project site contains remnants of old foundations with evidence of previous grading and development but is mostly vegetated by grasses with a few scattered trees.

A11. Historical Information:

***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):

See continuation sheet, p 6.

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.):

Original Media/Negatives Kept at: Rincon Consultants, Inc.

***A17. Form Prepared by:** **Date:** 3/6/2020
Affiliation and Address: Rincon Consultants, Inc., 180 N. Ashwood, Ventura, CA, 93003

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

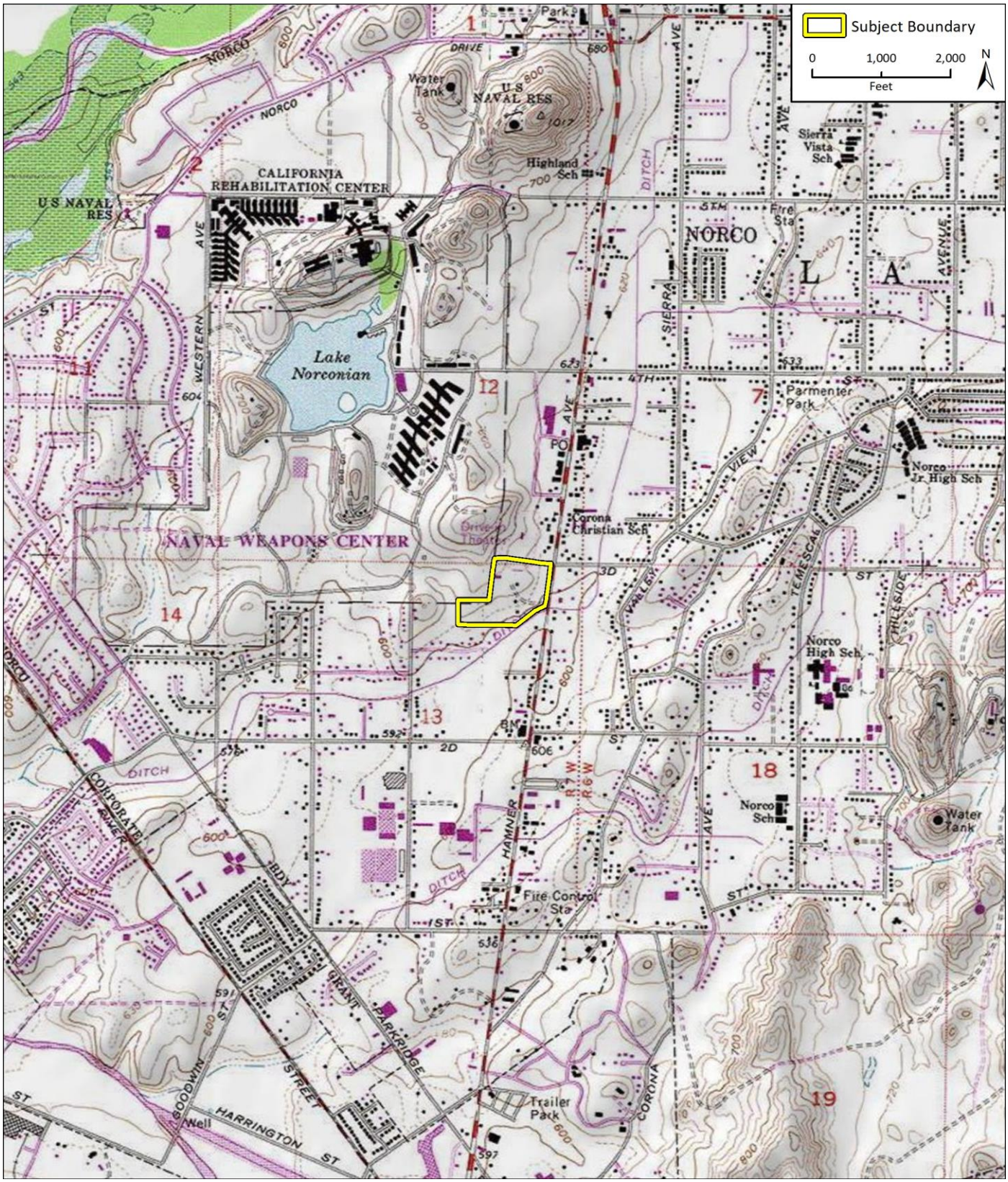
LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** RIN-S-1

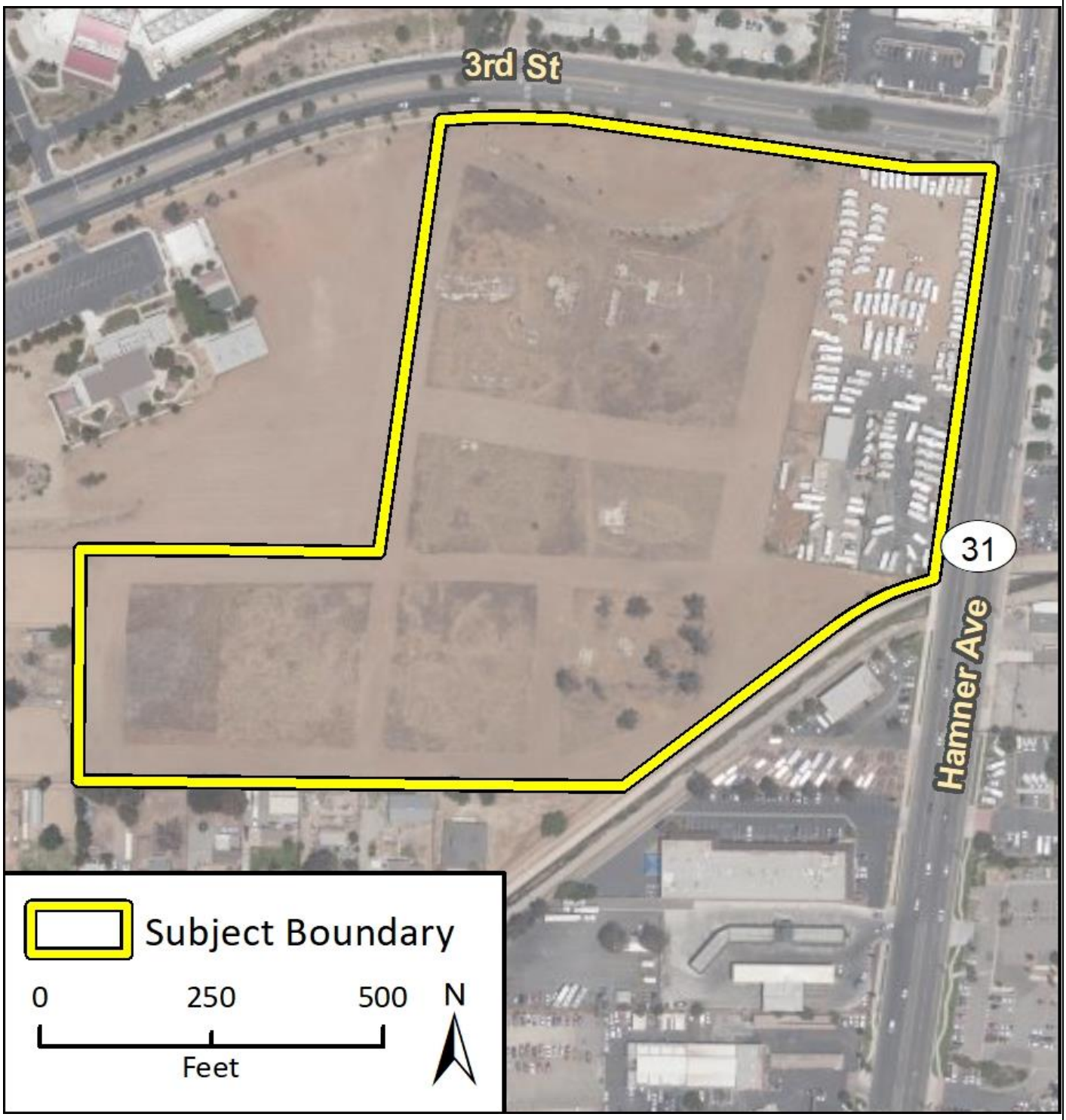
***Map Name:** *Corona North*

***Scale:1:24,000** ***Date of Map:** 1967 (rev. 1982)



SKETCH MAP

***Drawn By:** Rincon Consultants, Inc. ***Date:** February 28, 2020



P3a. Description (continued):

Features 1 and 2 are located on parcel 126-050-004. Historic aerial photographs show buildings at their sites by 1948 (Netronline 1948).

Feature 1 is a poured concrete slab foundation located in the east end of parcel. It is roughly square in plan and measures approximately 24' by 26'. It lays flush with the surrounding land. It is in poor condition with vegetation growing through several cracks in the feature.

Feature 2 is a poured concrete slab foundation located approximately 30 feet southwest of feature 1. Historic aerial photographs show a building was constructed at the site by 1948 (Netronline 1948). It measures approximately 20' by 24' and is flush with the ground. It is in poor condition with vegetation growing through several cracks in the feature.

Features 3 through 13 are located on parcel 126-050-002. A building was constructed at the site of feature 2 by 1948. Features 1, 3-6, 8, 9, 11 were constructed between 1948 and 1966. Feature 12 was constructed in 1966 or 1967 (NETROnline 2020). The dates of construction of features 7 and 13 could not be determined. However, based on their building materials, designs, and situation relative to other features they presumed to have been constructed within the period of construction of the other features on the parcel.

Feature 3 is a concrete slab building foundation centrally located along the south parcel boundary. Irregular in plan, it measures approximately 50' by 42' and is flush with the ground. The feature is in fair condition.

Feature 4 is a rectangular concrete slab foundation located approximately 190 feet northwest of feature 3. It measures approximately 15' by 24' and lays flush with the ground. The inscription "1-29-1963" is etched into a corner of the feature, suggesting it was completed in 1963. The feature is in fair condition.

Located approximately 65' north of feature 4, feature 5 is a rectangular concrete slab foundation measuring 15' by 60'. It is roughly flush with the ground and, in many areas, overgrown with grass. The feature is in poor condition.

Feature 6 is a rectangular building foundation measuring 16' by 11' across and 4" at its tallest. It is located approximately 45' north of feature 5. Divided into four segments of roughly equal size, it is overlain with a partial gridwork of boards, which are bolted to the concrete. A circular pipe emanates from the southwest quadrant. The feature is in fair condition.

Feature 7 is a series of nine cylindrical concrete piers arranged in three irregular rows. The feature is located approximately 60' east of feature 6. They are approximately 9" in diameter and extend 12" to 18" above the ground level. The feature is in fair condition.

Feature 8 is a rectangular concrete building foundation located immediately northwest of feature 6. It measures approximately 40" by 115" and is flush with the ground. The concrete surface is deteriorated and grown over with grass in several areas. Broken pieces of concrete and cinder blocks are located nearby. The feature is in poor condition.

Feature 9 is an L-plan concrete foundation measuring 50' on its two longest sides. It is located approximately 40' east of feature 8. The feature is in poor condition, with vegetation growing through the seams in its segmented surface.

Situated just east of feature 9, feature 10 consists of a concrete perimeter foundation and partial poured concrete floor constructed on a rectangular plan. Overall, the feature measures 60' by 20'. A deteriorated wood plank is bolted across much of the feature's west side. The feature is in poor condition, with several sections of concrete broken and upturned.

Feature 11 is a concrete perimeter building foundation measuring approximately 30' by 40'. The feature is located immediately east of feature ten. Concrete slabs rise from the ground on the west side and northeast corner of the feature. A series of 4 straight concrete steps extends from the west side. The inscription "J.E. LEWIS CONTRACTOR" is stamped into the surface. The feature's interior is overgrown with brush. Overall, it is in fair condition.

Located immediately to the northwest, feature 12 is a rectangular-plan concrete perimeter foundation with a concrete floor. It measures approximately 16' by 24' across and is built into the hillside. A knee wall constructed of preformed concrete traces its north and east sides and part of its west sides. A pair of concrete steps descend from the hillside on the west to a concrete floor. The feature is entirely open on the west side.

Feature 13 is a rock alignment located immediately north of features 11 and 12. It measures approximately 30 linear feet, tracing a portion of a ridge. It consists of several cobbles and small boulders and is in good condition.

Feature 14 is located on parcel 129-038-010. It consists of the remnants of a private driveway. It is arced with a generally east-west aspect and measures approximately 300' long and 40' wide. Paved segments are visible at the east and west ends, while broken rows of cypress trees line either side of the drive.

A13. Interpretations (continued):
The subject property consists of 14 historic-era features situated on three adjacent vacant parcels (APNs 129-380-010, 121-050-002 and 121-050-004). Twelve are concrete building foundations associated with former farm properties, while the other two are a rock alignment and a driveway.

The two southernmost parcels contain all the building foundations. Judging from their appearance in historic aerial photographs, these foundations were almost certainly developed for a combination of agricultural and residential uses in the twentieth century, with the earliest examples dating from sometime prior to 1948 (Netronline 1948). Such uses would have been consistent with patterns of settlement during the pre-World War II history of the community of Norco. Beginning in the 1920s, the North Corona Land Company began selling farm-residence properties, and the town was soon settled by families who tended gardens and raised chickens and rabbits on modest farms (City of Norco 2020). Taken in 1948, the earliest available aerial photograph indicates the two southernmost subject parcels were two of the many farms located along Hamner Avenue. Aerial photographs taken in 1966 and 1967 show that several new buildings and probable livestock pens were constructed on parcel 121-050-002 and that crop fields were possibly fallow. Sometime between 1967 and 1980, the neighboring drainage ditch was constructed across a portion of the southern parcel. Sometime between 1980 and 1994, building currently associated with an RV dealership was developed on the east side of parcel 129050-002. A comparison of photographs suggests the buildings were razed sometime between 1994 and 2002 (Netronline 1948; 1966; 1967; 1980; 1994; 2002). The inscription "J.E. LEWIS CONTRACTOR" is stamped into one of the building foundations. Research for the current study uncovered no information of consequence regarding Lewis.

The northernmost parcel was originally part of a larger property that most recently contained a single-screen drive-in theater. As late as 1967, the property remained agricultural in character. In 1968, Crest Drive-In Theater was developed on the property. A contemporary description of the property remarked that it was "set in a natural amphitheater encircled by eucalyptus, palm and cypress trees." In the early years of the theater's operation, it was run by the National General Theatre and Mann Theatre companies. After 1977, it was likely operated by independent exhibitors. The drive-in remained in business at least as late as 1988 (Cinema Treasures 2020). By 1994, historic aerial photographs show, the construction of 3rd Street through the area dividing the property into two parcels on opposite sides of the street. The southern parcel, which is presently under evaluation, was the location of the screen and the vehicular entrance. By 1994, the screen had been demolished (Netronline 1980; 1994). At the time of the field survey for the current evaluation, the only remnants of the drive-in located on parcel 129-0380-010 were the poured concrete vehicular entrance and several cypress trees flanking the driveway.

B12. References (continued):
City of Norco
2020 "A Brief History of Norco, California." http://www.norco.ca.us/connect/history.asp, accessed March 3, 2020.

Cinema Treasures
2020. "Crest Drive-In." http://cinematreasures.org/theaters/39881.

Netronline
Var. "Historic Aerials." [digital photograph database]. Images of the Project Area viewed online. https://www.historicaerials.com/viewer, accessed March 3, 2020.

Newspapers.com
Var. "Home." [digitized archive]. Newspaper Articles, various by location and date. https://www.newspapers.com/, accessed March 3, 2020.

Photograph 2. Feature 1. Camera facing southwest. Photograph taken February 24, 2020.

Photograph 3. Feature 2. Camera facing south east. Photograph taken February 24, 2020.

Photograph 4. Feature 3. Camera facing west. Photograph taken February 24, 2020.

Photograph 5. Feature 4. Camera facing northeast. Photograph taken February 24, 2020.

Photograph 6. Feature 4, detail. Photograph taken February 24, 2020.

Photograph 7. Feature 5. Camera facing east. Photograph taken February 24, 2020.

Photograph 8. Feature 6. Camera facing northeast. Photograph taken February 24, 2020.

Photograph 9. Feature 7, with features10, 11, and 12 in the background. Camera facing northeast. Photograph taken February 24, 2020.

Photograph 10. Feature 8. Camera facing northwest. Photograph taken February 24, 2020.

Photograph 11. Feature 9, with feature 8 in the background. Camera facing southwest. Photograph taken February 24, 2020.

Photograph 16. Feature 14 from the south end. Camera facing north. Photograph taken February 24, 2020.

Photograph 17. North end of feature 14 (center) with partial view of feature 13 in the foreground. Camera facing north. Photograph taken February 24, 2020.

Photograph 12. Feature 10. Camera facing southeast. Photograph taken February 24, 2020.

Photograph 13. Feature 11. Camera facing southeast. Photograph taken February 24, 2020.

Photograph 14. Feature 12. Camera facing east. Photograph taken February 24, 2020.

Photograph 15. Feature 13, with feature 14 in the background. Camera facing northwest. Photograph taken February 24, 2020.

Appendix F

AB 52 Consultation

Appendix F

AB 52 Consultation

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Amanda Vance, Chairperson
Augustine Band of Cahuilla Mission Indians
P.O. Box 846
Coachella, California 92236

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

The City of Norco is preparing an Environmental Impact Report for the proposed Norco Valley Square project (project). Pursuant to the provisions of AB 52 and SB 18, as the Lead Agency under the California Environmental Quality Act (CEQA), the City of Norco is extending an invitation to consult on the CEQA review of the project to assist in identifying potential project impacts to Native American cultural places.

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If you have any questions please call me at (951) 270-5662 or email at sking@ci.norco.ca.us.

Respectfully,

Steve King
Planning Director, City of Norco

Enclosure:
1. Project Location
2. Aerial Exhibit
3. Proposed Project Exhibit

CITY COUNCIL

BERWIN HANNA	KEVIN BASH	ROBIN GRUNDMEYER	TED HOFFMAN	GREG NEWTON
Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Ralph Goff, Chairperson
Campo Band of Diegueno Mission Indians
36190 Church Road, Suite 1
Campo, California 91906

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Planning Director, City of Norco

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Michael Garcia, Vice Chairperson
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, California 91901

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Respectfully,

Steve King
Planning Director, City of Norco

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Robert Pinto, Chairperson
Ewiiaapaayp Band of Kumeyaay Indians
4054 Willows Road
Alpine, California 91901

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Planning Director, City of Norco

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Sandonne Goad, Chairperson
Gabrielino /Tongva Nation
106 1/2 Judge John Aiso St., #231
Los Angeles, California 90012

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

The City of Norco is preparing an Environmental Impact Report for the proposed Norco Valley Square project (project). Pursuant to the provisions of AB 52 and SB 18, as the Lead Agency under the California Environmental Quality Act (CEQA), the City of Norco is extending an invitation to consult on the CEQA review of the project to assist in identifying potential project impacts to Native American cultural places.

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Steve King
Planning Director, City of Norco

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Doug Welmas, Chairperson
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio, California 92203

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Planning Director, City of Norco

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Jeff Grubbe, Chairperson
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, California 92264

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Robert Martin, Chairperson
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, California 92220

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Angela Elliott Santos, Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, California 91905

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Joseph Hamilton, Chairperson
Ramona Band of Cahuilla
P.O. Box 391670
Anza, California 92539

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Mark Macarro, Chairperson
Pechanga Band of Luiseno Indians
P.O. Box 1477
Temecula, California 92593

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Donna Yocum, Chairperson
San Fernando Band of Mission Indians
P.O. Box 221838
Newhall, California 91322

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

The City of Norco is preparing an Environmental Impact Report for the proposed Norco Valley Square project (project). Pursuant to the provisions of AB 52 and SB 18, as the Lead Agency under the California Environmental Quality Act (CEQA), the City of Norco is extending an invitation to consult on the CEQA review of the project to assist in identifying potential project impacts to Native American cultural places.

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If you have any questions please call me at (951) 270-5662 or email at sking@ci.norco.ca.us.

Respectfully,

Steve King
Planning Director, City of Norco

Enclosure:
1. Project Location
2. Aerial Exhibit
3. Proposed Project Exhibit

CITY COUNCIL

BERWIN HANNA	KEVIN BASH	ROBIN GRUNDMEYER	TED HOFFMAN	GREG NEWTON
Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Cody Martinez, Chairperson
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, California 92019

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Steven Estrada, Chairperson
Santa Rosa Band of Cahuilla Indians
P.O. Box 391820
Anza, California 92539

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Thomas Tortez, Chairperson
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, California 92274

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Shane Chapparosa, Chairperson
Los Coyotes Band of Cahuilla and Cupeño Indians
P.O. Box 189
Warner Springs, California 92086-0189

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Gwendolyn Parada, Chairperson
La Posta Band of Diegueno Mission Indians
8 Crestwood Road
Boulevard, California 91905

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Javaughn Miller, Tribal Administrator
La Posta Band of Diegueno Mission Indians
8 Crestwood Road
Boulevard, California 91905

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, California 90707

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Erica Pinto, Chairperson
Jamul Indian Village
P.O. Box 612
Jamul, California 91935

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Lisa Cumper, Tribal Historic Preservation Officer
Jamul Indian Village
P.O. Box 612
Jamul, California 91935

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians - KIZH Nation
P.O. Box 393
Covina, California 91723

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, California 91778

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

John Christman, Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Road
Alpine, California 91901

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The proposed project must comply with California Public Resources Code § 21080.3.1 (Assembly Bill [AB] 52 of 2014), which requires local governments to conduct meaningful consultation with California Native American tribes that have requested to be notified by lead agencies of proposed projects in the geographic area with which the tribe is traditionally and culturally affiliated. If you desire to consult with the City on the review of this project, please respond in writing within 30 days of the date of this letter. If the City does not receive a response in 30 days it will be presumed that you have declined consultation.

If you have any questions please call me at (951) 270-5662 or email at sking@ci.norco.ca.us.

Respectfully,

Steve King
Planning Director, City of Norco

Enclosure:
1. Project Location
2. Aerial Exhibit
3. Proposed Project Exhibit

CITY COUNCIL

BERWIN HANNA	KEVIN BASH	ROBIN GRUNDMEYER	TED HOFFMAN	GREG NEWTON
Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

CITY OF NORCO
HORSETOWN USA

June 9, 2020

Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills California 91307

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Scott Cozart, Chairperson
Soboba Band of Luiseno Indians
P. O. Box 487
San Jacinto, California 92583

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Allen Lawson, Chairperson
San Pasqual Band of Diegueno Mission Indians
P.O. Box 365
Valley Center, California 92082

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Daniel Salgado, Chairperson
Cahuilla Band of Indians
52701 U.S. Highway 371
Anza, California 92539

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CITY OF NORCO
HORSETOWN USA

June 9, 2020

Michael Linton, Chairperson
Mesa Grande Band of Diegueno Mission Indians
P.O Box 270
Santa Ysabel, California 92070

Re: AB 52 Consultation, Norco Valley Square, Norco, Riverside County, California

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Mayor	Mayor Pro Tem	Council Member	Council Member	Council Member

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Norco Valley Square AB 52 Correspondence

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Jeff Grubbe, Chairperson Agua Caliente Band of Cahuilla Indians 5401 Dinah Shore Drive Palm Springs, California 92264 Phone: (760) 699 – 6800 Fax: (760) 699-6919	June 6, 2020	No response received as of August 31, 2020	No comments received
Amanda Vance, Chairperson Augustine Band of Cahuilla Mission Indians P.O. Box 846 Coachella, California 92236 Phone: (760) 398 - 4722	June 6, 2020	No response received as of August 31, 2020	No comments received
Doug Welmas, Chairperson Cabazon Band of Mission Indians 84-245 Indio Springs Parkway Indio, California 92203 Phone: (760) 342 - 2593 Fax: (760) 347-7880 jstapp@cabazonindians-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received
Daniel Salgado, Chairperson Cahuilla Band of Indians 52701 U.S. Highway 371 Anza, California 92539 Phone: (951) 763 - 5549 Fax: (951) 763-2808 chairman@cahuilla.net	June 6, 2020	No response received as of August 31, 2020	No comments received
Ralph Goff, Chairperson Campo Band of Diegueno Mission Indians 36190 Church Road, Suite 1 Campo, California 91906 Phone: (619) 478 - 9046 Fax: (619) 478-5818 rgoff@campo-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Robert Pinto, Chairperson Ewiiaapaayp Band of Kumeyaay Indians 4054 Willows Road Alpine, California 91901 Phone: (619) 445 - 6315 Fax: (619) 445-9126 wmicklin@leaningrock.net	June 6, 2020	No response received as of August 31, 2020	No comments received
Michael Garcia, Vice Chairperson Ewiiaapaayp Band of Kumeyaay Indians 4054 Willows Road Alpine, California 91901 Phone: (619) 445 - 6315 Fax: (619) 445-9126 michaelg@leaningrock.net	June 6, 2020	No response received as of August 31, 2020	No comments received
Andrew Salas, Chairperson Gabrieleno Band of Mission Indians - Kizh Nation P.O. Box 393 Covina, California 91723 Phone: (626) 926 - 4131 admin@gabrielenoindians.org	June 6, 2020	No response received as of August 31, 2020	No comments received
Anthony Morales, Chairperson Gabrieleno/Tongva San Gabriel Band of Mission Indians P.O. Box 693 San Gabriel, California 91778 Phone: (626) 483 - 3564 Fax: (626) 286-1262 GTTribalcouncil@aol.com	June 6, 2020	No response received as of August 31, 2020	No comments received
Sandonne Goad, Chairperson Gabrielino /Tongva Nation 106 1/2 Judge John Aiso St., #231 Los Angeles, California 90012 Phone: (951) 807 - 0479 sgoad@gabrielino-tongva.com	June 6, 2020	No response received as of August 31, 2020	No comments received

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Robert Dorame, Chairperson Gabrielino Tongva Indians of California Tribal Council P.O. Box 490 Bellflower, California 90707 Phone: (562) 761 - 6417 Fax: (562) 761-6417 gtongva@gmail.com	June 6, 2020	No response received as of August 31, 2020	No comments received
Charles Alvarez Gabrielino-Tongva Tribe 23454 Vanowen Street West Hills California 91307 Phone: (310) 403 - 6048 roadkingcharles@aol.com	June 6, 2020	No response received as of August 31, 2020	No comments received
Lisa Cumper, Tribal Historic Preservation Officer Jamul Indian Village P.O. Box 612 Jamul, California 91935 Phone: (619) 669 - 4855 lcumper@jiv-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received
Erica Pinto, Chairperson Jamul Indian Village P.O. Box 612 Jamul, California 91935 Phone: (619) 669 - 4785 Fax: (619) 669-4817 epinto@jiv-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received
Gwendolyn Parada, Chairperson La Posta Band of Diegueno Mission Indians 8 Crestwood Road Boulevard, California 91905 Phone: (619) 478 - 2113 Fax: (619) 478-2125 LP13boots@aol.com	June 6, 2020	No response received as of August 31, 2020	No comments received

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Javaughn Miller, Tribal Administrator La Posta Band of Diegueno Mission Indians 8 Crestwood Road Boulevard, California 91905 Phone: (619) 478 - 2113 Fax: (619) 478-2125 jmiller@LPtribe.net	June 6, 2020	No response received as of August 31, 2020	No comments received
Shane Chapparosa, Chairperson Los Coyotes Band of Cahuilla and Cupeño Indians P.O. Box 189 Warner Springs, California 92086-0189 Phone: (760) 782 - 0711 Fax: (760) 782-0712	June 6, 2020	No response received as of August 31, 2020	No comments received
Angela Elliott Santos, Chairperson Manzanita Band of Kumeyaay Nation P.O. Box 1302 Boulevard, California 91905 Phone: (619) 766 - 4930 Fax: (619) 766-4957	June 6, 2020	No response received as of August 31, 2020	No comments received
Michael Linton, Chairperson Mesa Grande Band of Diegueno Mission Indians P.O Box 270 Santa Ysabel, California 92070 Phone: (760) 782 - 3818 Fax: (760) 782-9092 mesagrandeband@msn.com	June 6, 2020	No response received as of August 31, 2020	No comments received
Robert Martin, Chairperson Morongo Band of Mission Indians 12700 Pumarra Road Banning, California 92220 Phone: (951) 849 - 8807 Fax: (951) 922-8146 dtorres@morongo-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Mark Macarro, Chairperson Pechanga Band of Luiseno Indians P.O. Box 1477 Temecula, California 92593 Phone: (951) 770 – 6000 Fax: (951) 695-1778 epreston@pechanga-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received
Joseph Hamilton, Chairperson Ramona Band of Cahuilla P.O. Box 391670 Anza, California 92539 Phone: (951) 763 - 4105 Fax: (951) 763-4325 admin@ramona-nsn.go	June 6, 2020	No response received as of August 31, 2020	No comments received
Donna Yocum, Chairperson San Fernando Band of Mission Indians P.O. Box 221838 Newhall, California 91322 Phone: (503) 539 - 0933 Fax: (503) 574-3308 ddyocum@comcast.net	June 6, 2020	No response received as of August 31, 2020	No comments received
Allen Lawson, Chairperson San Pasqual Band of Diegueno Mission Indians P.O. Box 365 Valley Center, California 92082 Phone: (760) 749 - 3200 Fax: (760) 749-3876 allenl@sanpasqualtribe.org	June 6, 2020	No response received as of August 31, 2020	No comments received
Steven Estrada, Chairperson Santa Rosa Band of Cahuilla Indians P.O. Box 391820 Anza, California 92539 Phone: (951) 659 - 2700 Fax: (951) 659-2228 mflaxbeard@santarosacahuillansn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received

Contact Information	Date Letter Sent to contact	Date of Response	Comments/Concerns
Scott Cozart, Chairperson Soboba Band of Luiseno Indians P. O. Box 487 San Jacinto, California 92583 Phone: (951) 654 - 2765 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	June 6, 2020	June 23, 2020	Request for consultation regarding the project/project site.
Cody Martinez, Chairperson Sycuan Band of the Kumeyaay Nation 1 Kwaaypaay Court El Cajon, California 92019 Phone: (619) 445 - 2613 Fax: (619) 445-1927 ssilva@sycuan-nsn.gov	June 6, 2020	No response received as of August 31, 2020	No comments received
Thomas Tortez, Chairperson Torres-Martinez Desert Cahuilla Indians P.O. Box 1160 Thermal, California 92274 Phone: (760) 397 - 0300 Fax: (760) 397-8146 tmchair@torresmartinez.org	June 6, 2020	No response received as of August 31, 2020	No comments received
John Christman, Chairperson Viejas Band of Kumeyaay Indians 1 Viejas Grade Road Alpine, California 91901 Phone: (619) 445 - 3810 Fax: (619) 445-5337	June 6, 2020	No response received as of August 31, 2020	No comments received

June 23, 2020

Attn: Steve King, Planning Director
City of Norco
2870 Clark Avenue
Norco, CA 92860

SOBOBA BAND OF LUISEÑO INDIANS
EST. JUNE 19, 1883

RE: AB 52 Consultation; Norco Valley Square – southwest corner of Hamner Avenue and Third Street – City of Norco, Riverside County, CA

The Soboba Band of Luiseño Indians has received your notification pursuant under Assembly Bill 52.

Soboba Band of Luiseño Indians is requesting to initiate formal consultation with the City of Norco. A meeting can be scheduled by contacting me via email or phone. All contact information has been included in this letter.

I look forward to hearing from and meeting with you soon.

Sincerely,

Joseph Ontiveros, Tribal Historic Preservation Officer
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Confidentiality: The entirety of the contents of this letter shall remain confidential between Soboba and the City of Norco. No part of the contents of this letter may be shared, copied, or utilized in any way with any other individual, entity, municipality, or tribe, whatsoever, without the expressed written permission of the Soboba Band of Luiseño Indians.

Appendix G

Geotechnical Evaluation

GEOTECHNICAL EVALUATION
PROPOSED MULTI-FAMILY RESIDENTIAL/COMMERCIAL DEVELOPMENT
SWC 3RD STREET AND HAMNER AVENUE
NORCO, RIVERSIDE COUNTY, CALIFORNIA

PREPARED FOR

FRONTIER ENTERPRISES
2151 EAST CONVENTION CENTER WAY, SUITE 114
ONTARIO, CALIFORNIA 91764

PREPARED BY

GEOTEK, INC.
1548 N. MAPLE STREET
CORONA, CALIFORNIA 92880

PROJECT NO. 2250-CR **NOVEMBER 5, 2019**

GEOTEK

GeoTek, Inc.
1548 North Maple Street, Corona, California 92880
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

November 5, 2019
Project No. 2250-CR

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764

Attention: Mr. Tim Nguyen

Subject: Geotechnical Evaluation
Proposed Multi-Family Residential/Commercial Development
SWC 3rd Street and Hamner Avenue
Norco, Riverside County, California

Dear Mr. Nguyen:

We are pleased to provide herein the results of our geotechnical evaluation for the subject site located in Norco, Riverside County, California. This report presents a discussion of our evaluation and provides preliminary geotechnical recommendations for earthwork, foundation design, and construction.

In our opinion, site development appears feasible from a geotechnical viewpoint provided that the recommendations included herein are incorporated into the design and construction phases of site development.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,
GeoTek, Inc.

Edward H. LaMont
CEG 1892, Exp. 07/31/20
Principal Geologist

Robert R. Russell
GE 2042, Exp. 12/31/20
Senior Project Engineer

Anna M. Scott
Project Geologist

Distribution: (1) Addressee

G:\Projects\2201 to 2250\2250CR Frontier Enterprises Norco Multi-Family Mixed Use\Geotechnical Evaluation\2250CR Geotechnical Evaluation Norco.docx

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ENCLOSURES

Figure 1 – Site Location and General Site Topography Map
Figure 2 – Boring Location Map

Appendix A – Logs of Exploratory Borings
Appendix B – Laboratory Test Results
Appendix C – Liquefaction Analysis
Appendix D – General Grading Guidelines

1. PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to complete an evaluation of the existing geotechnical conditions of the project site, as outlined in our proposal P-0604419, dated June 20, 2019. Services provided for this study included the following:

- Research and review of available geologic and geotechnical data, and general information pertinent to the site,
- Perform a site reconnaissance,
- Site exploration consisting of the excavation and sampling of seven exploratory borings observed and logged by a geologist from our firm to a maximum depth of 40-½ feet,
- Collection of bulk and relatively undisturbed soil sample of the onsite materials,
- Laboratory testing of the soil samples collected from the site,
- Review and evaluation of site seismicity, and
- Compilation of this geotechnical report which presents our recommendations for site development.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The site is an irregular shaped 16.16 acre project located adjacent to the southwest corner of the intersection of 3rd Street and Hamner Avenue in Norco, Riverside County, California. At the time of our field exploration, the east portion of the site was occupied by Norco RV Center, a sales lot for trailers. Norco RV Center consisted of a sales office (mobile facility), a storage shed and paved parking/drive areas. The remainder of the site was generally vacant land. Remnants of several concrete slabs and walls were observed in the central portion of the site. Some large trees were observed in the southeastern portion of the site. Based on a review of Google Earth aerial photographs, site elevations range from about El. 635 to El. 590, with surface drainage directed generally to the south-southwest. A small knoll is located in the north-central portion of the property.

The site is in an area largely characterized by commercial development. The site is bounded by vacant land, followed by Third Street, followed by commercial development and a portion of the Riverside Community College District to the north; Hamner Avenue, followed by commercial development, to the east; residential development and a concrete lined channel, followed by commercial development, to the south; and a portion of Riverside Community College District and residential development to the west.

Aerial photographs dated 1931, 1938, 1948, 1953, 1959, 1967, 1975, 1985, 1989, 1990, 1994, 2006, 2009, 2012, 2016 and 2018 were also reviewed.

A residential structure and associated outbuildings were present in the north central portion of the site in the 1931 aerial photograph. Another structure was present in the south-central portion of the site in 1931.

A residential structure and associated outbuildings were observed in the north central portion of the site in the 1938 aerial photograph. Two other structures were noted in the south-central portion of the site in the 1938 photograph.

Several structures were observed in the north-central portion of the site in the 1948, 1953, 1959 and 1967 aerial photographs. Two structures were also observed in the south-central portion of the site during this time period

Two structures were present in the north-central portion of the site in the 1975 aerial photograph. Another structure was observed in the south-central portion of the site.

Remnants of concrete slabs were present in the north-central and south-central portions of the site in the 1985 aerial photograph.

The trailer sales facility was first observed in the 1989 aerial photograph. The site appears similar in the 1990, 1994, 2006, 2009, 2012 and 2016 aerial photographs. The trailer sales facility was expanded to the north in the 2018 aerial photograph.

2.2 PROPOSED DEVELOPMENT

It is our understanding that proposed site improvements are to consist of demolition of the existing site improvements and construction of approximately 320 apartment units, a commercial/retail center in the northeast portion of the site, a hotel facility in the southeast portion of the property and associated parking and drive areas. We anticipate that the planned apartment and retail structures will be one to three stories in height and will incorporate shallow foundations and conventional slabs on-grade. The hotel structure may possess greater heights.

Structural loading information was not provided during the time of the investigation. For the purpose of this report, we have assumed maximum column and wall loads of about 100 kips and 4 kips per foot respectively. Once actual loads are known, that information should be provied to GeoTek to determine if modifications to the recommendations presented in this report are warranted. Dependent upon the actual structural loads, additional field investigation and analysis may be warranted.

Based on the existing site topography, we anticipate that the maximum depth of cuts and fills will be less than about 10 feet, except in the north-central portion of the site, where cuts up to about 20 feet are possible.

If site development differs from the assumptions made herein, the recommendations included in this report should be subject to further review and evaluation. Site development plans should be reviewed by GeoTek when they become available.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

The field exploration was conducted on October 15, 2019 and consisted of excavating seven (7) exploratory borings, excavated with a conventional hollow-stem drill rig, extended to depths of approximately 15-½ to 40-½ feet below ground surface. Several of the borings were terminated at depths shallower than initially planned due to auger refusal on bedrock. The approximate locations of the exploratory excavations are shown on the Boring Location Map (Figure 2). Logs of the excavations are included in Appendix A.

The exploration logs show subsurface conditions at the dates and locations indicated and may not be representative of other locations and times. The stratification lines presented on the logs represent the approximate boundaries between soil types and the transitions may be gradual.

Relatively undisturbed soil samples were recovered at various intervals in the geotechnical borings with a California sampler. The California sampler is a 3-inch outside diameter, 2.4-inch inside diameter, split barrel sampler lined with brass rings. The sampler was 18 inches long. The sampler conformed to the requirements of ASTM D 3550. A 140-pound automatic trip hammer was utilized, dropping 30 inches for each blow. The relatively undisturbed samples, together with bulk samples of representative soil types, were returned to the laboratory for testing and evaluation. In Boring 6, standard penetration tests were performed with a 2.0-inch outside diameter, 1.375-inch unlined inside diameter, split-barrel sampler. The sampler was 18 inches

long. The sampler conformed to the requirements of ASTM D 1586. A 140-pound automatic trip hammer was utilized, dropping 30 inches for each blow. The standard penetration test and California Ring sampler data are presented on the boring logs.

3.2 LABORATORY TESTING

Laboratory testing was performed on selected soil samples obtained during our field exploration. The purpose of the laboratory testing was to confirm the field classification of the soils encountered and to evaluate the physical properties of the soils for use in engineering design and analysis.

Included in our laboratory testing were moisture-density determinations on undisturbed samples. Collapse testing was performed on three representative undisturbed samples to evaluate the collapse and settlement potential of the site soils. An optimum moisture content-maximum dry density relationship was established for typical soil types so that the relative compaction of the subsoils could be determined. Direct shear testing was performed on a selected sample to help evaluate the bearing capacity of the soils. Expansion index testing was performed on two selected samples to evaluate the expansion potential of the site soils. Chemical testing comprised of pH, soluble sulfate, chloride and resistivity testing was conducted on two selected samples. The moisture-density data is presented on the exploration logs in Appendix A. The maximum density, direct shear, expansion index and chemical test data are presented in Appendix B.

4. GEOLOGIC AND SOILS CONDITIONS

4.1 REGIONAL SETTING

The property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends from the point of contact with the Transverse Ranges geomorphic province, southerly to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zone trend northwest-southeast and are found near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

More specific to the property, this is an area geologically mapped to be underlain by older fan deposits along with granitic bedrock materials (Morton, D.M. and Miller, F.K., 2006).

4.2 GENERAL SOIL/GEOLOGIC CONDITIONS

A brief description of the earth materials encountered below the site and within the area of anticipated construction is presented in the following section. Based on our field exploration, the area of anticipated improvements is underlain by old fan deposits and granitic bedrock.

Although fill materials were not specifically observed or encountered in our exploratory borings, some areas of the site are most likely underlain by fill. If encountered during the grading operations, all fill materials should be removed and replaced with recently placed engineered fill.

4.2.1 Older Fan Deposits

Older fan deposits were encountered within the test borings to depths ranging from about 7 to 36 feet below existing grade. As encountered in the borings, the older fan deposits consisted of stiff to hard sandy clay and sandy silt and dense to very dense silty and clayey sand.

According to the results of the laboratory testing performed on two samples of the near surface alluvium, the near surface soils have a "very low" to "low" expansion potential (EI=8 and 25) when tested and classified in accordance with ASTM D 4829. The test results are provided in Appendix B.

4.2.2 Granitic Bedrock

At the boring locations, the older fan deposits were underlain by granitic bedrock that extended to the maximum depth explored (40-½ feet below grade). As encountered in the borings, the bedrock was sampled as a very dense fine to coarse sand.

4.3 SURFACE AND GROUNDWATER

4.3.1 Surface Water

If encountered during the earthwork construction, surface water on this site is the result of precipitation or surface run-off from surrounding sites. Provisions for surface drainage will need to be accounted for by the project civil engineer.

4.3.2 Groundwater

Groundwater was encountered within boring B-6 at a depth of about 27.5 feet below grade at the time of drilling. Groundwater was not encountered within any of the other borings drilled at this site. Based on a review of groundwater depths noted on the State GeoTracker website,

and a review of the depth to water on the map prepared by Carson and Matti (Carson and Matti, 1985), we estimate a historic high groundwater depth of 25 feet at the site.

It is possible that seasonal variations (temperature, rainfall, etc.) will cause fluctuations in the groundwater level. Additionally, perched water may be encountered at shallow depths following extensive rain events. If shallow perched water is encountered, we anticipate that it can be managed with conventional sump pumps.

4.4 FAULTING AND SEISMICITY

The geologic structure of the entire southern California area is dominated mainly by northwest-trending faults associated with the San Andreas system. The site is in a seismically active region. No active or potentially active fault is known to exist at this site nor is the site situated within an *"Alquist-Priolo"* Earthquake Fault Zone (Bryant and Hart, 2007; CGS, 1986). The subject property is not located within a State of California Seismic Hazard Zone for earthquake induced landsliding (CGS, 1998). The nearest zoned fault is the Elsinore Fault, located approximately 25.7 miles to the southwest.

The County of Riverside has designed the site to be "not in a fault zone", "not in a fault line", and having a "high" potential for liquefaction.

4.4.1 Seismic Design Parameters

The site is located at approximately 33.9153 degrees Latitude and -117.5620 degrees Longitude. Based on the site geology and the explorations performed, a Site Class C is deemed appropriate for the site. Site spectral accelerations (S_a and S_1), for 0.2 and 1.0 second periods for a Class "C" site, was determined from the SEAOC/OSHPD web interface that utilizes the USGS web services and retrieves the seismic design data and presents that information in a report format. This analysis was performed consistent with the requirements of the 2016 California Building Code. The results are presented in the following table:

SITE SEISMIC PARAMETERS	
Mapped 0.2 sec Period Spectral Acceleration, S_S	1.509g
Mapped 1.0 sec Period Spectral Acceleration, S_1	0.606g
Site Coefficient for Site Class "C", F_a	1.0
Site Coefficient for Site Class "C", F_v	1.3
Maximum Considered Earthquake Spectral Response Acceleration for 0.2 Second, S_{MS}	1.509g
Maximum Considered Earthquake Spectral Response Acceleration for 1.0 Second, S_{M1}	0.788g
5% Damped Design Spectral Response Acceleration Parameter at 0.2 Second, S_{DS}	1.006g
5% Damped Design Spectral Response Acceleration Parameter at 1 second, S_{D1}	0.525g
Peak Ground Acceleration Adjusted for Site Class Effects, PGA_M	0.557g
Seismic Design Category	D

4.5 LIQUEFACTION CONSIDERATIONS

Based on the high liquefaction potential designated by Riverside County, a liquefaction analysis was performed to assess the liquefaction potential of the site soils during a seismic event. For this evaluation, we utilized a ground acceleration of 0.557g (PGA_M), an earthquake magnitude of 6.7, and a high groundwater depth of 25 feet. The soil profile identified in boring B-6 was also used.

The computer software program LiquefyPro was utilized along with the site-specific input values mentioned above. The results of this analysis indicate that the site soils are not potentially susceptible to liquefaction during a seismic event. The soils above groundwater are subject to minor dry settlement (0.15 inch); however, the magnitude of dry settlement is considered to be minimal and is not a design constraint for this project. The computer output file from the liquefaction analysis are presented in Appendix C.

4.6 OTHER SEISMIC HAZARDS

Evidence of ancient landslides or slope instabilities at this site was not observed during our investigation. Thus, the potential for landslides is considered negligible for design purposes.

The potential for secondary seismic hazards such as a seiche or tsunami is considered negligible due to site elevation and distance to an open body of water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

Development of the site appears feasible from a geotechnical viewpoint. The following recommendations should be incorporated into the design and construction phases of development.

5.2 EARTHWORK CONSIDERATIONS

Earthwork and grading should be performed in accordance with the applicable grading ordinances of the City of Norco, the 2016 California Building Code (CBC) and recommendations contained in this report. Site grading plans should be reviewed by this office when they become available. Additional recommendations will likely be offered subsequent to review of these plans.

5.2.1 Demolition & Site Clearing

Initial site preparation should include demolition of the existing improvements not to be re-used and removal of all vegetation and deleterious materials. Demolition of the existing building remnants and structural improvements should include removal of all foundations, flatwork, underground utilities and any other below-grade construction. Removed utilities should be properly cut-off at the property boundaries and/or as required by the local utility agencies. All materials resulting from demolition and site clearing should be legally disposed off-site. The horizontal limits of the demolition and clearing should extend at least 8 feet beyond the new building and beneath any new improvements.

Voids resulting from removing any materials should be replaced with engineered fill materials with expansion characteristics similar to the onsite materials.

5.2.2 Site Preparation

After demolition and site clearing and lowering of site grades, where necessary, and prior to placement of new engineered fill, we recommend that the exposed subgrade soils within the new building areas be over-excavated to a depth of at least two (2) feet below existing grade or two (2) feet below the bottom of the planned footings and floor slabs, whichever is deeper. The recommended over-excavation should extend laterally at least 3 feet beyond all planned footings.

The soils exposed at the base of the recommended over-excavation should be examined by a GeoTek representative to document that the exposed soils are suitable for support of the planned improvements. If unsuitable soil is observed, the over-excavation should be extended

until suitable soil is observed. Once approved, the soils at the base of the over-excavation should be scarified to a depth of about 12 inches, moisture treated to slightly above the soil's optimum moisture content and then compacted to at least 90 percent of the soils' maximum dry density, per ASTM D-1557. Excavations may then be backfilled to the planned finish grade elevations with properly compacted engineered fill.

The subgrade soils beyond the limits of the building and where surface improvements or new fill is planned should be proof rolled in the presence of the geotechnical engineer. Proof rolling should be accomplished using a minimum 15-ton rubber-tired piece of construction equipment and proof rolling should consist of at least four passes, two in each perpendicular direction. Any soil that ruts or excessively deflects during proof rolling should be removed, as recommended by the geotechnical engineer representative. Following proof rolling and any needed over-excavation, the exposed soils should be scarified to a depth of about 12 inches, be moisture conditioned to slightly above the soil's optimum moisture content and then be compacted to at least 90 percent of the soil's maximum dry density, per ASTM D-1557.

5.2.3 Swimming Pool Preparation

The soils at the base of the swimming pool excavation should be over-excavated to a depth of 12 inches. The soils exposed at the base of the recommended over-excavation should be examined by a GeoTek representative to document that the exposed soils are suitable for support of the planned improvements. If unsuitable soil is observed, the over-excavation should be extended until suitable soil is observed. Once approved, the soils at the base of the over-excavation should be scarified, moisture treated to slightly above the soil's optimum moisture content and then compacted to at least 90 percent of the soils' maximum dry density, per ASTM D-1557. Excavations may then be backfilled to the planned finish grade elevations with properly compacted engineered fill.

The subgrade soils beneath the pool patio slabs should proof rolled and prepared as previously recommended. We also recommend that the upper 12 inches of soil beneath the patio slabs consist of very low expansive soils.

5.2.4 Fills

On-site materials are generally considered suitable for reuse as engineered fill provided they are free from vegetation, roots, and other deleterious material. Rock fragments greater than 6 inches in maximum dimension should not be incorporated into engineered fill.

Engineered fill materials should be placed in horizontal lifts not exceeding 8 inches in loose thickness, moisture conditioned to over the optimum moisture content and compacted to a minimum relative compaction of 90 percent (ASTM D 1557).

5.2.5 Excavation Characteristics

Excavations into the onsite soil materials is expected to be generally feasible using heavy-duty grading equipment in good operating conditions. However, excavations into the granitic bedrock materials are expected to encounter more resistant materials and specialized excavation techniques and/or blasting may be necessary, dependent upon the depths of excavations planned.

Once excavation depths are known, further evaluation of the rippability characteristics of the granitic bedrock materials should be performed.

All excavations should be formed in accordance with current Cal-OSHA requirements.

5.2.6 Shrinkage/Bulking Estimates

Several factors will impact earthwork balancing on the site, including shrinkage, subsidence, trench spoil from utilities and footing excavations, as well as the accuracy of topography.

Shrinkage and subsidence are primarily dependent upon the degree of compactive effort achieved during construction. For planning purposes, a shrinkage factor of about 0 to 15 percent may be considered for the old alluvial fan materials requiring removal and recompaction. A bulking factor of about 5 to 15 percent should be considered for excavations extending into the underlying granitic bedrock. Site balance areas should be available in order to adjust project grades, depending on actual field conditions at the conclusion of earthwork. Subsidence on the order of up to 0.1 foot may be anticipated resulting from preparation of the underlying soils for alluvial areas.

5.2.7 Trench Excavations and Backfill

Temporary excavations within the onsite materials should be stable at 1:1 inclinations for short durations during construction, and where cuts do not exceed 15 feet in height. Temporary cuts to a maximum height of 4 feet can be excavated vertically, but local sloughing and/or failure could occur due to the granulated nature of the soils at this site. Increased caution should be applied when working near or within any excavations at this site.

Trench excavations should conform to Cal-OSHA regulations. The contractor should have a competent person, per OSHA requirements, on site during construction to observe conditions and to make the appropriate recommendations.

Utility trench backfill should be compacted to at least 90 percent relative compaction (as determined per ASTM D 1557). Under-slab trenches should also be compacted to project

specifications. Onsite materials are not considered suitable for use as bedding material but should be suitable as backfill provided particles larger than 6± inches are removed.

Compaction should be achieved with a mechanical compaction device. Ponding or jetting of trench backfill is not recommended. If backfill soils have dried out, they should be thoroughly moisture conditioned prior to placement in trenches.

5.3 DESIGN RECOMMENDATIONS

Foundation design criteria for a conventional foundation system, in general conformance with the 2016 CBC, are presented below. The soils are classified as having a "very low" to "low" expansion potential in accordance with ASTM D 4829. Typical design criteria for the site based upon a "very low" and 'low" expansion potential are tabulated below. These are minimal recommendations and are not intended to supersede the design by the project structural engineer. Once structural loading information is provided, revisions to the recommendations provided in this report may be necessary.

The conventional foundation elements for the proposed buildings should bear entirely in engineered fill soils. Foundations should be designed in accordance with the 2016 CBC.

Expansion index and soluble sulfate evaluation of the soils should be performed during construction to evaluate the as-graded conditions. Final recommendations should be based upon the as-graded soils conditions.

A summary of our foundation design recommendations is presented in the following table:

GEOTECHNICAL RECOMMENDATIONS FOR FOUNDATION DESIGN

Design Parameter	"Very Low" Expansion Potential	"Low" Expansion Potential
Foundation Depth or Minimum Perimeter Beam Depth (inches below lowest adjacent grade)	12-1 & 2 story Per code-3+ stories	18-1 & 2 story Per code-3+ stories
Minimum Foundation Width (Inches)*	12	12
Minimum Slab Thickness (actual)[1]	4 – Actual	4 – Actual
Sand Blanket and Moisture Retardant Membrane Below On-Grade Building Slabs	2 inches of sand** overlying moisture vapor retardant membrane overlying 2 inches of sand**	2 inches of sand** overlying moisture vapor retardant membrane overlying 2 inches of sand**
Minimum Slab Reinforcing	6" x 6" – W1.4/W1.4 welded wire fabric placed in middle of slab or No. 3 bars at 24 inch centers	6" x 6" – W2.9/W2.9 welded wire fabric placed in middle of slab or No. 3 bars at 18 inch centers.
Minimum Footing Reinforcement	Two No. 4 reinforcing bars, one placed near the top and one near the bottom	Two No. 4 reinforcing bars, one placed near the top and one near the bottom
Effective Plasticity Index***	N/A	15
Presaturation of Subgrade Soil (Percent of Optimum)	Minimum of 100% of the optimum moisture content to a depth of at least 12 inches prior to placing concrete	Minimum of 110% of the optimum moisture content to a depth of at least 12 inches prior to placing concrete

* Code minimums per Table 1809.7 of the 2016 CBC
** Sand should have a sand equivalent of at least 30

An allowable bearing capacity of 2,000 pounds per square foot (psf) may be used for design of building foundations for footing depths and widths of 12 inches. This allowable soil bearing capacity may be increased by 1,200 psf for each addition foot of footing depth and 600 psf for each additional foot of footing width to a maximum value of 4,000 psf. The allowable bearing capacity may also be increased by one-third when considering short-term wind and seismic loads.

For footings designed in accordance with the recommendations presented in this report, we would anticipate a maximum static settlement of less than one inch and a maximum differential static settlement of less than ½-inch in a 40-foot span.

The passive earth pressure may be computed as an equivalent fluid having a density of 290 psf per foot of depth, to a maximum earth pressure of 3,000 psf for footings cast adjacent to newly placed fill and/or competent native soil. A coefficient of friction between soil and concrete of 048 may be used with dead load forces. The upper one foot of soil below the adjacent grade should not be used in calculating passive pressure unless the ground surface is covered with

pavement. When combining passive and frictional resistance, the passive pressure component should be reduced by one-third.

A moisture and vapor retarding system should be placed below slabs-on-grade where moisture migration through the slab is undesirable. Guidelines for these are provided in the 2016 California Green Building Standards Code (CALGreen) Section 4.505.2 and the 2016 CBC Section 1907.1 and ACI 360R-10. The vapor retarder design and construction should also meet the requirements of ASTM E1643. A portion of the vapor retarder design should be the implementation of a moisture vapor retardant membrane.

It should be realized that the effectiveness of the vapor retarding membrane can be adversely impacted as a result of construction related punctures (e.g. stake penetrations, tears, punctures from walking on the aggregate layer, etc.). These occurrences should be limited as much as possible during construction. Thicker membranes are generally more resistant to accidental puncture than thinner ones. Products specifically designed for use as moisture/vapor retarders may also be more puncture resistant. Although the CBC specifies a six-mil vapor retarder membrane, it is GeoTek's opinion that a minimum 10 mil thick membrane with joints properly overlapped and sealed should be considered, unless otherwise specified by the slab design professional. The membrane should consist of Stego wrap or the equivalent.

Moisture and vapor retarding systems are intended to provide a certain level of resistance to vapor and moisture transmission through the concrete, but do not eliminate it. The acceptable level of moisture transmission through the slab is to a large extent based on the type of flooring used and environmental conditions. Ultimately, the vapor retarding system should be comprised of suitable elements to limit migration of water and reduce transmission of water vapor through the slab to acceptable levels. The selected elements should have suitable properties (i.e., thickness, composition, strength, and permeability) to achieve the desired performance level. Consideration should be given to consulting with an individual possessing specific expertise in this area for additional evaluation.

Moisture retarders can reduce, but not eliminate, moisture vapor rise from the underlying soils up through the slab. Moisture retarders should be designed and constructed in accordance with applicable American Concrete Institute, Portland Cement Association, Post-Tensioning Concrete Institute, ASTM and California Building Code requirements and guidelines.

GeoTek recommends that a qualified person, such as the flooring contractor, structural engineer, and/or architect be consulted to evaluate the general and specific moisture vapor transmission paths and associated potential impact.

In addition, the recommendations in this report and our services in general are not intended to address mold prevention, since we along with geotechnical consultants in general, do not practice in areas of mold prevention. If specific recommendations are desired, a professional mold prevention consultant should be contacted.

5.3.1 Miscellaneous Foundation Recommendations

5.3.1.1 To minimize moisture penetration beneath the slab on grade areas, utility trenches should be backfilled with engineered fill, lean concrete or concrete slurry where they intercept the perimeter footing or thickened slab edge.

5.3.1.2 Soils from the footing excavations should not be placed in the slab-on-grade areas unless properly compacted and tested. The excavations should be free of loose/sloughed materials and be neatly trimmed at the time of concrete placement.

5.3.1.3 Under-slab utility trenches should be compacted to project specifications. Compaction should be achieved with a mechanical compaction device. If backfill soils have dried out, they should be thoroughly moisture conditioned prior to placement in trenches.

5.3.1.4 Utility trench excavations should be shored or laid back in accordance with applicable CAL/OSHA standards.

5.3.1.5 On-site materials may not be suitable for use as bedding material but will be suitable as backfill. Jetting of native soils will not be acceptable.

5.3.2 Foundation Setbacks

Foundations should comply with the following setbacks. Improvements not conforming to these setbacks are subject to the increased likelihood of excessive lateral movements and/or differential settlements. If large enough, these movements can compromise the integrity of the improvements. The following recommendations are presented:

- The outside bottom edge of all footings should be set back a minimum of H/3 (where H is the slope height) from the face of any descending slope. The setback should be at least 7 feet and need not exceed 40 feet.
- The bottom of all footings for structures near retaining walls should be deepened so as to extend below a 1:1 projection upward from the bottom inside edge of the wall stem.
- The bottom of any existing foundations for structures should be deepened so as to extend below a 1:1 projection upward from the bottom of the nearest excavation.

5.4 RETAINING WALL DESIGN AND CONSTRUCTION

5.4.1 General Design Criteria

Recommendations presented in this report apply to typical masonry or concrete vertical retaining walls. These are typical design criteria and are not intended to supersede the design by the structural engineer.

Retaining wall foundations should be designed in accordance with *Section 5.3* of this report. A minimum foundation embedment of 12 inches into engineered compacted fill with "very low" to "low" expansion potential is recommended. Structural needs may govern and should be evaluated by the project structural engineer.

All earth retention structure plans, as applicable, should be reviewed by this office prior to finalization.

The backfill material placement for all earth retention structures should meet the requirement of *Section 5.4.4* in this report.

In general, cantilever earth retention structures, which are designed to yield at least 0.001H, where H is equal to the height of the wall to the base of the footing, may be designed using the active condition. Rigid earth retention structures (including but not limited to rigid walls, and walls braced at top, such as typical basement walls) should be designed using the at-rest condition.

In addition to the design lateral forces due to retained earth, surcharges due to improvements, such as an adjacent building or traffic loading, should be considered in the design of the earth retention structures. Loads applied within a 1:1 (h:v) projection from the surcharge on the stem of the earth retention structure should be considered in the design.

Final selection of the appropriate design parameters should be made by the designer of the earth retention structures.

5.4.2 Cantilevered Walls

The recommendations presented below are for cantilevered retaining walls. Active earth pressure may be used for retaining wall design, provided the top of the wall is not restrained from minor deflections. An equivalent fluid pressure approach may be used to compute the horizontal pressure against the wall. Appropriate fluid unit weights are given below for specific

slope gradients of the retained material. These do not include other superimposed loading conditions such as traffic, structures, seismic events, or adverse geologic conditions.

ACTIVE EARTH PRESSURES		
Surface Slope of Retained Materials (h:v)	Equivalent Fluid Pressure (pcf) Native Backfill*	Equivalent Fluid Pressure (pcf) Select Backfill**
Level	38	33

* The design pressures assume the backfill material has an expansion index less than or equal to 50. Backfill zone includes area between the back of the wall and footing to a plane (1:1 h:v) up from the bottom of the wall foundation to the ground surface.

** Select backfill to consist of soil with angle of internal friction of at least 36 degree.

5.4.3 Restrained Retaining Walls

Retaining walls that will be restrained prior to placing and compacting backfill material, or that have reentrant or male corners, should be designed for an at-rest equivalent fluid pressure of 60 pcf, plus any applicable surcharge loading, for native backfill (EI<50) and level back slope condition. If backfilled with select soil, the walls may be designed for an at-rest pressure of 54 pcf. For areas of male or reentrant corners, the restrained wall design should extend a minimum distance of twice the height of the wall laterally from the corner, or a distance otherwise determined by the project structural engineer.

5.4.4 Retaining Wall Backfill and Drainage

Retaining wall backfill should consist of materials with expansion index (EI) ≤ 50 and free of deleterious and/or oversized materials. The wall backfill should also include a minimum one-foot wide section of ¾- to 1-inch clean crushed rock (or approved equivalent). The rock should be placed immediately adjacent to the back of wall and extend up from the back drain to within approximately 12 inches of finish grade. The upper 12 inches should consist of compacted onsite materials. Presence of other materials might necessitate revision to the parameters provided and modification of wall designs. The backfill materials should be placed in lifts no greater than 8-inches in thickness and compacted to a minimum of 90 percent relative compaction in accordance with ASTM Test Method D 1557. Proper surface drainage needs to be provided and maintained. Bracing of the walls during backfilling and compaction may also be necessary.

All earth retention structures should be provided with an adequate pipe and gravel back drain system to reduce the potential for hydrostatic pressure build up. As a minimum, backdrains should consist of a four-inch diameter perforated collector pipe (Schedule 40, SDR 35, or approved equivalent) embedded in a minimum of one cubic foot per lineal foot of ¾- to 1-inch

clean crushed rock or equivalent, wrapped in filter fabric (Mirafi 140N or approved equivalent). The drain system should be connected to a suitable outlet, as determined by the civil engineer. Drain outlets should be maintained over the life of the project and should not be obstructed or plugged by adjacent improvements. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

Proper surface drainage needs to be provided and maintained. Water should not be allowed to pond behind retaining walls. Waterproofing of site walls should be performed where moisture migration through the wall is undesirable.

5.4.5 Soil Corrosivity

Based on the chemical test results presented in Appendix B, the corrosivity test results indicate that the on-site soils are "corrosive" to buried ferrous metal. This corrosion classification is obtained from "Corrosion Basics: An Introduction," by Pierre R. Roberge, 2nd Edition, 2000. Recommendations for protection of buried ferrous metal should be provided by a corrosion engineer. Additional corrosion testing should be performed at the time of site grading to assess the corrosion of potential of the as-graded soils.

5.4.6 Soil Sulfate Content

The sulfate content was determined in the laboratory for two representative onsite soil samples. The results indicate that the water-soluble sulfate is less than 0.1 percent by weight which is considered "not applicable" (i.e. negligible) as per Table 4.2.1 of ACI 318. Based upon the test results, no special concrete mix design is required by Code for sulfate attack resistance.

5.4.7 Import Soils

Import soils (if needed) should have an Expansion Index of less than 20 (very low) and should not possess oversized or deleterious materials. GeoTek also recommends that, as a minimum, any proposed import soils be tested for soluble sulfate content. GeoTek should be notified a minimum of 72 hours of potential import sources so that appropriate sampling and laboratory testing can be performed.

5.5 CONCRETE FLATWORK

5.5.1 Exterior Concrete Slabs and Sidewalks

Exterior concrete slabs and sidewalks should be designed using a four (4) inch minimum thickness. No specific reinforcement is required due to the non-structural nature. However, the use of some reinforcement should be considered. Recommendations can be provided upon request. Some shrinkage and cracking of the concrete should be anticipated as a result of typical mix designs and curing practices commonly utilized in residential construction.

Sidewalks and driveways may be under the jurisdiction of the governing agency. If so, jurisdictional design and construction criteria would apply, if more restrictive than the recommendations presented herein.

Subgrade soils, classified as having "very low" expansion potential, should be pre-moistened prior to placing concrete. The subgrade soils below exterior slabs, sidewalks, driveways, etc. at the subject site should be pre-saturated to a minimum of 110% of optimum moisture content to a depth of 12 inches.

All concrete installation, including preparation and compaction of subgrade, should be done in accordance with City of Norco specifications, and under the observation and testing of GeoTek and a City Inspector, if necessary.

5.5.2 Concrete Performance

Concrete cracks should be expected. These cracks can vary from sizes that are essentially unnoticeable to more than 1/8 inch in width. Most cracks in concrete, while unsightly, do not significantly impact long-term performance. While it is possible to take measures (proper concrete mix, placement, curing, control joints, etc.) to reduce the extent and size of cracks that occur, some cracking will occur despite the best efforts to minimize it. Concrete can also undergo chemical processes that are dependent on a wide range of variables, which are difficult, at best, to control. Concrete, while seemingly a stable material, is also subject to internal expansion and contraction due to external changes over time.

One of the simplest means to control cracking is to provide weakened control joints for cracking to occur along. These do not prevent cracks from developing; they simply provide a relief point for the stresses that develop. These joints are a widely accepted means to control cracks but are not always effective. Control joints are more effective the more closely spaced they are. GeoTek suggests that control joints be placed in two directions and located a distance apart roughly equal to 24 to 36 times the slab thickness.

Exterior concrete flatwork (patios, walkways, driveways, etc.) is often some of the most visible aspects of site development. They are typically given the least level of quality control, being considered "non-structural" components. We suggest that the same standards of care be applied to these features as to the structure itself.

5.6 PRELIMINARY PAVEMENT DESIGN

Pavement design for areas to receive new pavements was conducted per Caltrans *Highway Design Manual* guidelines for flexible pavements. Based on the soil types encountered in our borings, we anticipate that the as-graded pavement subgrades will consist mostly of sandy clay and sandy silt, which assume will possess an R-value of at least 15. Using this assumed R-value and assumed Traffic Indices (TIs) of 5.0, 6.0 and 7.0 for future pavement areas, respectively, the following preliminary pavement sections were calculated:

GEOTECHNICAL RECOMMENDATION FOR MINIMUM PAVEMENT SECTION		
Traffic Index	Thickness of Asphalt Concrete (inches)	Thickness of Aggregate Base (inches)
5.0	3	8
6.0	3	11-½
7.0	4	13

All base material and the upper 12 inches of subgrade should be compacted to at least 95% of the material's maximum dry density, per ASTM D-1557.

Traffic Indices (TIs) used in our preliminary pavement design are considered reasonable values for the proposed pavement areas and should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Irrigation adjacent to pavements, without a deep curb or other cutoff to separate landscaping from the paving may result in premature pavement failure. Traffic parameters used for preliminary design were selected based upon engineering judgment and not upon information furnished to us such as an equivalent wheel load analysis or a traffic study. We recommend that final pavement design be based on R-value testing of the subgrade soils along with the assigned TI values for the planned pavement areas.

Asphalt concrete and aggregate base should conform to current Caltrans Standard Specifications Section 39 and 26-1.02, respectively. As an alternative, asphalt concrete can conform to Section 203-6 of the current Standard Specifications for Public Work (Green Book). Crushed aggregate base or crushed miscellaneous base can conform to Section 200-2.2 and 200-2.4 of the Green Book, respectively.

All pavement installation, including preparation and compaction of subgrade, compaction of base material, placement and rolling of asphaltic concrete, should be done in accordance with the City of Norco specifications, and under the observation and testing of GeoTek and a City Inspector where required. Jurisdictional minimum compaction requirements in excess of the aforementioned minimums may govern.

5.7 POST CONSTRUCTION CONSIDERATIONS

5.7.1 Landscape Maintenance and Planting

Water has been shown to weaken the inherent strength of soil, and slope stability is significantly reduced by overly wet conditions. Positive surface drainage away from graded slopes should be maintained and only the amount of irrigation necessary to sustain plant life should be provided for planted slopes. Controlling surface drainage and runoff and maintaining a suitable vegetation cover can minimize erosion. Plants selected for landscaping should be lightweight, deep-rooted types that require little water and are capable of surviving the prevailing climate.

Overwatering should be avoided. The soils should be maintained in a solid to semi-solid state as defined by the materials Atterberg Limits. Care should be taken when adding soil amendments to avoid excessive watering. Leaching as a method of soil preparation prior to planting is not recommended. An abatement program to control ground-burrowing rodents should be implemented and maintained. This is critical as burrowing rodents can decreased the long-term performance of slopes.

It is common for planting to be placed adjacent to structures in planter or lawn areas. This will result in the introduction of water into the ground adjacent to the foundation. This type of landscaping should be avoided. If used, then extreme care should be exercised with regard to the irrigation and drainage in these areas.

5.7.2 Drainage

The need to maintain proper surface drainage and subsurface systems cannot be overly emphasized. Positive site drainage should be maintained at all times. Drainage should not flow uncontrolled down any descending slope. Water should be directed away from foundations and not allowed to pond or seep into the ground. Pad drainage should be directed toward approved areas and not be blocked by other improvements.

It is the owner's responsibility to maintain and clean drainage devices on or contiguous to their lot. In order to be effective, maintenance should be conducted on a regular and routine schedule and necessary corrections made prior to each rainy season.

5.8 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS

We recommend that site foundation plans and relevant project specifications be reviewed by this office prior to construction to check for conformance with the recommendations of this report. We also recommend that GeoTek representatives be present during site grading and foundation construction to check for proper implementation of the geotechnical

recommendations. The owner/developer should verify that GeoTek representatives perform at least the following duties:

- Observe site clearing and grubbing operations for proper removal of unsuitable materials.
- Observe and test bottom of removals prior to fill placement.
- Evaluate the suitability of onsite and import materials for fill placement and collect soil samples for laboratory testing where necessary.
- Observe the fill for uniformity during placement, including utility trenches.
- Perform field density testing of the fill materials.
- Observe and probe foundation excavations to confirm suitability of bearing materials.

If requested, a construction observation and compaction report can be provided by GeoTek, which can comply with the requirements of the governmental agencies having jurisdiction over the project. We recommend that these agencies be notified prior to commencement of construction so that necessary grading permits can be obtained.

6. INTENT

It is the intent of this report to aid in the design and construction of the proposed development. Implementation of the advice presented in Section 5 of this report is intended to reduce risk associated with construction projects. The professional opinions and geotechnical advice contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions will not be discovered during or after construction.

The scope of our evaluation is limited to the boundaries of the subject residential lot. This review does not and should in no way be construed to encompass any areas beyond the specific area of the proposed construction as indicated to us by the client. Further, no evaluation of any existing site improvements is included. The scope is based on our understanding of the project and the client's needs, our fee estimate (P-0604419) dated June 20, 2019 and geotechnical engineering standards normally used on similar projects in this region.

7. LIMITATIONS

The materials observed on the project site appear to be representative of the area; however, soil and bedrock materials vary in character between excavations and natural outcrops or

conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Since our recommendations are based on the site conditions observed and encountered, and laboratory testing, our conclusion and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

8. SELECTED REFERENCES

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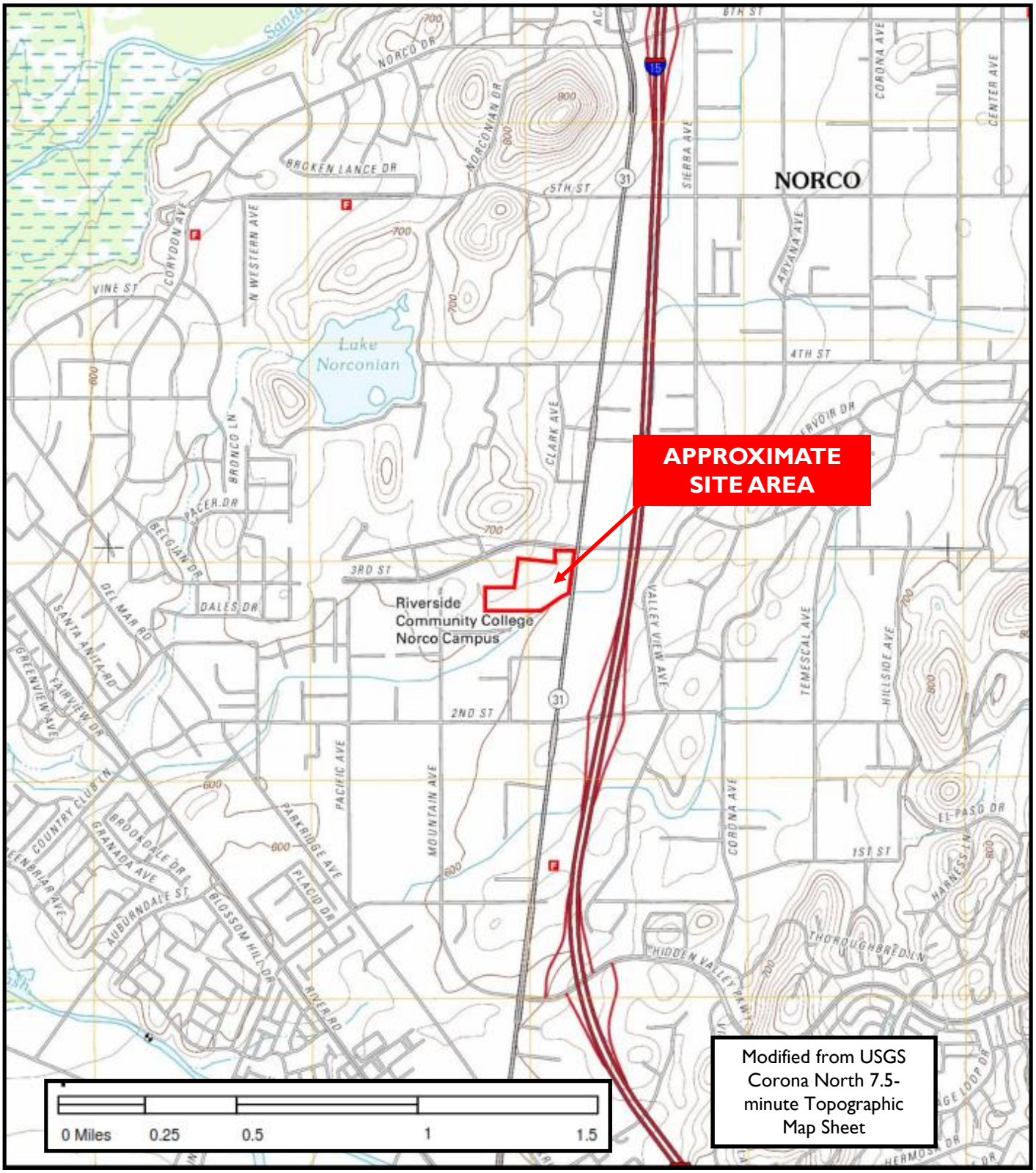

Frontier Enterprises
APNs 126-050-002 and -004
Norco, Riverside County, California

Project No. 2250-CR

Figure 1
Site Location and General Site Topography Map

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Frontier Enterprises
APNs 126-050-002 and -004
Norco, Riverside County, California

GeoTek Project No. 2250-CR

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Figure 2

Boring Location Map

APPENDIX A

LOGS OF EXPLORATORY BORINGS

SWC 3rd Street & Hamner Avenue
Norco, Riverside County, California
Project No. 2250-CR

GEOTEK

A - FIELD TESTING AND SAMPLING PROCEDURES

The Modified Split-Barrel Sampler (Ring)

The ring sampler is driven into the ground in accordance with ASTM Test Method D 3550. The sampler, with an external diameter of 3.0 inches, is lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler is typically driven into the ground 12 or 18 inches with a 140-pound hammer free falling from a height of 30 inches. Blow counts are recorded for every 6 inches of penetration as indicated on the log of boring. The samples are removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

Bulk Samples (Large)

These samples are normally large bags of earth materials over 20 pounds in weight collected from the field by means of hand digging or exploratory cuttings.

B – BORING LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the logs of borings:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C: Contact line	
……..	Dashed line denotes USCS material change
———	Solid Line denotes unit / formational change
———	Thick solid line denotes end of boring

(Additional denotations and symbols are provided on the log of borings)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-1 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
		8 13 14		SC	Clayey f-c SAND, reddish brown, moist, very stiff	9.0	118.5	SH, EI, MD EI = 8 Collapse
5		11 25 35		SC/CL	Clayey f-c SAND to f-c sandy CLAY, reddish brown, moist, dense/hard	11.7	125.1	
					Granitic Bedrock:			
10		50/4"			Granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist, trace oxidized zones			
15		50/3"			Same as above			
					BORING TERMINATED AT 15.5 FEET (REFUSAL) No groundwater encountered Boring backfilled with soil cuttings			
20								
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

BORING NO.: B-2

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
		20 40 40		SC	Silty clayey f-c SAND, brown, moist, hard	8.1	132.3	
5		13 21 50			Clayey f-c SAND, light brown to brown, moist, dense	14.2	123.1	
					Granitic Bedrock:			
		14 50/6"			Weathered granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist, some caliche infil			
10								
		24 50/4"			Same as above, becomes less weathered			
15		50/4"			Same as above			
					BORING TERMINATED AT 15.5 FEET (REFUSAL) No groundwater encountered Boring backfilled with soil cuttings			
20								
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-3 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
		8 15 24		ML	Clayey SILT, brown, moist, very stiff, some fine to coarse grained sand	11.6	123.8	
5		4 8 12			Vf-m sandy SILT, light brown, slightly moist, stiff	9.0	107.7	
10		10 20 47			Same as above, trace caliche, becomes hard	7.7	120.1	
					Granitic Bedrock:			
15		50/5"			Weathered granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist			
20		50/3"			Same as above, becomes dark gray			
					BORING TERMINATED AT 20.5 FEET (REFUSAL) No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: B-4** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
	Ring	18 28 23		ML	Clayey SILT, brown to reddish brown, moist, hard, trace fine to coarse grained sand, minor pin hole porosity (2-5%)	9.1	129.7	
5	Ring	6 10 16			Vf-f sandy SILT, light brown, slightly moist, very stiff	3.5	107.0	Collapse
	Ring	10 22 34			Same as above, becomes hard	3.5	116.8	
10	Ring	17 24 40		SM	Silty f-m SAND, light brownish gray, slightly moist, dense			
15	Ring	30 50/5"			Same as above, becomes very dense			
					Granitic Bedrock:			
20	Ring	26 50/3"			Weathered granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist, very dense			
					BORING TERMINATED AT 20.5 FEET (REFUSAL) No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: Ring, SPT, Small Bulk, Large Bulk, No Recovery, Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-5 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
		12 9 6		ML	Clayey SILT, brown, slightly moist, stiff, some caliche, minor pinhole porosity (5-10%)	6.1	121.7	EI, MD, SR EI=25
5		4 10 28			Vf-f sandy SILT, light brown, slightly moist, very stiff, trace rootlets, minor porosity (5%)	5.4	132.5	
10		24 38				6.5	134.3	
		40		SM	Silty f-c SAND, gray to dark gray, slightly moist, dense			
15		13 30 35		CL-ML	Silty CLAY to clayey SILT, olive brown, moist, hard			
					Granitic Bedrock:			
20		22 50/4"			Weathered granodiorite, breaks down to silty f-c SAND, dark gray, dry to slightly moist, very dense, trace oxidized zones			
					BORING TERMINATED AT 23 FEET (REFUSAL) No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

BORING NO.: B-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Old alluvial fan deposits:			
5		6 11 12		SM/ML	Silty f-c SAND to f-c sandy SILT, light brown, slightly moist, medium dense/stiff	2.4	137.3	
		9 12 15		SM	Silty f-c SAND, light brown, slightly moist, medium dense, trace caliche	2.7	134.6	Collapse
10		9 16 22		SM/SP	Silty f-c SAND to f-c SAND, gray, slightly moist, medium dense	1.2		
15		10 16 20		ML	Vf sandy SILT, light brownish gray, moist, very stiff, some oxidation			
20		50/2"		SP	Gravelly f-c SAND, dark brownish gray, moist, rock stuck in sampler, no recovery			
25		18 29 32		SM/SP	Slightly silty f-c SAND to f-c SAND, dark brown, wet, dense, some gravel			
30		5 11 12			Slightly silty f-vc SAND, brown, wet, medium dense, some gravel			SA % Passing #200 = 10.7

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-6 CONTINUED / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
35								
	■	4 24		SC	Clayey SAND, brown, very moist, very stiff			SA % Passing #200 = 28.1
	■	50/5"			**Granitic Bedrock:**			
40	■	50/3"			Weathered granodiorite, breaks down to silty f-c SAND, dark gray, dry to slightly moist, very dense, trace oxidized zones			
					BORING TERMINATED AT 40.5 FEET Groundwater encountered at 27.5 feet Boring backfilled with soil cuttings			
45								
50								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: B-7** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
5		7 11 13		ML	Clayey SILT, dark brown, moist, stiff, trace fine to coarse grained sand	15.9	111.5	
10		8 22 40		CL	F sandy silty CLAY, brown, moist, hard, trace caliche	10.9	127.5	
15		50/4"			**Granitic Bedrock:** Weathered granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist, very dense			
		40 50/2"			Same as above			
20					**BORING TERMINATED AT 19.5 FEET (REFUSAL)** No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

APPENDIX B

LABORATORY TEST RESULTS

SWC 3rd Street & Hamner Avenue
Norco, Riverside County, California
Project No. 2250-CR

GEOTEK

SUMMARY OF LABORATORY TESTING

Classification
Soils were classified visually in general accordance to the Unified Soil Classification System (ASTM Test Method D 2487). The soil classifications are shown on the logs of exploratory borings in Appendix A.

Collapse
Collapse testing was performed on selected samples of the site soils according to ASTM Test Method D 4546. The results of this testing are presented in Appendix B.

Direct Shear
Shear testing was performed in a direct shear machine of the strain-control type in general accordance with ASTM Test Method D 3080. The rate of deformation is approximately 0.035 inch per minute. The samples were sheared under varying confining loads in order to determine the coulomb shear strength parameters, angle of internal friction and cohesion. The results of the testing are presented in Appendix B.

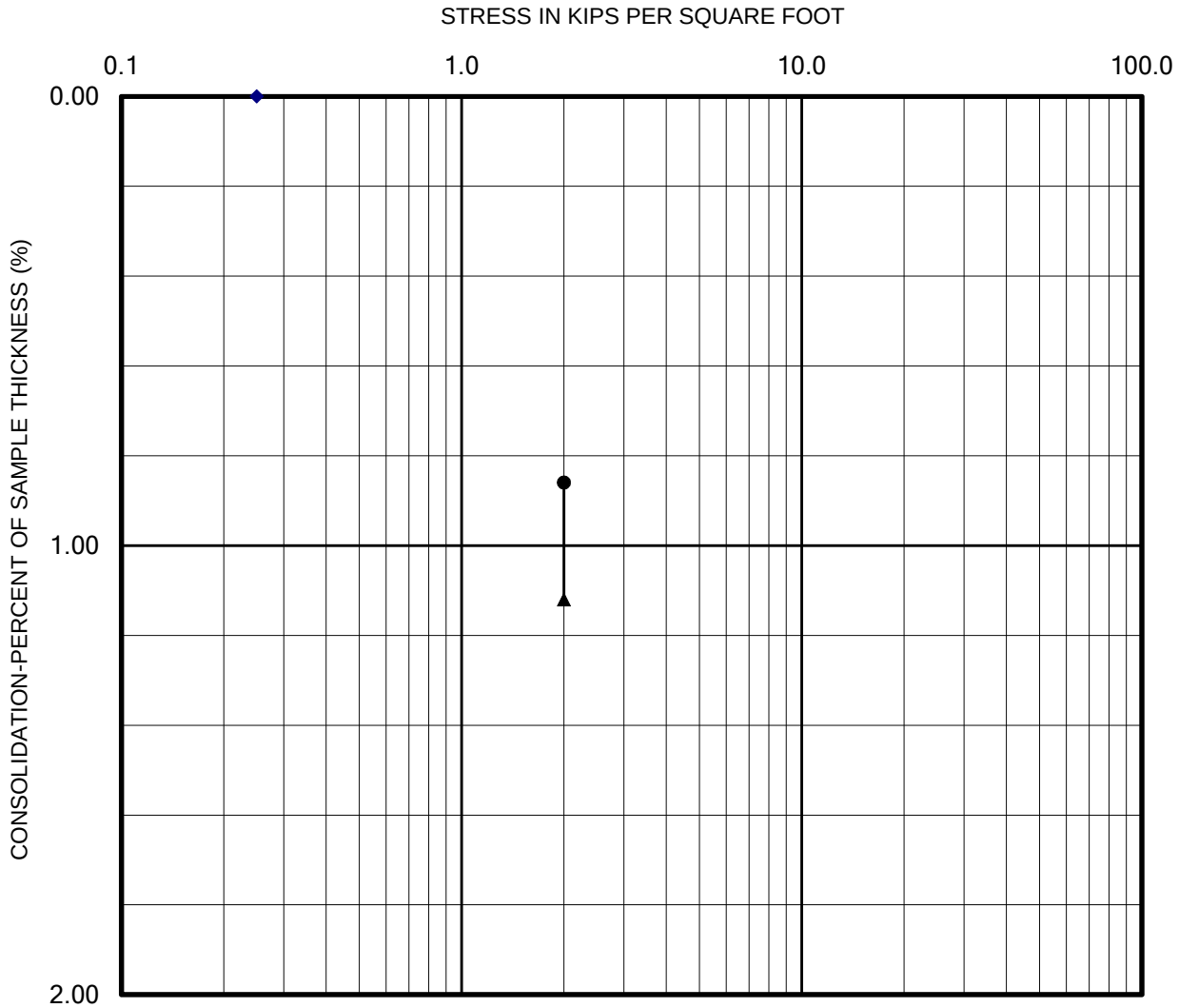
Expansion Index
Expansion Index testing was performed on two representative soil samples. Testing was performed in general accordance with ASTM Test Method D 4829. The results of the testing are provided below.

Boring No.	Depth (ft.)	Soil Type	Expansion Index	Classification
B-1	1-5	Clayey Sand	8	Very Low
B-5	3-6	Clayey Silt	25	Low

Moisture-Density Relationship
Laboratory testing was performed on representative site samples collected during the recent subsurface exploration. The laboratory maximum dry density and optimum moisture content for the samples tested were determined in general accordance with test method ASTM Test Procedure D 1557. The results are included in Appendix B.

Sulfate Content, Resistivity and Chloride Content
Testing to determine the water-soluble sulfate content, resistivity testing and the chloride content was performed by others. The results of the testing are provided below and in Appendix B.

Boring No.	Depth (ft.)	pH ASTM G51	Chloride ASTM D4327 (ppm)	Sulfate ASTM D4327 (% by weight)	Resistivity ASTM G187 (ohm-cm)
B-1	1-5	7.9	3.6	0.0023	4,824
B-5	3-6	7.9	8.2	0.0018	3,551



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4546

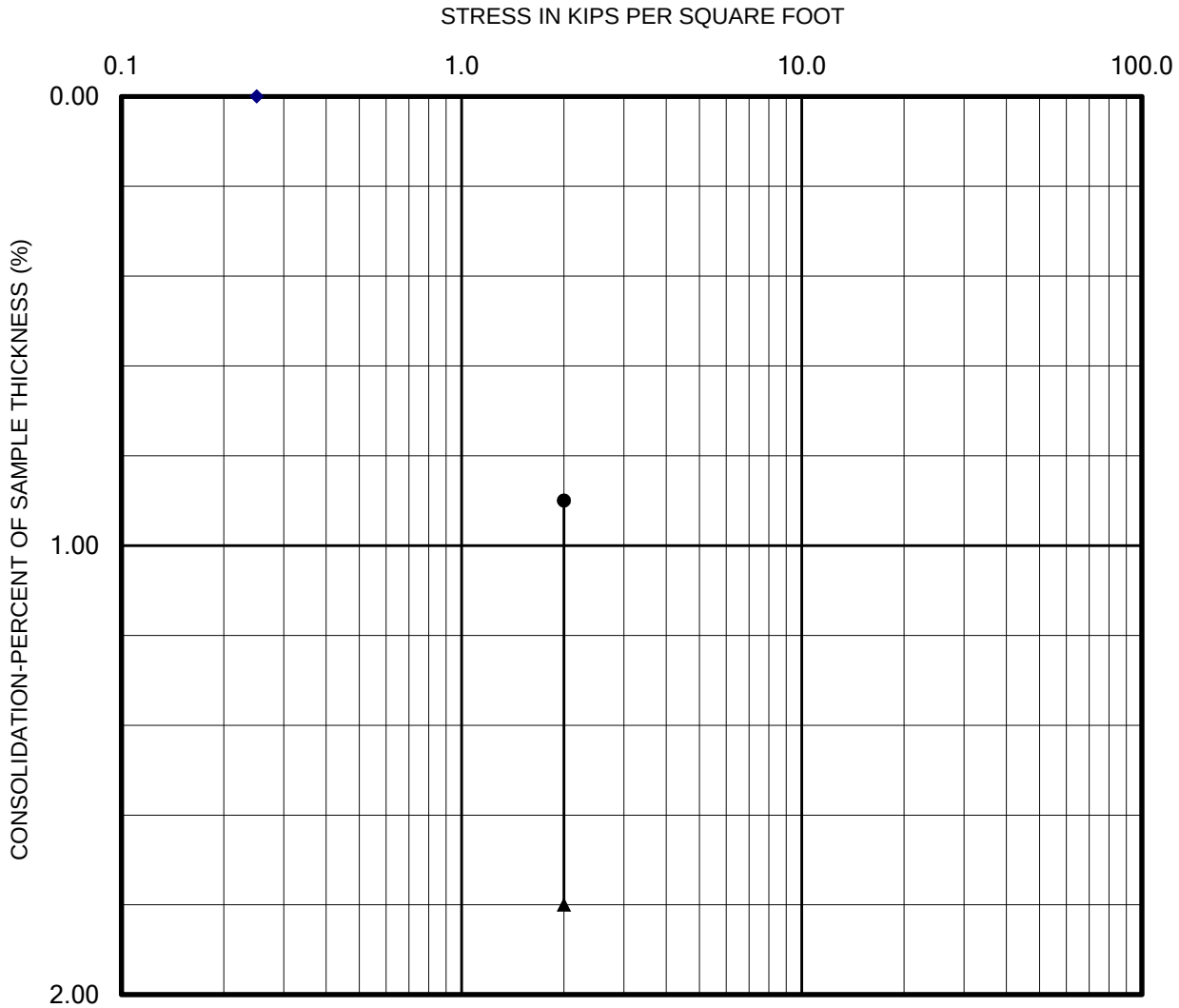
GEOTEK

CHECKED BY: RRR	Lab: DI
PROJECT NO.: 2250-CR	Date: 11/2019

COLLAPSE REPORT

Sample: B-1 @ 2'

SWC 3rd Street and Hamner Avenue
Norco, California



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4546

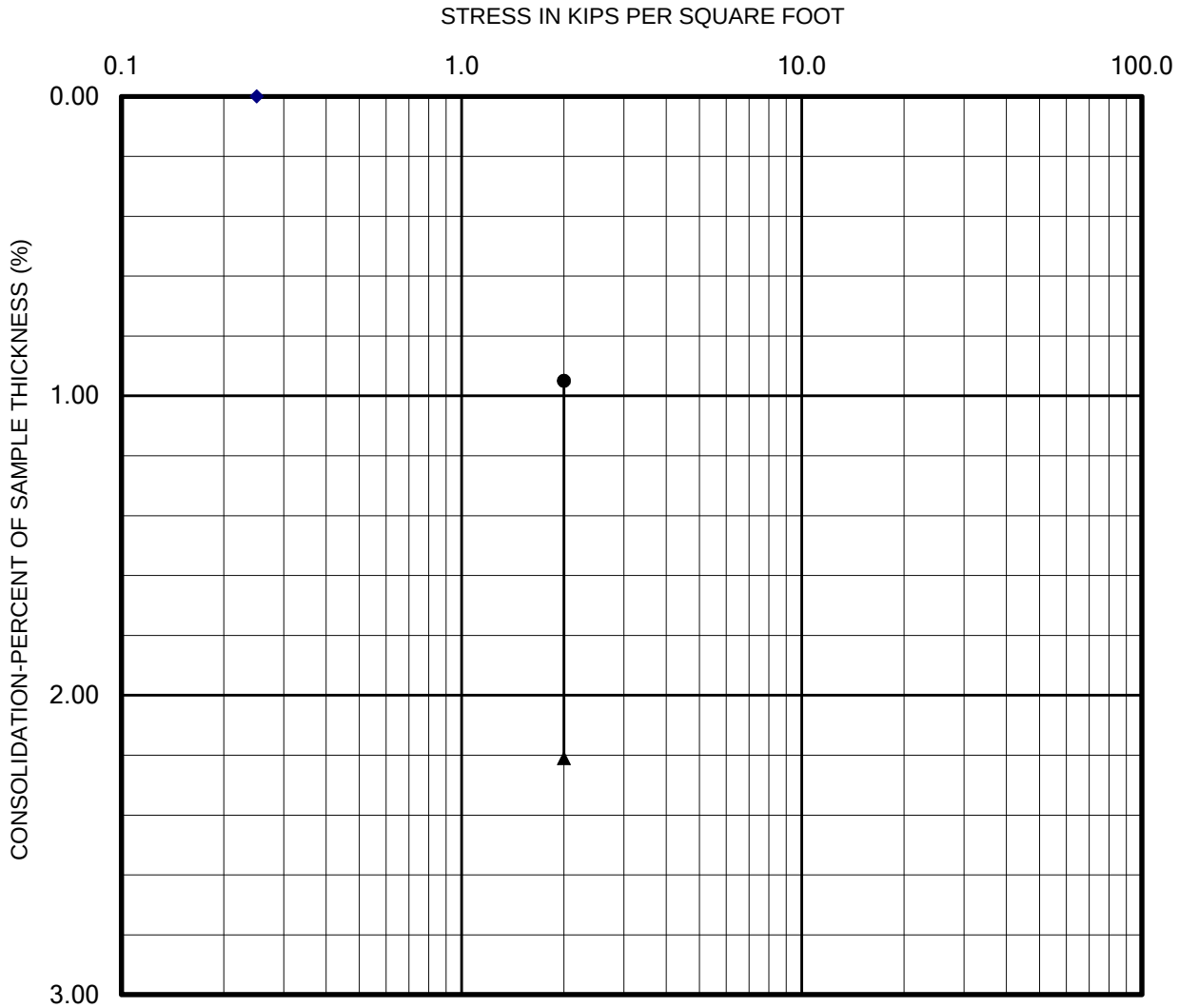
GEOTEK

CHECKED BY: RRR	Lab: DI
PROJECT NO.: 2250-CR	Date: 11/2019

COLLAPSE REPORT

Sample: B-4 @ 5'

SWC 3rd Street and Hamner Avenue
Norco, California



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4546

GEOTEK

CHECKED BY: RRR	Lab: DI
PROJECT NO.: 2250-CR	Date: 11/2019

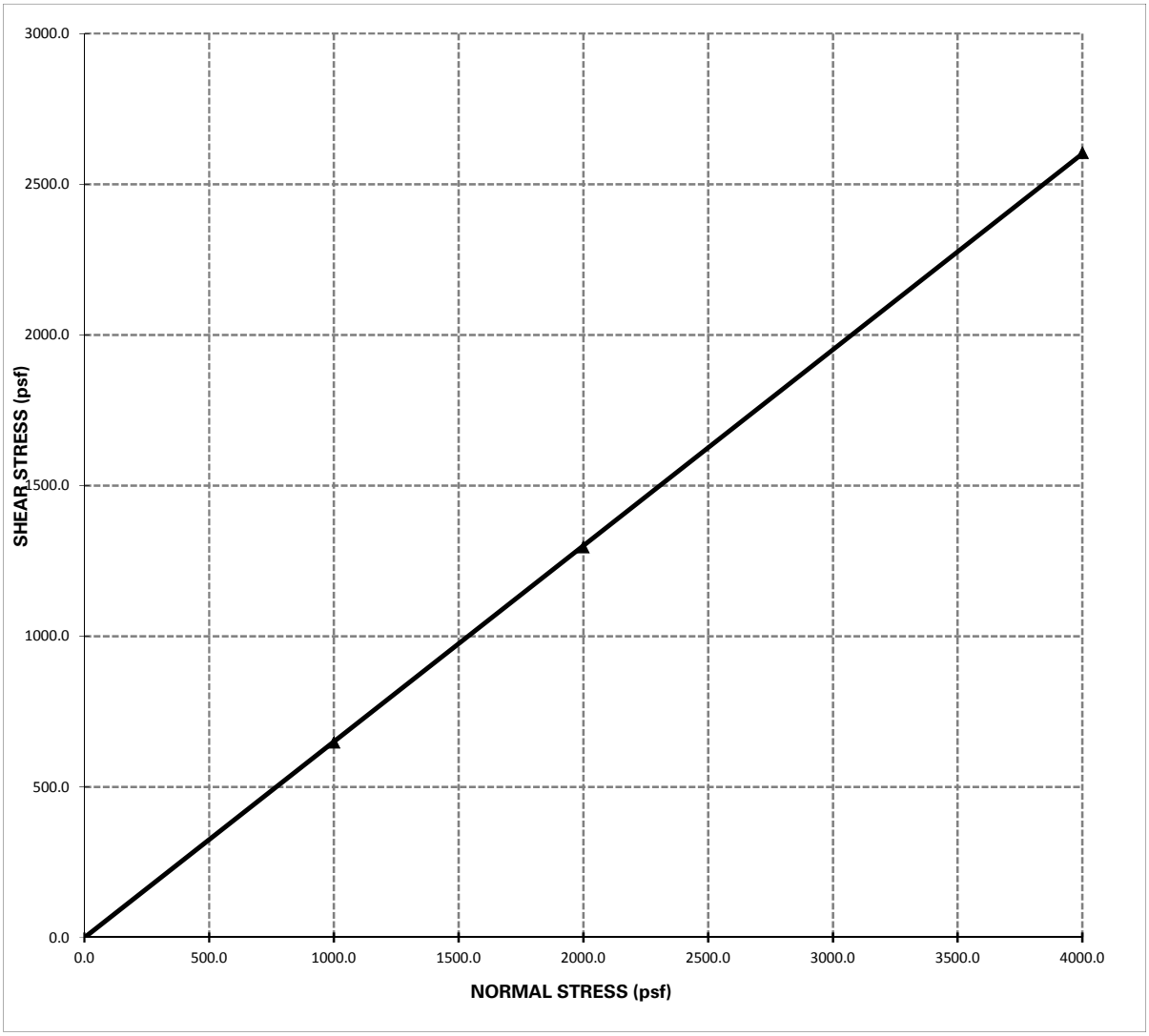
COLLAPSE REPORT

Sample: B-6 @ 7'

SWC 3rd Street and Hamner Avenue
Norco, California

DIRECT SHEAR TEST

Project Name:	Norco	***Sample Location:***	B-1 @ 1 - 5
Project Number:	2250-CR	***Date Tested:***	11/4/2019



Shear Strength: Φ = **33.0** ^{o} , **C = 0.00 psf**

Notes: 1 - The soil specimen used in the shear box was a ring sample remolded to approximately 90% relative compaction from a bulk sample collected during the field investigation.

2 - The above reflect direct shear strength at saturated conditions.

3 - The tests were run at a shear rate of 0.035 in/min.

GEOTEK

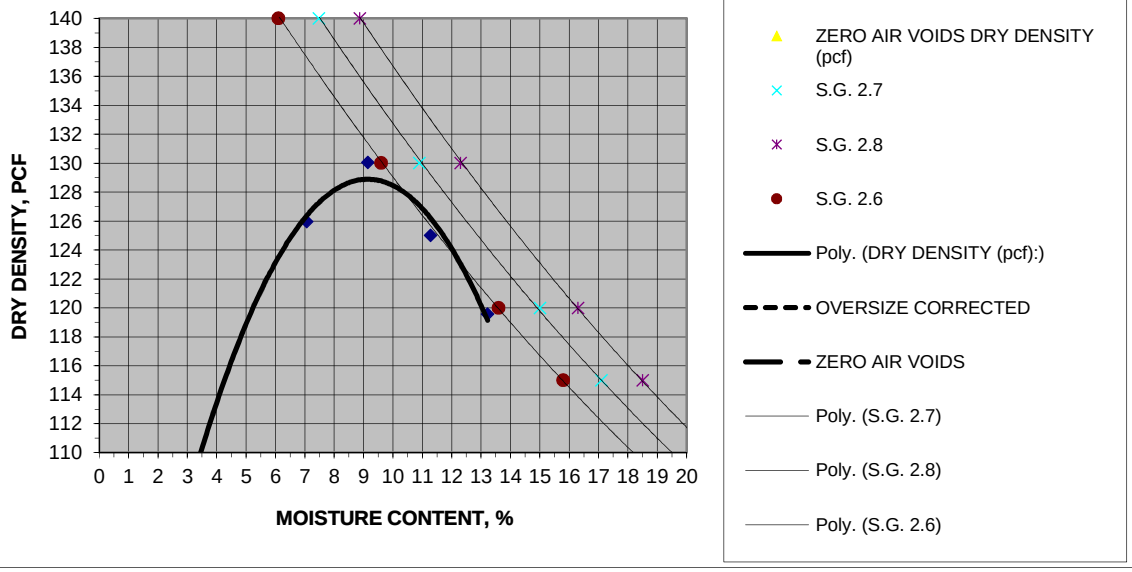
MOISTURE/DENSITY RELATIONSHIP

Client: Frontier Enterprises
Project: Multi-Family
Location: Norco
Material Type: Brown Silty F - C Sand
Material Supplier: -
Material Source: -
Sample Location: B-1 @ 1 - 5
-
Sampled By: DRW
Received By: DLI
Tested By: DLI
Reviewed By: -

Job No.: 2055-CR
Lab No.: Corona
Date Sampled: 10/15/2019
Date Received: 10/16/2019
Date Tested: 10/25/2019
Date Reviewed: -

Test Procedure: ASTM D1557 **Method:** A
Oversized Material (%): 7.2 **Correction Required:** [ ] yes [x] no

MOISTURE/DENSITY RELATIONSHIP CURVE



MOISTURE DENSITY RELATIONSHIP VALUES

Maximum Dry Density, pcf	130.0	**@ Optimum Moisture, %**	9.0
Corrected Maximum Dry Density, pcf		**@ Optimum Moisture, %**	

MATERIAL DESCRIPTION

Grain Size Distribution:

	% Gravel (retained on No. 4)
	% Sand (Passing No. 4, Retained on No. 200)
	% Silt and Clay (Passing No. 200)

Atterberg Limits:

	Liquid Limit, %
	Plastic Limit, %
	Plasticity Index, %

Classification:

Unified Soils Classification:
AASHTO Soils Classification:

GEOTEK

MOISTURE/DENSITY RELATIONSHIP

Client: Frontier Enterprises
Project: Multi-Family
Location: Norco
Material Type: Brown Silty F - M Sand
Material Supplier: -
Material Source: -
Sample Location: B-5 @ 3 - 6
-

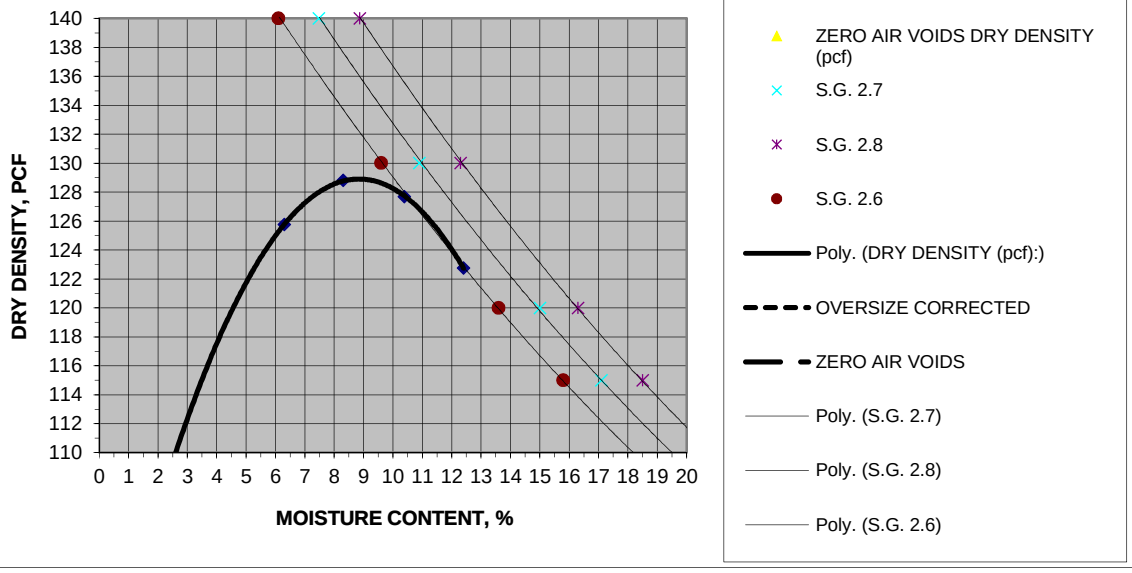
Job No.: 2055-CR
Lab No.: Corona

Sampled By: DRW
Received By: DLI
Tested By: DLI
Reviewed By: -

Date Sampled: 10/15/2019
Date Received: 10/16/2019
Date Tested: 10/25/2019
Date Reviewed: -

Test Procedure: ASTM D1557 **Method:** A
Oversized Material (%): 3.3 **Correction Required:** [ ] yes [x] no

MOISTURE/DENSITY RELATIONSHIP CURVE



MOISTURE DENSITY RELATIONSHIP VALUES

Maximum Dry Density, pcf	129.0	**@ Optimum Moisture, %**	9.0
Corrected Maximum Dry Density, pcf		**@ Optimum Moisture, %**	

MATERIAL DESCRIPTION

Grain Size Distribution:

	% Gravel (retained on No. 4)
	% Sand (Passing No. 4, Retained on No. 200)
	% Silt and Clay (Passing No. 200)

Atterberg Limits:

	Liquid Limit, %
	Plastic Limit, %
	Plasticity Index, %

Classification:

Unified Soils Classification:
AASHTO Soils Classification:

Soil Analysis Lab Results

Client: GeoTek, Inc.
Job Name: Multi-Family, Norco
Client Job Number: 2250-CR
Project X Job Number:
S191024D October 28, 2019

	Method	ASTM D4327		ASTM D4327		ASTM G187		ASTM G51	ASTM G200	SM 4500-S2-D	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	ASTM D4327	SM-2320B
Bore# / Description	**Depth**	**Sulfates** SO_4^{2-}		**Chlorides** Cl^-		**Resistivity** As Rec'd	Minimum	**pH**	**Redox**	**Sulfide** S^{2-}	**Nitrate** NO_3^-	**Ammonium** NH_4^+	**Lithium** Li^+	**Sodium** Na^+	**Potassium** K^+	**Magnesium** Mg^{2+}	**Calcium** Ca^{2+}	**Flouride** F_2^{--}	**Phosphate** PO_4^{3-}	**Bicarbonate** HCO_3^-
	(ft)	(mg/kg)	(wt%)	(mg/kg)	(wt%)	(Ohm-cm)	(Ohm-cm)		(mV)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B-1	1.0-5.0	23.4	0.0023	3.6	0.0004	26,800	4,824	7.9	159.0	4.1	37.9	1.6	ND	20.1	90.0	16.1	57.8	2.6	57.9	ND
B-5	3.0-6.0	18.2	0.0018	8.2	0.0008	19,430	3,551	7.9	140.0	1.2	11.7	0.5	ND	52.1	0.8	6.6	38.7	3.2	4.6	ND

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography
mg/kg = milligrams per kilogram (parts per million) of dry soil weight
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown
Chemical Analysis performed on 1:3 Soil-To-Water extract

APPENDIX C

LIQUEFACTION ANALYSIS

SWC 3rd Street & Hamner Avenue
Norco, Riverside County, California
Project No. 2250-CR

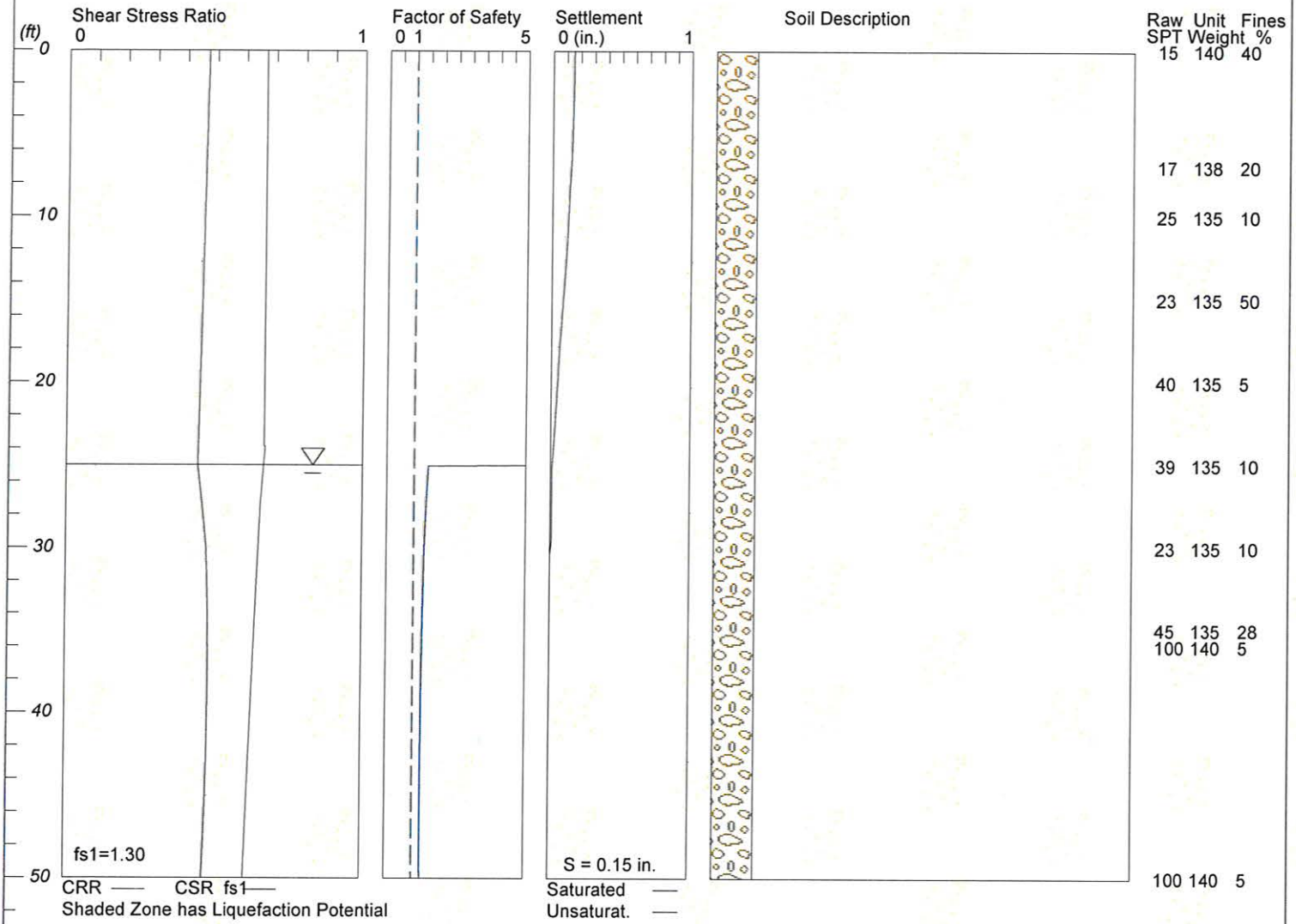
GEOTEK

LIQUEFACTION ANALYSIS

Project 2250-CR

Hole No.=B-6 Water Depth=25 ft

Magnitude=6.7
Acceleration=0.557g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: UNTITLED
Title: Project 2250-CR
Subtitle:

Surface Elev.=
Hole No.=B-6
Depth of Hole= 50.00 ft
Water Table during Earthquake= 25.00 ft
Water Table during In-Situ Testing= 27.50 ft
Max. Acceleration= 0.56 g
Earthquake Magnitude= 6.70

Input Data:
Surface Elev.=
Hole No.=B-6
Depth of Hole=50.00 ft
Water Table during Earthquake= 25.00 ft
Water Table during In-Situ Testing= 27.50 ft
Max. Acceleration=0.56 g
Earthquake Magnitude=6.70
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Ishihara / Yoshimine
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.25
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR) , User= 1.3
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.00	15.00	140.00	40.00
7.00	17.00	138.00	20.00
10.00	25.00	135.00	10.00
15.00	23.00	135.00	50.00
20.00	40.00	135.00	5.00
25.00	39.00	135.00	10.00
30.00	23.00	135.00	10.00
35.00	45.00	135.00	28.00
36.00	100.00	140.00	5.00
50.00	100.00	140.00	5.00

Output Results:

Settlement of Saturated Sands=0.01 in.
Settlement of Unsaturated Sands=0.14 in.
Total Settlement of Saturated and Unsaturated Sands=0.15 in.
Differential Settlement=0.074 to 0.098 in.

Depth ft	CRRm	CSRfs	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	0.67	0.47	5.00	0.01	0.14	0.15
1.00	0.67	0.47	5.00	0.01	0.13	0.15
2.00	0.67	0.47	5.00	0.01	0.13	0.15
3.00	0.67	0.47	5.00	0.01	0.13	0.14
4.00	0.67	0.47	5.00	0.01	0.13	0.14
5.00	0.67	0.47	5.00	0.01	0.13	0.14
6.00	0.67	0.46	5.00	0.01	0.12	0.14
7.00	0.67	0.46	5.00	0.01	0.12	0.13
8.00	0.67	0.46	5.00	0.01	0.11	0.12
9.00	0.67	0.46	5.00	0.01	0.11	0.12
10.00	0.67	0.46	5.00	0.01	0.10	0.12
11.00	0.67	0.46	5.00	0.01	0.10	0.11
12.00	0.67	0.46	5.00	0.01	0.09	0.10
13.00	0.67	0.46	5.00	0.01	0.09	0.10
14.00	0.67	0.46	5.00	0.01	0.08	0.09
15.00	0.67	0.45	5.00	0.01	0.07	0.08
16.00	0.67	0.45	5.00	0.01	0.06	0.07
17.00	0.67	0.45	5.00	0.01	0.05	0.07
18.00	0.67	0.45	5.00	0.01	0.05	0.06
19.00	0.67	0.45	5.00	0.01	0.04	0.05
20.00	0.67	0.45	5.00	0.01	0.03	0.05
21.00	0.67	0.45	5.00	0.01	0.03	0.04
22.00	0.67	0.45	5.00	0.01	0.02	0.03

23.00	0.67	0.45	5.00	0.01	0.02	0.03
24.00	0.67	0.44	5.00	0.01	0.01	0.02
25.00	0.67	0.44	5.00	0.01	0.00	0.01
26.00	0.66	0.45	1.47	0.01	0.00	0.01
27.00	0.66	0.46	1.44	0.01	0.00	0.01
28.00	0.65	0.46	1.42	0.01	0.00	0.01
29.00	0.65	0.47	1.39	0.01	0.00	0.01
30.00	0.65	0.47	1.37	0.01	0.00	0.01
31.00	0.65	0.48	1.36	0.00	0.00	0.00
32.00	0.65	0.48	1.35	0.00	0.00	0.00
33.00	0.64	0.48	1.34	0.00	0.00	0.00
34.00	0.64	0.48	1.33	0.00	0.00	0.00
35.00	0.64	0.48	1.33	0.00	0.00	0.00
36.00	0.64	0.48	1.32	0.00	0.00	0.00
37.00	0.63	0.48	1.32	0.00	0.00	0.00
38.00	0.63	0.48	1.31	0.00	0.00	0.00
39.00	0.63	0.48	1.31	0.00	0.00	0.00
40.00	0.63	0.48	1.30	0.00	0.00	0.00
41.00	0.63	0.48	1.30	0.00	0.00	0.00
42.00	0.62	0.48	1.30	0.00	0.00	0.00
43.00	0.62	0.48	1.30	0.00	0.00	0.00
44.00	0.62	0.48	1.30	0.00	0.00	0.00
45.00	0.62	0.48	1.30	0.00	0.00	0.00
46.00	0.62	0.48	1.30	0.00	0.00	0.00
47.00	0.61	0.47	1.30	0.00	0.00	0.00
48.00	0.61	0.47	1.30	0.00	0.00	0.00
49.00	0.61	0.47	1.30	0.00	0.00	0.00
50.00	0.61	0.47	1.30	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

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1 atm (atmosphere) = 1 tsf (ton/ft2)
CRRm Cyclic resistance ratio from soils
CSRsf Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRsf
S_sat Settlement from saturated sands
S_dry Settlement from Unsaturated Sands
S_all Total Settlement from Saturated and Unsaturated Sands
NoLiq No-Liquefy Soils

APPENDIX D

GENERAL GRADING GUIDELINES

SWC 3rd Street & Hamner Avenue
Norco, Riverside County, California
Project No. 2250-CR

GEOTEK

GENERAL GRADING GUIDELINES

Guidelines presented herein are intended to address general construction procedures for earthwork construction. Specific situations and conditions often arise which cannot reasonably be discussed in general guidelines, when anticipated these are discussed in the text of the report. Often unanticipated conditions are encountered which may necessitate modification or changes to these guidelines. It is our hope that these will assist the contractor to more efficiently complete the project by providing a reasonable understanding of the procedures that would be expected during earthwork and the testing and observation used to evaluate those procedures.

General

Grading should be performed to at least the minimum requirements of governing agencies, Chapters 18 and 33 of the Uniform Building Code, CBC (2016) and the guidelines presented below.

Preconstruction Meeting

A preconstruction meeting should be held prior to site earthwork. Any questions the contractor has regarding our recommendations, general site conditions, apparent discrepancies between reported and actual conditions and/or differences in procedures the contractor intends to use should be brought up at that meeting. The contractor (including the main onsite representative) should review our report and these guidelines in advance of the meeting. Any comments the contractor may have regarding these guidelines should be brought up at that meeting.

Grading Observation and Testing

1. Observation of the fill placement should be provided by our representative during grading. Verbal communication during the course of each day will be used to inform the contractor of test results. The contractor should receive a copy of the "Daily Field Report" indicating results of field density tests that day. If our representative does not provide the contractor with these reports, our office should be notified.
2. Testing and observation procedures are, by their nature, specific to the work or area observed and location of the tests taken, variability may occur in other locations. The contractor is responsible for the uniformity of the grading operations; our observations and test results are intended to evaluate the contractor's overall level of efforts during grading. The contractor's personnel are the only individuals participating in all aspect of site work. Compaction testing and observation should not be considered as relieving the contractor's responsibility to properly compact the fill.
3. Cleanouts, processed ground to receive fill, key excavations, and subdrains should be observed by our representative prior to placing any fill. It will be the contractor's responsibility to notify our representative or office when such areas are ready for observation.

4. Density tests may be made on the surface material to receive fill, as considered warranted by this firm.
5. In general, density tests would be made at maximum intervals of two feet of fill height or every 1,000 cubic yards of fill placed. Criteria will vary depending on soil conditions and size of the fill. More frequent testing may be performed. In any case, an adequate number of field density tests should be made to evaluate the required compaction and moisture content is generally being obtained.
6. Laboratory testing to support field test procedures will be performed, as considered warranted, based on conditions encountered (e.g. change of material sources, types, etc.) Every effort will be made to process samples in the laboratory as quickly as possible and in progress construction projects are our first priority. However, laboratory workloads may cause in delays and some soils may require a **minimum of 48 to 72 hours to complete test procedures**. Whenever possible, our representative(s) should be informed in advance of operational changes that might result in different source areas for materials.
7. Procedures for testing of fill slopes are as follows:
    a) Density tests should be taken periodically during grading on the flat surface of the fill, three to five feet horizontally from the face of the slope.
    b) If a method other than over building and cutting back to the compacted core is to be employed, slope compaction testing during construction should include testing the outer six inches to three feet in the slope face to determine if the required compaction is being achieved.
8. Finish grade testing of slopes and pad surfaces should be performed after construction is complete.

Site Clearing

1. All vegetation, and other deleterious materials, should be removed from the site. If material is not immediately removed from the site it should be stockpiled in a designated area(s) well outside of all current work areas and delineated with flagging or other means. Site clearing should be performed in advance of any grading in a specific area.
2. Efforts should be made by the contractor to remove all organic or other deleterious material from the fill, as even the most diligent efforts may result in the incorporation of some materials. This is especially important when grading is occurring near the natural grade. All equipment operators should be aware of these efforts. Laborers may be required as root pickers.
3. Nonorganic debris or concrete may be placed in deeper fill areas provided the procedures used are observed and found acceptable by our representative.

Treatment of Existing Ground

1. Following site clearing, all surficial deposits of alluvium and colluvium as well as weathered or creep effected bedrock, should be removed unless otherwise specifically indicated in the text of this report.
2. In some cases, removal may be recommended to a specified depth (e.g. flat sites where partial alluvial removals may be sufficient). The contractor should not exceed these depths unless directed otherwise by our representative.
3. Groundwater existing in alluvial areas may make excavation difficult. Deeper removals than indicated in the text of the report may be necessary due to saturation during winter months.
4. Subsequent to removals, the natural ground should be processed to a depth of six inches, moistened to near optimum moisture conditions and compacted to fill standards.
5. Exploratory back hoe or dozer trenches still remaining after site removal should be excavated and filled with compacted fill if they can be located.

Fill Placement

1. Unless otherwise indicated, all site soil and bedrock may be reused for compacted fill; however, some special processing or handling may be required (see text of report).
2. Material used in the compacting process should be evenly spread, moisture conditioned, processed, and compacted in thin lifts six (6) to eight (8) inches in compacted thickness to obtain a uniformly dense layer. The fill should be placed and compacted on a nearly horizontal plane, unless otherwise found acceptable by our representative.
3. If the moisture content or relative density varies from that recommended by this firm, the contractor should rework the fill until it is in accordance with the following:
    a) Moisture content of the fill should be at or above optimum moisture. Moisture should be evenly distributed without wet and dry pockets. Pre-watering of cut or removal areas should be considered in addition to watering during fill placement, particularly in clay or dry surficial soils. The ability of the contractor to obtain the proper moisture content will control production rates.
    b) Each six-inch layer should be compacted to at least 90 percent of the maximum dry density in compliance with the testing method specified by the controlling governmental agency. In most cases, the testing method is ASTM Test Designation D 1557.
4. Rock fragments less than eight inches in diameter may be utilized in the fill, provided:
    a) They are not placed in concentrated pockets;
    b) There is a sufficient percentage of fine-grained material to surround the rocks;
    c) The distribution of the rocks is observed by, and acceptable to, our representative.

5. Rocks exceeding eight (8) inches in diameter should be taken off site, broken into smaller fragments, or placed in accordance with recommendations of this firm in areas designated suitable for rock disposal. On projects where significant large quantities of oversized materials are anticipated, alternate guidelines for placement may be included. If significant oversize materials are encountered during construction, these guidelines should be requested.
6. In clay soil, dry or large chunks or blocks are common. If in excess of eight (8) inches minimum dimension, then they are considered as oversized. Sheepsfoot compactors or other suitable methods should be used to break up blocks. When dry, they should be moisture conditioned to provide a uniform condition with the surrounding fill.

Slope Construction

1. The contractor should obtain a minimum relative compaction of 90 percent out to the finished slope face of fill slopes. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment.
2. Slopes trimmed to the compacted core should be overbuilt by at least three (3) feet with compaction efforts out to the edge of the false slope. Failure to properly compact the outer edge results in trimming not exposing the compacted core and additional compaction after trimming may be necessary.
3. If fill slopes are built "at grade" using direct compaction methods, then the slope construction should be performed so that a constant gradient is maintained throughout construction. Soil should not be "spilled" over the slope face nor should slopes be "pushed out" to obtain grades. Compaction equipment should compact each lift along the immediate top of slope. Slopes should be back rolled or otherwise compacted at approximately every 4 feet vertically as the slope is built.
4. Corners and bends in slopes should have special attention during construction as these are the most difficult areas to obtain proper compaction.
5. Cut slopes should be cut to the finished surface. Excessive undercutting and smoothing of the face with fill may necessitate stabilization.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Utility trench excavation and backfill is the contractors responsibility. The geotechnical consultant typically provides periodic observation and testing of these operations. While efforts are made to make sufficient observations and tests to verify that the contractors' methods and procedures are adequate to achieve proper compaction, it is typically impractical to observe all backfill procedures. As such, it is critical that the contractor use consistent backfill procedures.

Compaction methods vary for trench compaction and experience indicates many methods can be successful. However, procedures that "worked" on previous projects may or may not prove effective on a given site. The contractor(s) should outline the procedures proposed, so that we may discuss them **prior** to construction. We will offer comments based on our knowledge of site conditions and experience.

1. Utility trench backfill in slopes, structural areas, in streets and beneath flat work or hardscape should be brought to at least optimum moisture and compacted to at least 90 percent of the laboratory standard. Soil should be moisture conditioned prior to placing in the trench.
2. Flooding and jetting are not typically recommended or acceptable for native soils. Flooding or jetting may be used with select sand having a Sand Equivalent (SE) of 30 or higher. This is typically limited to the following uses:
   a) shallow (12 + inches) under slab interior trenches and,
   b) as bedding in pipe zone.

   The water should be allowed to dissipate prior to pouring slabs or completing trench compaction.
3. Care should be taken not to place soils at high moisture content within the upper three feet of the trench backfill in street areas, as overly wet soils may impact subgrade preparation. Moisture may be reduced to 2% below optimum moisture in areas to be paved within the upper three feet below sub grade.
4. Sand backfill should not be allowed in exterior trenches adjacent to and within an area extending below a 1:1 projection from the outside bottom edge of a footing, unless it is similar to the surrounding soil.
5. Trench compaction testing is generally at the discretion of the geotechnical consultant. Testing frequency will be based on trench depth and the contractors procedures. A probing rod would be used to assess the consistency of compaction between tested areas and untested areas. If zones are found that are considered less compact than other areas, this would be brought to the contractors attention.

JOB SAFETY

General

Personnel safety is a primary concern on all job sites. The following summaries are safety considerations for use by all our employees on multi-employer construction sites. On ground personnel are at highest risk of injury and possible fatality on grading construction projects. The company recognizes that construction activities will vary on each site and that job site safety is the contractor's responsibility. However, it is, imperative that all personnel be safety conscious to avoid accidents and potential injury.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of our field personnel on grading and construction projects.

1. Safety Meetings: Our field personnel are directed to attend the contractor's regularly scheduled safety meetings.
2. Safety Vests: Safety vests are provided for and are to be worn by our personnel while on the job site.
3. Safety Flags: Safety flags are provided to our field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

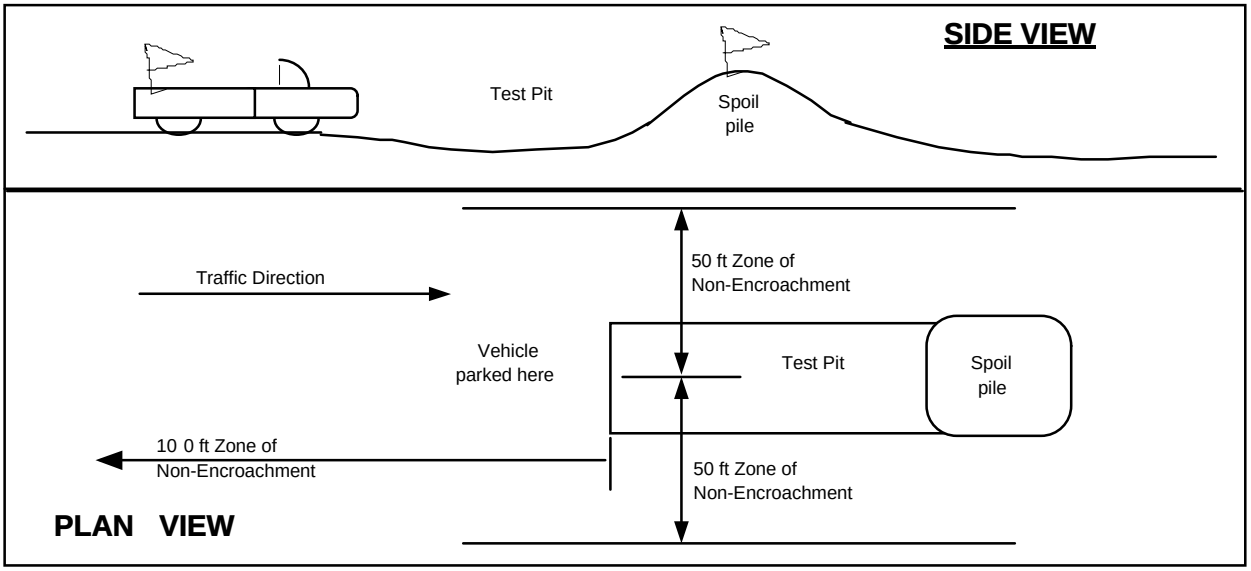
Test Pits Location, Orientation and Clearance

The technician is responsible for selecting test pit locations. The primary concern is the technician's safety. However, it is necessary to take sufficient tests at various locations to obtain a representative sampling of the fill. As such, efforts will be made to coordinate locations with the grading contractors authorized representatives (e.g. dump man, operator, supervisor, grade checker, etc.), and to select locations following or behind the established traffic pattern, preferably outside of current traffic. The contractors authorized representative should direct excavation of the pit and safety during the test period. Again, safety is the paramount concern.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates that the fill be maintained in a drivable condition. Alternatively, the contractor may opt to park a piece of equipment in front of test pits, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits (see diagram below). No grading equipment should enter this zone during the test procedure. The zone should extend outward to the sides approximately 50 feet from the center of the test pit and 100 feet in the direction of traffic flow. This zone is established both for safety and to avoid excessive ground vibration, which typically decreases test results.

TEST PIT SAFETY PLAN



Slope Tests

When taking slope tests, the technician should park their vehicle directly above or below the test location on the slope. The contractor's representative should effectively keep all equipment at a safe operation distance (e.g. 50 feet) away from the slope during testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location.

Trench Safety

It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Trenches for all utilities should be excavated in accordance with CAL-OSHA and any other applicable safety standards. Safe conditions will be required to enable compaction testing of the trench backfill.

All utility trench excavations in excess of 5 feet deep, which a person enters, are to be shored or laid back. Trench access should be provided in accordance with OSHA standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

Our personnel are directed not to enter any excavation which;

1. is 5 feet or deeper unless shored or laid back,
2. exit points or ladders are not provided,
3. displays any evidence of instability, has any loose rock or other debris which could fall into the trench, or
4. displays any other evidence of any unsafe conditions regardless of depth.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraws and notifies their supervisor. The contractors representative will then be contacted in an effort to effect a solution. All backfill not tested due to safety concerns or other reasons is subject to reprocessing and/or removal.

Procedures

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is directed to inform both the developer's and contractor's representatives. If the condition is not rectified, the technician is required, by company policy, to immediately withdraw and notify their supervisor. The contractor's representative will then be contacted in an effort to effect a solution. No further testing will be performed until the situation is rectified. Any fill placed in the interim can be considered unacceptable and subject to reprocessing, recompaction or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to technicians attention and notify our project manager or office. Effective communication and coordination between the contractors' representative and the field technician(s) is strongly encouraged in order to implement the above safety program and safety in general.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

Appendix H

Phase I Environmental Site Assessment

PHASE I ENVIRONMENTAL SITE ASSESSMENT
ASSESSOR'S PARCEL NUMBERS (APNS) 26-050-002 AND -004
NORCO, RIVERSIDE COUNTY, CALIFORNIA 92860

October 10, 2019

Project No. 2250-CR

Prepared For:

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764

GEOTEK

GeoTek, Inc.
1548 North Maple Street, Corona, California 92880
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

October 10, 2019
Project No. 2250-CR

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764

Attention: Mr. Tim Nguyen

Subject: Phase I Environmental Site Assessment
Assessor's Parcel Numbers (APNs) 126-050-002 and -004
Norco, Riverside County, California 92860

Dear Mr. Nguyen:

GEOTEK, INC. (GEOTEK) is pleased to present this Phase I Environmental Site Assessment for the above-referenced subject Site. Services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,*" which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK'S Proposal No. P-0604319, dated June 20, 2019.

This Phase I Environmental Site Assessment has not revealed evidence of an environmental condition or concern in connection with the subject Site.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (951) 710-1160.

Sincerely,
GEOTEK, INC.

Edward H. LaMont
Principal Geologist, CEG 1892
Expires 07/31/2020

J. Michael Batten, CEM, REPA
Environmental Services Manager
Registered Environmental Property Assessor No. 113162
Expires 06/15/2020

Anna M. Scott
Project Geologist

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1.0 EXECUTIVE SUMMARY

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for the subject property: APNs 126-050-002 and -004 (the "Site"), located in the City of Norco, Riverside County, California. Our services were conducted in substantial conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) E 1527-13, "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*", which is approved to meet the requirements of the federal All Appropriate Inquiries (AAI) standards as set forth in the Code of Federal Regulations, Title 40, Section 312 (40 CFR 312), and GEOTEK Proposal No. P-0604319, dated June 20, 2019. Any additions or deletions from our scope of services are discussed in the appropriate sections of this assessment.

A representative of GEOTEK conducted a Site reconnaissance on October 8, 2019. The weather was warm and the sky was clear. The irregular shaped Site is currently comprised of two parcels of land (Riverside County APNs 126-050-002 and -004) and encompasses a total of approximately 16.16 acres. The Site can generally be accessed from either Hamner Avenue or Third Street.

The northeast portion of the Site is currently occupied by Norco RV Center, a sales lot for trailers. Norco RV Center consisted of a sales office (mobile facility), a storage shed and paved parking/drive areas. The inside of the sales office was not observed during our reconnaissance. A propane tank was observed to the north of the sales office. A pile of used tires was observed in the southwestern portion of the facility. A tub of used oil and several batteries were observed near the storage shed. Materials (i.e. replacement parts, jacks, gas cans, WD-40, etc.) associated with the trailers were observed inside the storage shed. The remainder of the Site is generally vacant land. Remnants of several concrete slabs and walls were observed in the central portion of the Site. Some large trees were observed in the southeastern portion of the Site.

Visual evidence of hazardous substances and wastes were observed inside the storage shed during our Site reconnaissance. No visual indication of spills or leaks, beyond a few small *(de minimis*) stains, were observed. No pungent or acrid odors were observed emanating from the Site.

The Site is in an area largely characterized by commercial development. The Site is bounded by vacant land, followed by Third Street, followed by commercial development and a portion of the Riverside Community College District to the north; Hamner Avenue, followed by commercial development, to the east; residential development and a concrete lined channel,

followed by commercial development, to the south; and a portion of Riverside Community College District and residential development to the west.

Based on readily available historic information, the Site appears to have been occupied with two to three residential structures and some outbuildings from at least 1931 to at least 1975. Several remnant concrete slabs can be observed since 1985. The Norco RV Center can be observed beginning in 1989. The surrounding properties appear to historically have been vacant land or scattered residential structures from at least 1931 to at least 1967. The residential development to the south can be observed beginning in 1967. The commercial development to the east of Hamner Avenue can be observed beginning in 1985.

The Site does not appear on the environmental database report obtained for this assessment. There is one (1) adjacent and an additional 26 facilities listed on the database report within the various search distances specified by ASTM E 1527-13. Due to their status listings, distances, and/or locations (hydro-geologically down-or cross-gradient), it is our opinion that these facilities do not represent an environmental concern to the Site.

This Phase I Environmental Site Assessment has not revealed evidence of an environmental condition or concern in connection with the subject Site.

The used oil containers, batteries and tires should be removed from the Site and disposed of properly in accordance with the local jurisdiction.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

2.0 INTRODUCTION

GEOTEK, INC. (GEOTEK) has performed a Phase I Environmental Site Assessment (ESA) for APNs 126-050-002 and -004 (the "Site"), located in the City of Norco, Riverside County, California.

2.1 PURPOSE

The purpose of this Phase I ESA was to identify and evaluate actual and potential environmental conditions involving the subject Site. It was not the purpose of this assessment to determine the degree or extent of contamination, if any, but rather the potential for contamination.

2.2 SCOPE OF WORK

The Phase I ESA is a general characterization of environmental concerns based on reasonably ascertainable information and observations. GEOTEK performed the Phase I ESA in substantial accordance with ASTM E 1527-13. The following services were provided for the assessment:

- A reconnaissance of the Site and surrounding properties to visually assess current utilization and indications of potential surface contamination. This was accomplished by driving the Site boundaries, and then traversing the Site until the entire Site had been surveyed.

- A reconnaissance of the surrounding area for approximately one-half mile was conducted, without entering the properties, making observations concerning property uses, conditions, and housekeeping.

- A review of the geologic and hydro-geologic settings was conducted using reasonably ascertainable public records and documents.

- An environmental database report was obtained from a data service provider. This database report compiles and locates documented "hazardous waste" facilities within specific minimum search distances as defined by ASTM E 1527-13. If necessary, additional information on identified facilities was gathered by a file review at the appropriate federal, state, local, and/or tribal regulatory agency.

- A review of reasonably ascertainable historical records (including aerial photographs, topographic maps, building records, and city directories) was conducted to assess the

historical land utilization and indications of potential contamination or sources of contamination for the Site.

- This report was prepared, which relates the findings of this study and presents our conclusions and recommendations.

Specific items not included in this Scope of Services are soil analysis, water analysis, asbestos containing materials analysis, radon analysis, lead-based paint analysis, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, vapor intrusion testing, high voltage power lines, and other items not within the scope of ASTM E 1527-13.

2.3 SIGNIFICANT ASSUMPTIONS

Specific assumptions by GEOTEK for this assessment include:

- GEOTEK had permission to access the Site grounds;
- The client has provided GEOTEK with available geotechnical or environmental reports for the Site;
- The client has provided GEOTEK with known current or historic uses of hazardous materials at the Site, or with other specialized knowledge of the environmental history of the Site and surrounding area;
- The client is not the sole and absolute source of information;
- Seller has provided proper and complete access to their knowledge, both written and verbal, and GEOTEK can rely on the information.

2.4 LIMITATIONS AND EXCEPTIONS

GEOTEK conducted a Phase I Environmental Site Assessment in substantial accordance with ASTM E 1527-13 and as authorized by Frontier Enterprises. This study does not include sampling of soil, groundwater and/or the debris on-site for environmental testing. This report is intended for the use of Frontier Enterprises. The contents should not be relied upon by any party other than the aforementioned without the express written consent of GEOTEK.

The findings, conclusions, and recommendations made in this report are based on the information that was made available to GEOTEK, in most instances from public records. The information is relevant to the date of our site work and should not be relied on to represent conditions at any later date. The opinions and conclusions expressed herein are based on information obtained during our assessment and on our experience and current standards of technical practice. GEOTEK makes no other warranties, either express or implied, concerning the completeness of the data furnished to us. GEOTEK cannot be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time our assessment was undertaken. GEOTEK is not responsible, nor liable for work, testing or recommendations performed or provided by others. This Phase I Environmental Site Assessment is not and should not be construed as a warranty or guarantee about the presence or absence of environmental hazards or contaminants, which may affect the subject site. Facts, conditions, and acceptable risk factors change with time; accordingly, this report should be viewed within this context.

Specific limitations to the scope of ASTM E 1527-13 due to contract limitations, availability of resources, and/or encountered Site conditions are discussed in the appropriate section(s) of this report.

2.5 SPECIAL TERMS AND CONDITIONS

This assessment report is presented as fulfilling the standard requirements of most financial institutions, governmental regulatory agencies, ASTM, and generally accepted industry standards and practices. Please refer to GEOTEK Proposal No. P-0604319 for complete terms and conditions for this assessment.

2.6 RELIANCE

This assessment has been prepared for the exclusive use and may be relied upon by Frontier Enterprises and their successors and assignees. Third party reliance letters may be issued upon request and upon the payment of the, then current, fee for such letters. All third parties relying on this report, by such reliance, agree to be bound by the General Conditions and Limitations agreed to Frontier Enterprises. No reliance by any party is permitted without such agreement, regardless of the content of the reliance letter itself.

3.0 DESCRIPTION OF SITE AND SURROUNDING AREA

The objective of describing the Site and surrounding area is to document current conditions as observed and to obtain information which would indicate the likelihood of a recognized environmental condition in connection with the Site. A representative of GEOTEK conducted a Site reconnaissance on October 8, 2019. The weather was warm and the sky was clear. The Site can generally be accessed from either Hamner Avenue or Third Street.

3.1 SITE LOCATION AND LEGAL DESCRIPTION

The Site is addressed as 2350 Hamner Avenue in the City of Norco, Riverside County, California. According to the U.S. Geological Survey (USGS) Corona North Quadrangle topographic map sheet (7.5-minute series), the Site is located in Section 13, Township 3 South, Range 7 West, San Bernardino Baseline and Meridian (see Figure 1 in Appendix A and documents in Appendix B). The Site is also known as Riverside County Assessor's Parcel Numbers (APNs) 126-050-002 and -004. Additional legal descriptions for the Site are included in the Environmental Lien and AUL Search document included in Appendix B. A Property Tax Map Report as obtained from EDR is also included in Appendix B.

3.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The Site is in an area largely characterized by commercial development.

3.3 CURRENT PROPERTY USE

The northeast portion of the Site is currently occupied by Norco RV Center, a sales lot for trailers. Norco RV Center consisted of a sales office (mobile facility), a storage shed and paved parking/drive areas. The inside of the sales office was not observed during our reconnaissance. A propane tank was observed to the north of the sales office. A pile of used tires was observed in the southwestern portion of the facility. A tub of used oil and several batteries were observed near the storage shed. Materials (i.e. replacement parts, jacks, gas cans, WD-40, etc.) associated with the trailers were observed inside the storage shed. The remainder of the Site is generally vacant land. Remnants of several concrete slabs and walls were observed in the central portion of the Site. Some large trees were observed in the southeastern portion of the Site.

3.4 SITE IMPROVEMENTS

The northeast portion of the Site is currently occupied by Norco RV Center, a sales lot for trailers. Norco RV Center consisted of a sales office (mobile facility), a storage shed and paved parking/drive areas. The inside of the sales office was not observed during our reconnaissance. A propane tank was observed to the north of the sales office. A pile of used tires was observed in the southwestern portion of the facility. A tub of used oil and several batteries were observed near the storage shed. Materials (i.e. replacement parts, jacks, gas cans, WD-40, etc.) associated with the trailers were observed inside the storage shed. The remainder of the Site is generally vacant land. Remnants of several concrete slabs and walls were observed in the central portion of the Site. Some large trees were observed in the southeastern portion of the Site. Photographs of the Site are included in Appendix C.

3.4.1 HAZARDOUS SUBSTANCES

A pile of used tires was observed in the southwestern portion of the facility. A tub of used oil and several batteries were observed near the storage shed. Materials (i.e. replacement parts, jacks, gas cans, WD-40, etc.) associated with the trailers were observed inside the storage shed. Visual evidence of other hazardous substances or wastes were not observed. There was no indication of major spills or leaks. No pungent or acrid odors were observed emanating from the Site.

3.4.2 STORAGE TANKS

A propane tank was observed to the north of the sales office. Propane is a gas at standard pressure and temperature, and therefore not an environmental concern to the Site.

GEOTEK did not observe evidence of underground ground storage tanks (such as vent pipes, fill pipes, regular-shaped depressions, etc.) on the Site. It is assumed that the sales trailer uses an on-site effluent disposal system.

3.4.3 POLY-CHLORINATED BIPHENYLS (PCBS)

GEOTEK did not observe suspect equipment (transformers, elevators, hydraulic lift mechanisms, trash compactors, etc.) which may contain PCBs on the Site.

3.4.4 CONTROLLED SUBSTANCES

GEOTEK consulted the U.S. Drug Enforcement Agency (DEA) website to cross-check the Site address against published facilities subject to DEA enforcement. The Site did not appear on the list of published facilities. A copy of the DEA printout is included in Appendix B.

GEOTEK did not observe evidence of illegal or controlled substances being used or manufactured at the Site.

3.4.5 INDICATIONS OF SOLID WASTE DISPOSAL

Waste disposal for the Site and Site area is provided by Waste Management.

3.4.6 UTILITY SUPPLY

Water and sewer services for the Site and area are provided by the City of Norco. Electric services for the Site and area are provided by Southern California Edison. Natural gas is provided for the Site and area by Southern California Gas Company.

3.4.7 DRAINAGE

Natural drainage at the Site is generally interpreted to be toward the southeast, conforming to the natural topography in the area. Ponded water was not observed during our Site reconnaissance.

3.4.8 OTHER CONDITIONS OF CONCERN

No visual indication of other conditions of concern (water wells, drywells, cesspools, etc.) that would indicate a recognized environmental condition was observed during the Site reconnaissance.

3.4.9 INTERVIEWS

GEOTEK interviewed the following individual while performing this assessment, in the form of completing a *User Questionnaire*:

- Mr. Tim Nguyen (a representative of the future Site owner) completed a User Questionnaire.

Information from this interview is incorporated into the appropriate sections of this report.

3.5 CURRENT ADJOINING PROPERTY USE

The Site is in an area largely characterized by commercial development. The Site is bounded by vacant land, followed by Third Street, followed by commercial development and a portion of the Riverside Community College District to the north; Hamner Avenue, followed by commercial development, to the east; residential development and a concrete lined channel, followed by commercial development, to the south; and a portion of Riverside Community College District and residential development to the west.

4.0 CLIENT PROVIDED INFORMATION

As a form of interview, a representative of the future Site owner completed a "User Questionnaire" for the Site in accordance with ASTM E 1527-13. A copy of the completed questionnaire is included in Appendix B.

4.1 ENVIRONMENTAL CLEAN UP LIENS

Mr. Tim Nguyen is not aware of any environmental clean-up liens at the Site.

4.2 ACTIVITY AND USE LIMITATIONS

Mr. Tim Nguyen is not aware of any activity use limitations at the Site.

4.3 SPECIALIZED KNOWLEDGE

Mr. Tim Nguyen is not aware of any specialized knowledge of the Site or nearby properties.

4.4 PURCHASE PRICE

Mr. Tim Nguyen states that the purchase price being paid for the Site reflects fair market value.

4.5 COMMONLY KNOWN INFORMATION

Mr. Tim Nguyen states that the Site was previously used for a ranch and a drive-in movie theatre. Mr. Tim Nguyen is not aware of any other commonly known or reasonably ascertainable information for the Site.

4.6 OBVIOUS INDICATORS OF CONTAMINATION

Mr. Tim Nguyen is not aware of obvious indicators of a likely environmental impact at the Site.

4.7 OWNER, PROPERTY MANAGER AND OCCUPANT INFORMATION

Eddie R Fischer Trustee currently owns and manages the Site. The current Site occupants were not interviewed during our Site reconnaissance. They were not cooperative to our visit.

4.8 Reason for Performing Phase I ESA

This Phase I ESA was performed at the request of Frontier Enterprises as part of their due diligence for possible future improvements on the Site and in order to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2002.

4.9 Other User Provided Information

GeoTek was not provided with any other information for the Site from an environmental perspective by Frontier Enterprises.

5.0 PROPERTY PHYSICAL SETTING

Surface and subsurface environments are of interest because they control the movement of water-born contaminants, which could be transported to and from the subject Site. GEOTEK reviewed information regarding the physical setting of the subject Site and immediately surrounding area.

5.1 REGIONAL GEOLOGY

The property is situated in the Peninsular Ranges geomorphic province. The Peninsular Ranges province is one of the largest geomorphic units in western North America. Basically, it extends from the point of contact with the Transverse Ranges geomorphic province, southerly to the tip of Baja California. This province varies in width from about 30 to 100 miles. It is bounded on the west by the Pacific Ocean, on the south by the Gulf of California and on the east by the Colorado Desert Province.

The Peninsular Ranges are essentially a series of northwest-southeast oriented fault blocks. Several major fault zones are found in this province. The Elsinore Fault zone and the San Jacinto Fault zone trend northwest-southeast and are found near the middle of the province. The San Andreas Fault zone borders the northeasterly margin of the province.

5.2 LOCAL GEOLOGIC SETTING AND TOPOGRAPHY

The Site and Site area are understood to be underlain by older fan deposits and granitic bedrock. Additional data regarding soil survey information for the Site and Site area is also included in Appendix B.

The Site and Site area can be considered as gently rolling to flat terrain. Based on the USGS topographic map for the area and other documents reviewed for this report, the elevation of the subject Site ranges from approximately 604 to 640 feet above mean sea level.

5.3 VICINITY SURFACE DRAINAGE

Natural drainage at the Site is interpreted to be dominantly directed toward the southeast, conforming to the natural topography in the area. Storm water runoff does not appear to drain towards the Site from the adjacent properties due to existing streets and/or improvements.

According to the Federal Emergency Management Agency (FEMA), the Site is partially located within an area as designated as having a 0.2% annual chance flood hazard (see Appendix D).

5.4 HYDROGEOLOGY

According to a review of historical groundwater data (California Department of Water Resources and California State Water Resources Control Board groundwater well data [http://wdl.water.ca.gov and http://geotracker.waterboards.ca.gov]) and in-house information, depth to groundwater is greater than 50 feet below ground surface (bgs) in the general site area, with a flow direction to the southeast.

6.0 ENVIRONMENTAL REGULATORY RECORDS REVIEW

The records review is conducted to help identify known recognized environmental conditions at the Site and/or on adjacent or nearby properties which may have impacted the subject Site.

6.1 ENVIRONMENTAL DATABASE RECORDS SEARCH

GEOTEK obtained and reviewed an environmental database report of the federal and state environmental records specified by ASTM E 1527-13. The database report was provided by Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut. Additionally, orphan or un-mappable sites listed by EDR were reviewed for the approximate minimum search distances noted and included in our discussion, if applicable. Refer to Appendix D for a copy of the database report.

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
U.S. Environmental Protection Agency (EPA) - National Priorities List (NPL), including delisted NPL	1.0 Mile	No	0	0
EPA – Superfund Enterprise Management System (SEMS), including archived sites (formerly CERCLIS)	0.5 Mile	No	0	1
EPA – Resource Conservation and Recovery Act (RCRA), Corrective Action Facilities (CORRACTS)	1.0 Mile	No	0	0
EPA – RCRA, Transportation, Storage, and Disposal facilities (TSD)	0.5 Mile	No	0	0
EPA - RCRA Generators	Site and Adjacent	No	0	8
EPA – Emergency Response Notification System (ERNS)	Site	No	N/A	0
Federal institutional control/engineering control registries	0.5 Mile	No	0	0
California Environmental Protection Agency (CEPA) – State Response Sites (Response, formerly Annual Work Plan and Bond Expenditure Plan)	1.0 Mile	No	0	0

ENVIRONMENTAL DATABASE	MINIMUM SEARCH DISTANCE	SITE	ADJACENT	TOTAL LISTED
CEPA – EnviroStor Database (formerly CALSITES)	0.5 Mile	No	0	5
CEPA – CHMIRS - California Hazardous Materials Information Reporting System	Site	No	No	0
CEPA - Solid Waste Fill/Landfill (SWF/LF), Solid Waste Assessment Test (SWAT)/Waste Management Unit Database System (WMUDS) and Recycling Facilities (SWRCY)	0.5 Mile	No	0	1
CEPA – Leaking Underground Storage Tanks (LUST)	0.5 Mile	No	0	8
CEPA – Underground Storage Tanks (UST), including historic USTs	Site and Adjacent	No	0	4
CEPA – Spills, Leaks, Investigations & Cleanup Cost Recovery Listing (SLIC)	0.5 Mile	No	0	0
State institutional control/engineering control registries	Site	No	N/A	0
Local and/or Tribal databases	Up To 1.0 Mile	No	0	0
Drycleaners	0.25 Mile	No	0	0
Other databases	Up to 1.0 Mile	No	0	0
Unmappable facilities	Up to 1.0 Mile	No	0	6

N/A – Not Applicable

6.2 Discussion of Regulatory Records

6.2.1 National Priority List

The National Priority List (NPL) is the EPA's list of confirmed or proposed Superfund sites. Our review of this data includes sites which have been delisted from the NPL. The NPL is searched for a 1.0-mile distance.

The Site does not appear on the NPL. There are no facilities on the NPL within 1.0-mile of the Site.

6.2.2 SUPERFUND ENTERPRISE MANAGEMENT SYSTEM

The Superfund Enterprise Management System (SEMS, formerly CERCLIS) is a compilation of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances. Our review of SEMS sites includes archive (no further remedial action planned) facilities. The SEMS list is searched for a 0.5-mile distance.

The Site does not appear on the SEMS list.

There is one (1) facility on the SEMS-ARCHIVE list within 0.5-mile of the Site. The facility is listed as Norco Egg Farm, located at 1811 Mountain Avenue. The facility is listed as being located 0.25 to 0.5 (0.429) mile south-southwest of the Site. No pertinent information is provided for the facility. Due to the location of the facility (down-gradient), this facility does not represent an environmental concern to the Site.

6.2.3 RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act compile selective information on facilities which generate, transport, store, treat and or dispose of hazardous waste. RCRA facilities can be listed on one of three databases:

- *Corrective Action Facilities (CORRACTS)* are facilities undergoing corrective action. A corrective action order is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. The CORRACTS list is searched for a 1.0-mile distance.

  The Site does not appear on the CORRACTS list. There are no facilities on the CORRACTS list within 1.0-mile of the Site.

- *Transportation, Storage, and Disposal Facilities (TSD)* includes facilities that transport, store or dispose of hazardous waste and are not listed on the RCRA Generators list. The TSD is searched for a 0.5-mile distance.

  The Site does not appear on the RCRA TSD list. There are no facilities on the RCRA TSD list within 0.5-mile of the Site.

- *Generators List* identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Generators database is a compilation by the EPA of

reporting facilities that generate hazardous waste. The RCRA generators list is searched for the Site and adjacent properties.

The Site does not appear on the RCRA Generators list.

There are eight (8) facilities listed as a RCRA Generator within 0.25 mile of the Site. However, these facilities are not actually located immediately adjacent the Site, and therefore are not a recognized environmental condition to the Site.

6.2.4 Emergency Response Notification System

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil or hazardous substances. The ERNS list is searched for the Site. The Site does not appear on the ERNS list.

6.2.5 Federal Institutional Control/Engineering Control Registries

The EPA maintains three (3) databases which list sites that have institutional and/or engineering controls in place as part of their operations. These databases are searched for a 0.5-mile distance.

The Site does not appear on these databases. There are no facilities on these databases within 0.5-mile of the Site.

6.2.6 State Response Sites

The State Response Sites (RESPONSE) records are the state equivalent to the federal National Priorities List (NPL) database. The RESPONSE is searched for a 1.0-mile distance.

The Site does not appear on the on the RESPONSE. There are no RESPONSE facilities listed within a 1.0-mile distance of the Site.

6.2.7 EnviroStor Database

The EnviroStor Database (EnviroStor, formerly CALSITES) records are the state equivalent to the federal SEMS database. EnviroStor is searched for a 0.5-mile distance.

The Site does not appear on the EnviroStor database.

There are five (5) EnviroStor facilities within 0.5 mile of the Site. The first facility is listed as Kennedy Middle College High School, located at Third Street. The facility is listed as being located 0.125 to 0.25 (0.140) mile west-northwest of the Site. The facility status is listed as "certified."

The second facility is listed as Naval Ordnance Lab, with no location listed. The facility is listed as being located 0.125 to 0.25 (0.187) mile west-northwest of the Site. The facility status is listed as "inactive-needs evaluation."

The third facility is listed as Corona Naval Weapons Station, located in the City of Norco west of I-15 between 5th Street and 3rd Street. The facility is listed as being located 0.25 to 0.5 (0.500) mile northwest of the Site. The facility status is listed as "active."

The fourth facility is listed as Riverside Community College – Norco Campus, located at 2001 3rd Street. The facility is listed as being located 0.125 to 0.25 (0.246) mile west of the Site. The facility status is listed as "certified O&M – land use restrictions only."

The fifth facility is listed as Norco Main Ranch Inc., located at 1811 Mountain Avenue. The facility is listed as being located 0.25 to 0.5 (0.429) mile south-southwest of the Site. The facility status is listed as "refer-RWQCB."

Due to the status listings and/or locations (down- or cross-gradient), these facilities do not represent an environmental concern to the Site.

6.2.8 California Hazardous Material Incident Report System

The California Hazardous Material Incident Report Systems (CHMIRS) is a state database used to collect information on reported hazardous materials incidents (accidental leaks and spills). The CHMIRS list is searched for a 0.25-mile distance.

The Site does not appear on the CHMIRS list. There are no CHMIRS facilities located within 0.25 mile of the Site.

6.2.9 Solid Waste Facilities List

The Solid Waste Fill/Landfill (SWF/LF), Waste Management Unit Database System (WMUDS)/Solid Waste Assessment Test (SWAT), and Solid Waste Recycling Facilities (SWRCY) databases includes information pertaining to closed and open solid waste facilities

operating in the state of California. The SWF/LF, WMUDS/SWAT and SWRCY databases are searched for a 0.5-mile distance.

The Site does not appear on the SWF/LF, WMUDS/SWAT or SWRCY lists.

There are no facilities on the WMUDS/SWAT or SWRCY lists within 0.5-mile of the Site.

There is one (1) facility on the SWRCY list within 0.5-mile of the Site. The facility is listed as Replanet LLC, located at 2790 Hamner Avenue. The facility is listed as being located 0.25 to 0.5 (0.421) mile north-northeast of the Site. The facility is listed as recycling aluminum, glass, plastic and bimetal. Due to the facility listing, this facility does not represent an environmental concern to the Site.

6.2.10 LEAKING UNDERGROUND STORAGE TANKS LIST

The California Leaking Underground Storage Tanks (LUST) list is a compilation of petroleum storage tank sites that have reported a release. The LUST list is searched for a 0.5-mile distance.

The Site did not appear on the LUST list.

There are eight (8) facilities listed as being on the LUST list within 0.5-mile of the Site. The table below provides the facility name, address, location in relation to the Site and the facility status.

No.	Facility Name	Address	Location in Relation to Site	Facility Status
1	Chevron Station No. 9	2740 Hamner Avenue	0.25 to 0.5 (0.368) mile NNE (Up Gradient)	Completed – Case Closed
2	St. Anthony Mobil	2807 Hamner Avenue	0.25 to 0.5 (0.440) mile (Up Gradient)	Leak Being Confirmed
3	Norco Shell	2807 Hamner Avenue	0.25 to 0.5 (0.440) mile NNE (Up Gradient)	Completed – Case Closed
4	Thrifty Oil #338	2600 Hamner Avenue	0.125 to 0.25 (0.218) mile NNE (Up Gradient)	Remediation Plan
5	Thrifty Oil Station #338	2600 Hamner Avenue	0.125 to 0.25 (0.218) mile NNE (Up Gradient)	Completed – Case Closed

No.	Facility Name	Address	Location in Relation to Site	Facility Status
6	Norco Fuel Sales	2001 Hamner Avenue	0.125 to 0.25 (0.234) mile SSE (Down Gradient)	Completed – Case Closed
7	Shell Service Station	1850 Hamner Avenue	0.25 to 0.5 (0.264) mile S (Down Gradient)	Preliminary Site Assessment Workplan Submitted
8	Shell Service Station	1850 Hamner	0.25 to 0.5 (0.264) mile S (Down Gradient)	Complete – Case Closed

Facility No. 2 and No. 3 appear to be one in the same. Facility No. 4 and No. 5 also appear to be one in the same. And Facility No. 7 and No. 8 appear to be one in the same.

Due to the status listings, these facilities do not represent an environmental concern to the Site.

6.2.11 Underground Storage Tanks List

The California Underground Storage Tank (UST) list is a compilation of petroleum storage tank sites that are registered with the state of California. The UST list is searched for the Site and adjacent properties.

The Site did not appear on the UST list.

There is one (1) facility listed on the UST list. The facility is listed as ARCO #9708, located at 2600 Hamner Avenue. The facility is listed as being located 0.125 to 0.25 (0.218) mile north-northeast of the Site.

The Site did not appear on the HIST UST list.

There are three (3) facilities listed on the HIST UST list. The first facility is listed as RC Manning, located at 1650 3rd Street. The facility is listed as being located less than 0.125 (0.073) mile east-northeast of the Site.

The second facility is listed as Thrifty Oil Station #33, located at 2600 Hamner Avenue. The facility is listed as being located 0.125 to 0.25 (0.218) mile north-northeast of the Site.

The third facility is listed as Thrifty Oil Co. #338, located at 2600 Hamner Avenue. The facility is listed as being located 0.125 to 0.25 (0.218) mile north-northeast of the Site. This facility appears to be the same as the second facility listed above.

6.2.12 Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (SLIC)

The SLIC database is compiled by the CEPA California Regional Water Quality Control Board, San Ana Region. It is designed to protect and restore water quality from spills, leaks, and similar discharges. The SLIC is searched for a 0.5-mile distance.

The Site does not appear on the SLIC. There are no SLIC facilities listed within a 0.5-mile distance of the Site.

6.2.13 State Institutional Control/Engineering Control Registries

The State of California maintains institutional and engineering control databases or registries. This lists sites with engineering or institutional controls in place. Institutional controls include administrative measures intended to prevent exposure to contaminants remaining on site. Engineering controls include various forms of caps, building foundations, liners, and treatment methods. The State Institutional Control/Engineering Control Registries is searched for the Site.

The subject Site does not appear on the State Institutional Control/Engineering Control Registries.

6.2.14 Tribal Databases

Tribal governments are under the jurisdiction of the EPA for environmental concerns. Currently, the EPA Region 9 publishes LUST and UST information for tribes in Arizona, California, Hawaii, Nevada, and the Pacific Territories. The LUST database is searched for 0.5 mile, and the UST database is searched for 0.25 mile.

The Site does not appear on the Tribal LUST or UST databases. No facilities were identified on the Tribal LUST or UST databases within 0.5 mile of the Site.

6.2.15 OTHER DATABASES

EDR compiles information from multiple federal, state, local, and proprietary databases. Most are secondary or tertiary or redundant. Facilities compiled on these other databases are evaluated based on the severity of the listing, distance, and location.

The Site does not appear on the environmental database report obtained for this assessment.

No other facilities are reported on these other databases for this assessment.

6.2.16 DRY CLEANERS

The DRYCLEANERS list is compiled and provided by EDR. The DRYCLEANER database is searched for a 0.25-mile distance.

The Site does not appear on the DRYCLEANER list. There are no DRYCLEANER facilities listed within 0.25-mile of the Site.

6.2.17 VAPOR ENCROACHMENT SCREEN

The purpose of a Vapor Encroachment Screen (VES) is to identify, to the extent feasible, if a vapor encroachment condition exists at the Site.

A Vapor Encroachment Screen Report was generated for the Site and Site area utilizing EDR's Vapor Encroachment Worksheet (see Appendix B). It was determined that there are no historical dry cleaners or auto stations within 600 feet and/or up gradient from the Site.

It was determined that a vapor encroachment condition (VEC) does not likely exist at the Site. The Vapor Encroachment Screen report is included in Appendix B.

6.2.18 UNMAPPABLE FACILITIES

GEOTEK reviewed the listing of "orphan" or unmappable facilities in the database report. There are six (6) unmapped facilities in the report.

These facilities are listed as Norco Town Center (CIWQS), Pollys Norco 217 (CIWQS), Norco Retail Center (CIWQS), unnamed (CDL) and Hamner Widening Project (FINDS). These facilities do not represent an environmental concern to the Site.

6.3 LOCAL REGULATORY AGENCY RECORDS

GEOTEK contacted the County of Riverside Sherriff and Fire Departments regarding underground or above ground storage tanks, hazardous material permits or business plans, emergency responses, spills, inspections, or other information of an environmental or hazardous nature.

Neither of these agencies had any information for the Site.

7.0 SITE AND SURROUNDING AREA HISTORY

In order to construct the history of the Site and the surrounding area, GEOTEK reviewed reasonably ascertainable public documents, including aerial photographs, topographic maps, building records, city directories, fire insurance maps, and county assessor history records.

7.1 HISTORICAL SITE USAGE

7.1.1 AERIAL PHOTOGRAPH REVIEW

GEOTEK reviewed aerial photographs dated 1931, 1938, 1948, 1953, 1959, 1967, 1975, 1985, 1989, 1990, 1994, 2006, 2009, 2012, 2016 and 2018 (see Appendix B).

A residential structure and associated outbuildings can be observed in the north central portion of the Site in the 1931 aerial photograph. A structure can also be observed in the south central portion of the Site.

A residential structure and associated outbuildings can be observed in the north central portion of the Site in the 1938 aerial photograph. Two structures can also be observed in the south central portion of the Site.

Several structures can be observed in the north central portion of the Site in the 1948, 1953, 1959 and 1967 aerial photographs. Two structures can also be observed in the south central portion of the Site.

Two structures can be observed in the north central portion of the Site in the 1975 aerial photograph. A structure can be observed in the south central portion of the Site.

Remnants of concrete slabs can be observed in the north central and south central portion of the Site in the 1985 aerial photograph.

The trailer sales facility can be observed in the 1989 aerial photograph. The Site appears similar in the 1990, 1994, 2006, 2009, 2012 and 2016 aerial photographs.

The trailer sales facility is expanded to the north in the 2018 aerial photograph.

A 2018 aerial photograph is utilized for Figure 2 (Appendix A).

7.1.2 TOPOGRAPHIC MAP REVIEW

GEOTEK reviewed the Corona Quadrangle (30-minute series), dated 1902; the Corona and Vicinity Quadrangle (7.5-minute series), dated 1942; the Corona Quadrangle (15-minute series), dated 1947; the Corona North Quadrangle (7.5-minute series), dated 1954; the Corona North Quadrangle (7.5-minute series), dated 1967; the Corona North Quadrangles (7.5-minute series), dated 1973; the Corona North Quadrangle (7.5-minute series), dated 1981; and the Corona North Quadrangle (7.5-minute series), dated 2012 (see Appendix B).

The Site appears to be vacant land on the topographic map sheet dated 1902.

A structure can be observed in the north central portion of the Site on the topographic map sheets dated 1942 and 1947.

Four structures can be observed in the central portion of the Site on the topographic map sheet dated 1954.

Three structures can be observed in the central portion of the Site on the topographic map sheets dated 1967, 1973 and 1981.

The 2012 maps show little detail other than streets in the vicinity. A 2012 topographic map sheet is utilized for Figure 1 (Appendix A).

7.1.3 BUILDING DEPARTMENT RECORDS

A Building Permit Report was obtained from EDR. However, EDR reports that they do not have access to building permits for the City of Norco.

GEOTEK requested building department records from the County of Riverside. The County of Riverside states that "we are unable to locate any building permits for this address or APN. Our records date back to 1963. All building permit records prior to 1963 have been destroyed."

7.1.4 CITY DIRECTORY REVIEW

GEOTEK obtained The EDR – City Directory Abstract Report, as obtained from and provided by EDR, and included in Appendix B.

A Site address of 2350 Hamner Avenue was listed in the report as Gobblers Knob Turkey Ranch and Hayes DM in 1956; 3D Ints, DM Hayes, DP Lorenzo and Hayes Don Turkey Ranch in 1961; Don Hayes in 1977; R Golden Sun Homes in 2001; Golden Sun Homes in 2002; Golden Sun Homes in 2005; and National Auto and RV, Southcoast Real Estate Services and West Coat Exports Inc in 2014.

These listings do not appear to be an environmental concern to the Site.

7.1.5 SANBORN MAP REVIEW

Sanborn Fire Insurance Maps for the parcel were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. Source sheets were not available for the Site. The Sanborn Map Report is included in Appendix B.

7.1.6 CHAIN OF TITLE

GEOTEK has not received Chain-of-Title documents for the Site.

7.2 HISTORICAL IMMEDIATELY SURROUNDING PROPERTY USAGE

7.2.1 AERIAL PHOTOGRAPH REVIEW

GEOTEK reviewed aerial photographs dated 1931, 1938, 1948, 1953, 1959, 1967, 1975, 1985, 1989, 1990, 1994, 2006, 2009, 2012, 2016 and 2018 (see Appendix B).

The surrounding properties appear to be vacant land in the 1931, 1938, 1948 and 1953 aerial photographs. Hamner Avenue can be observed to the east.

Structures can be observed to the south of the Site in the 1959 aerial photograph.

Structures can be observed to the north of the Site in the 1967 aerial photograph.

The residential development to the south of the Site can be observed in the 1975 aerial photograph.

Structures can be observed to the east of Hamner Avenue and south of the Site in the 1985 and 1989 aerial photographs.

Third Street is being constructed in the 1990 aerial photograph along with Riverside Community College. Structures can be observed to the west of the Site.

Structures can be observed to the north, east, south and west of the Site in the 1994 and 2006 aerial photographs.

The surrounding properties appear similar to current conditions in the 2009, 2012, 2016 and 2018 aerial photographs.

7.2.2 TOPOGRAPHIC MAP REVIEW

GEOTEK reviewed the Corona Quadrangle (30-minute series), dated 1902; the Corona and Vicinity Quadrangle (7.5-minute series), dated 1942; the Corona Quadrangle (15-minute series), dated 1947; the Corona North Quadrangle (7.5-minute series), dated 1954; the Corona North Quadrangle (7.5-minute series), dated 1967; the Corona North Quadrangles (7.5-minute series), dated 1973; the Corona North Quadrangle (7.5-minute series), dated 1981; and the Corona North Quadrangle (7.5-minute series), dated 2012 (see Appendix B).

The surrounding properties appear to be vacant land on the 1902 and 1942 topographic map sheets.

A structure can be observed to the south on the 1947 topographic map sheet.

Structures can be observed to the far north and far south of the Site on the 1954 and 1967 topographic map sheets.

Structures can be observed to the north, east and south of the Site on the 1973 and 1981 topographic map sheets.

The 2012 maps show little detail other than streets in the vicinity. The 2012 map is presented as Figure 1 in Appendix A.

7.2.3 CITY DIRECTORIES

GEOTEK has reviewed a City Directory Abstract report obtained from and provided by EDR for the Site and surrounding property addresses. The City Directory Abstract report provides information on numerous nearby property addresses. The named facilities do not represent an environmental concern to the Site.

7.2.4 SANBORN MAP REVIEW

Sanborn Maps for the Site were requested from EDR-Sanborn, which owns and maintains the largest and most complete collection of the maps. According to EDR, source sheets were not available for the property; therefore, it is not likely that source sheets would be available for the adjoining properties. The Sanborn Map Report is included in Appendix B.

7.3 HISTORICAL USE SUMMARY

Based on readily available historic information, the Site appears to have been occupied with two to three residential structures and some outbuildings from at least 1931 to at least 1975. Several remnant concrete slabs can be observed since 1985. The Norco RV Center can be observed beginning in 1989. The surrounding properties appear to historically have been vacant land or scattered residential structures from at least 1931 to at least 1967. The residential development to the south can be observed beginning in 1967. The commercial development to the east of Hamner Avenue can be observed beginning in 1985.

Data gaps exist from 1901 to 1931, 1931 to 1938, 1959 to 1967 and 1994 to 2006 due to the limited records which are reasonably ascertainable in the local area. However, it is our opinion that additional historic information, if it were to become available, is not likely to change the conclusions or recommendations of this assessment.

8.0 SIGNIFICANT DATA GAPS

No significant data gaps were discovered while performing this Phase I Environmental Site Assessment. Therefore, it is our opinion that sufficient information was obtained to identify current Site conditions and past Site usage.

Minor data gaps include:

- Gaps in the historic records from 1901 to 1931, 1931 to 1938, 1959 to 1967 and 1994 to 2006;

- GEOTEK has not received nor reviewed Chain-of-Title documents for the Site.

It is our opinion that additional information, if it were to become available, is not likely to change the conclusions or recommendations of this assessment.

9.0 CONCLUSIONS AND RECOMMENDATIONS

GEOTEK has performed a Phase I Environmental Site Assessment (ESA) for the subject Site in substantial conformance with the scope and limitations of ASTM E 1527-13 and GEOTEK Proposal No. P-0604319, dated June 20, 2019. Any exceptions to, or deletions from, this practice are described in the appropriate sections of this report.

This Phase I Environmental Site Assessment has not revealed evidence of an environmental condition or concern in connection with the subject Site.

10.0 CERTIFICATIONS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

The qualifications of the Project Team are included in Appendix E.

We appreciate this opportunity to be of service. If you have any questions, or if we can be of further service, please contact us at (951) 710-1160.

Sincerely,
GEOTEK, INC.

Edward H. LaMont
Principal Geologist, CEG 1892
Exp. 07/31/2020

J. Michael Batten, CEM, REPA
Environmental Services Manager
Registered Environmental Property Assessor No. 113162
Expires 06/15/2020

Anna M. Scott
Project Geologist

G:\Projects\2201 to 2250\2250CR Frontier Enterprises Norco Multi-Family Mixed Use\Phase I ESA\2250CR Phase I Environmental Site Assessment Norco.DOC

11.0 REFERENCES

CALIFORNIA, STATE OF

- Morton, D.M. and Miller, F.K., 2006, "Geologic Map of the San Bernardino and Santa Ana 30'x60'-minute Quadrangles, California," U.S. Geological Survey OF-2006-1217, scale 1:100,000
- Water Resources, Department of Hydrologic Data

ENVIRONMENTAL DATA RESOURCES, INC.

- Aerial Photo Decade Package, Inquiry No. 5813845.11, dated October 2, 2019
- Building Permit Report, Inquiry No. 5813845.8, dated October 2, 2019
- Certified Sanborn Map Report, Inquiry No. 5813845.3, dated October 2, 2019
- City Directory Abstract Report, Inquiry No. 5813845.5, dated October 3, 2019
- Environmental Lien and AUL Search Report, Inquiry No. 5813845.7, dated October 3, 2019
- Historical Topo Map Report, Inquiry No. 5813845.4, dated October 2, 2019
- Property Tax Map Report, Inquiry No. 5813845.6, dated October 2, 2019
- Radius Map Report, Inquiry No. 5813845.2s, dated October 2, 2019
- Vapor Encroachment Screen Report, Inquiry No. 5813845.2s, dated October 7, 2019

RIVERSIDE, COUNTY OF

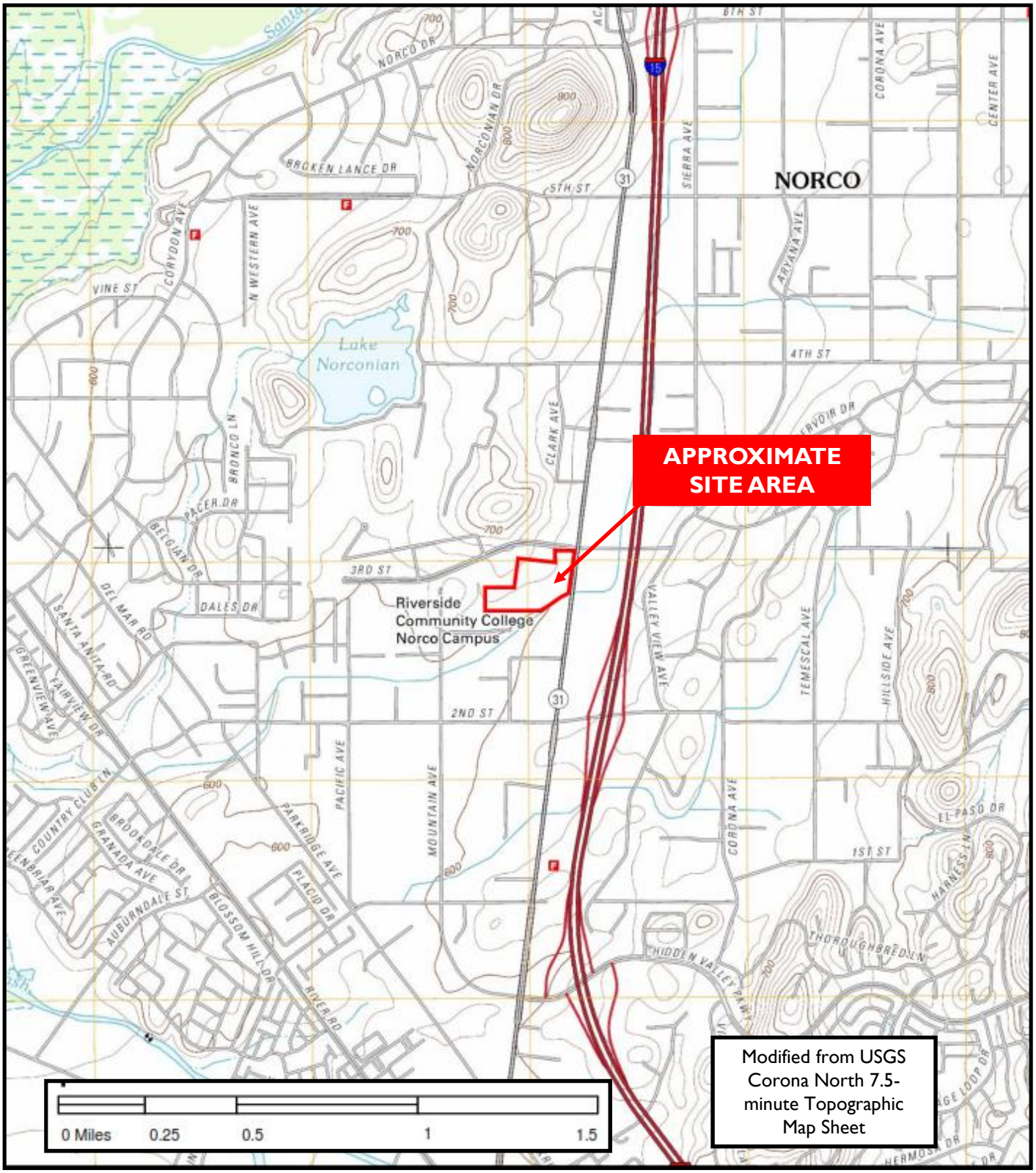
- Assessor's Office, Records Inquiry
- Building Department, Records Inquiry
- Fire Department, Records Inquiry
- Sherriff Department, Records Inquiry

U.S. GOVERNMENT

- Drug Enforcement Agency
- Records inquiry, http://www.dea.gov/seizures
- Federal Emergency Management Agency (FEMA)

APPENDIX A

FIGURES



Frontier Enterprises
APNs 126-050-002 and -004
Norco, Riverside County, California

Project No. 2250-CR

Figure 1
Site Location and General Site Topography Map

GEOTEK

Frontier Enterprises
APNs 126-050-002 and -004
Norco, Riverside County, California

GeoTek Project No. 2250-CR

GEOTEK

Figure 2

General Site Layout Map

APPENDIX B

SUPPORTING DOCUMENTS

Norco Project

2350 Hamner Avenue

Norco, CA 92860

Inquiry Number: 5813845.11

October 02, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/02/19

Site Name:

Norco Project
2350 Hamner Avenue
Norco, CA 92860
EDR Inquiry # 5813845.11

Client Name:

Geotek
1548 North Maple Street
Corona, CA 92880
Contact: Anna M. Scott

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: August 29, 1990	USDA
1989	1"=500'	Flight Date: August 03, 1989	USDA
1985	1"=500'	Flight Date: September 13, 1985	USDA
1975	1"=500'	Flight Date: August 01, 1975	USGS
1967	1"=500'	Flight Date: May 15, 1967	USDA
1959	1"=500'	Flight Date: October 16, 1959	USDA
1953	1"=500'	Flight Date: September 23, 1953	USDA
1948	1"=500'	Flight Date: July 20, 1948	USGS
1938	1"=500'	Flight Date: June 14, 1938	USDA
1931	1"=500'	Flight Date: September 18, 1931	FAIR

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INQUIRY #: 5813845.11

YEAR: 2016

= 500'

N

EDR

INQUIRY #: 5813845.11
YEAR: 2012
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 2009
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 2006
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1994
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1990
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1989
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1985
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1975
= 500'
N
EDR

INQUIRY #: 5813845.11

YEAR: 1967

= 500'

N

EDR

INQUIRY #: 5813845.11

YEAR: 1959

= 500'

N

EDR

INQUIRY #: 5813845.11
YEAR: 1953
= 500'
N
EDR

INQUIRY #: 5813845.11
YEAR: 1948
= 500'
N
EDR

INQUIRY #: 5813845.11

YEAR: 1938

= 500'

N

EDR

INQUIRY #: 5813845.11
YEAR: 1931
= 500'
N
EDR

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.8
October 02, 2019

EDR Building Permit Report

Target Property and Adjoining Properties

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Building Permit Report: Search Documentation

10/02/19

Site Name:
Norco Project
2350 Hamner
Norco, CA 92860

Client Name:
Geotek
1548 North Maple Street
Corona, CA 92880

EDR Inquiry # 5813845.8

Contact: Anna M. Scott

Search Documentation

DATA GAP

The complete collection of Building Permit data available to EDR has been searched, and as of 10/02/19, EDR does not have access to building permits in the city where your target property is located (Norco, CA).

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EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting 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.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-13 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records - The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILDFAX® PROPERTY HISTORY

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.3
October 02, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/02/19

Site Name:

Norco Project
2350 Hamner Avenue
Norco, CA 92860
EDR Inquiry # 5813845.3

Client Name:

Geotek
1548 North Maple Street
Corona, CA 92880
Contact: Anna M. Scott

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Geotek were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 1D80-433A-83FC

PO # NA

Project 2250-CR

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 1D80-433A-83FC

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Geotek (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

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Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.5
October 03, 2019

The EDR-City Directory Abstract

Environmental Data Resources Inc
6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1921 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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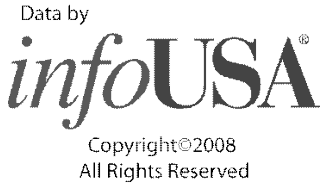

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2014	EDR Digital Archive	X	X	X	-
2010	EDR Digital Archive	-	X	X	-
2005	EDR Digital Archive	X	X	X	-
2002	SBC PACIFIC BELL	-	X	X	-
	SBC PACIFIC BELL	X	X	X	-
2001	Haines & Company, Inc.	-	X	X	-
	Haines & Company, Inc.	X	X	X	-
1996	Pacific Bell	-	X	X	-
1993	Pacific Bell	-	X	X	-
1990	Pacific Bell	-	X	X	-
1986	Pacific Bell Yellow Pages	-	X	X	-
1981	Pacific Telephone	-	X	X	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1977	Pacific Telephone	-	X	X	-
	Pacific Telephone	X	X	X	-
1970	Pacific Telephone	-	X	X	-
1967	Luskey Brothers & Co.	-	X	X	-
1966	Luskey Brothers & Company Inc.	-	-	-	-
1961	Luskey Brothers & Co.	-	X	X	-
	Luskey Brothers & Co.	X	X	X	-
1960	Luskeys Brothers & Co., Publishers	-	-	-	-
1956	Luskey Brothers & Co.	-	X	X	-
	Luskey Brothers & Co.	X	X	X	-
1955	Luskeys Brothers Co., Publishers	-	-	-	-
1951	Los Angeles Directory Co.	-	-	-	-
1946	Southern California Telephone Company	-	-	-	-
1945	Los Angeles Directory Co.	-	-	-	-
1941	Pacific Directory Co.	-	-	-	-
1939	Los Angeles Directory Co.	-	-	-	-
1936	Los Angeles Directory Co.	-	-	-	-
1931	Southern California Telephone Co.	-	-	-	-
1930	Los Angeles Directory Co.	-	-	-	-
1927	Los Angeles Directory Co.	-	-	-	-
1925	Los Angeles Directory Co.	-	-	-	-
1924	Kaasen Directory Co.	-	-	-	-
1921	Riverside Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

2350 Hamner Avenue
Norco, CA 92860

FINDINGS DETAIL

Target Property research detail.

Hamner Ave

2350 Hamner Ave

Year	Uses	Source
2014	NATIONAL AUTO AND RV	EDR Digital Archive
	SOUTHCOAST REAL ESTATE SVCS	EDR Digital Archive
	WEST COAT EXPORTS INC	EDR Digital Archive
2005	GOLDEN SUN HOMES	EDR Digital Archive

HAMNER AVE

2350 HAMNER AVE

Year	Uses	Source
2002	GOLDEN SON HOMES	SBC PACIFIC BELL
2001	r GOLDEN SUN HOMES	Haines & Company, Inc.
1977	Hayes Don	Pacific Telephone
1961	3D INTS	Luskey Brothers & Co.
	D M HAYES	Luskey Brothers & Co.
	D P LORENZO	Luskey Brothers & Co.
	HAYES DON TUR KEY RNCH	Luskey Brothers & Co.
1956	Gobblers Knob Turkey Rnch	Luskey Brothers & Co.
	Hayes D M	Luskey Brothers & Co.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

3RD

1631 3RD

Year	Uses	Source
2002	Calderon Tony	SBC PACIFIC BELL
	HOE HOUSE THE	SBC PACIFIC BELL
1993	Calderon Tony	Pacific Bell
1981	Calderon Tony	Pacific Telephone
	Calderon Tony	Pacific Telephone

1636 3RD

Year	Uses	Source
2002	Manning RC	SBC PACIFIC BELL
1993	Manning RC	Pacific Bell

1647 3RD

Year	Uses	Source
2002	Cooke Boyd	SBC PACIFIC BELL
1993	Cooke K R	Pacific Bell
	Cooke Edward	Pacific Bell
	Cooke Boyd	Pacific Bell

1650 3RD

Year	Uses	Source
2002	Manning R C	SBC PACIFIC BELL
	NORCO RV STORAGE	SBC PACIFIC BELL
1993	Norco RV Storage	Pacific Bell
	Manning RC	Pacific Bell
1981	Norco RV Storage	Pacific Telephone
	Manning R C	Pacific Telephone
	Manning R C & Beverly	Pacific Telephone
	Baird Robt W	Pacific Telephone

1665 3RD

Year	Uses	Source
2002	E STEFANO MICHAEL DC	SBC PACIFIC BELL

FINDINGS

Year	Uses	Source
2002	C NORCO BOOKKEEPING & TAX	SBC PACIFIC BELL
	B GRANDE LOUIS	SBC PACIFIC BELL
	OFFICE	SBC PACIFIC BELL
	CENTER	SBC PACIFIC BELL
	HEALTHY LIFESTYLES DIET	SBC PACIFIC BELL
	STEFANO MICHAEL DC	SBC PACIFIC BELL
	SERVICE	SBC PACIFIC BELL
1993	Norco	Pacific Bell
	Digerolamo David	Pacific Bell
	NORCO DIET CENTER	Pacific Bell

1695 3RD

Year	Uses	Source
1993	Little Caesars Pizza	Pacific Bell
	Video Today	Pacific Bell

3RD ST

1631 3RD ST

Year	Uses	Source
2001	CALDERO	Haines & Company, Inc.
1996	MAGNETIC SUPPLY	Pacific Bell
	Calderon Tony	Pacific Bell

1636 3RD ST

Year	Uses	Source
2001	0 MANNINGRC R	Haines & Company, Inc.
1996	Manning R C	Pacific Bell
1967	Vacant	Luskey Brothers & Co.
1956	Neely J H	Luskey Brothers & Co.

1647 3RD ST

Year	Uses	Source
2001	OFISHER Karen	Haines & Company, Inc.
	COOKEBoyd	Haines & Company, Inc.
1996	Cooke Boyd	Pacific Bell
1977	Hogge Herbert G Mrs	Pacific Telephone
1970	Hogge Herbert G Mrs	Pacific Telephone
1967	Hogge Hubert G Irene	Luskey Brothers & Co.
1956	Hogge H G	Luskey Brothers & Co.

FINDINGS

1650 3RD ST

Year	Uses	Source
2001	NORCORVSTDBAGE	Haines & Company, Inc.
	MANNINGRC	Haines & Company, Inc.
1996	NORCO RV STORAGE	Pacific Bell
1977	Baird Robt W	Pacific Telephone
1970	Baird Robt W	Pacific Telephone
1967	Baird Bob Trucking Co	Luskey Brothers & Co.
	Baird Robt W Lorene	Luskey Brothers & Co.

3rd St

1665 3rd St

Year	Uses	Source
2014	BILLS TAX SERVICE	EDR Digital Archive
	ADT -ACTIVATION & HOME SEC	EDR Digital Archive
	ROCK STARS OF TOMORROW	EDR Digital Archive
	CALVARY CHAPEL NORCO	EDR Digital Archive
	STEFANO FAMILY CHIROPRACT	EDR Digital Archive
2010	STEFANO FAMILY CHIROPRACT	EDR Digital Archive
	CALVARY CHAPEL NORCO	EDR Digital Archive
	BILLS TAX SERVICE	EDR Digital Archive
	NORCO BOOKEEPING & TAX SERVICE	EDR Digital Archive
2005	NORCO BOOKEEPING & TAX SERVICE	EDR Digital Archive
	GLOBAL LINK NETWORK INC	EDR Digital Archive
	STEFANO FAMILY CHIROPRACT	EDR Digital Archive
	CLEAN AIR ENVMTL CORP A CO	EDR Digital Archive
	HEALTHY LIFESTYLES	EDR Digital Archive

3RD ST

1665 3RD ST

Year	Uses	Source
1996	PILASTER SPECIALTIES	Pacific Bell
	GRANDE LOUIS	Pacific Bell
	CLEAN AIR ENVIRONMENTAL CORP	Pacific Bell
	HEALTHY LIFESTYLES	Pacific Bell
	MISTER GUN SHOPS	Pacific Bell

FINDINGS

3rd St

1695 3rd St

Year	Uses	Source
2010	VIDEO TODAY	EDR Digital Archive

3RD ST

1695 3RD ST

Year	Uses	Source
2001	PRUDENTIALTRAINING	Haines & Company, Inc.
	CENTER	Haines & Company, Inc.
1996	VIDEO TODAY	Pacific Bell
	LITTLE CAESARS PIZZA	Pacific Bell

1697 3RD ST

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.

3rd St

1731 3rd St

Year	Uses	Source
2014	ABS AUTO AUCTIONS	EDR Digital Archive
2010	ONYX FINANCIAL INC	EDR Digital Archive
	MERCURY FINANCIAL GROUP	EDR Digital Archive

1741 3rd St

Year	Uses	Source
2014	RESOLVED BIBLE CHURCH	EDR Digital Archive

1751 3rd St

Year	Uses	Source
2014	METRO-REPUBLIC COMMERCIAL SVC	EDR Digital Archive
2010	BILLING SOLUTIONS INC	EDR Digital Archive
	BILLING SOLUTIONS INC	EDR Digital Archive

Hamner Ave

2231 Hamner Ave

Year	Uses	Source
2014	COMMERCE TRUCK AND EQP SLS	EDR Digital Archive

FINDINGS

Year	Uses	Source
2014	A&J TRUCK REPAIR	EDR Digital Archive
2010	COMMERCE TRUCK AND EQP SLS	EDR Digital Archive
2005	COMMERCE TRUCK AND EQP SLS	EDR Digital Archive
	VOGEL DICK	EDR Digital Archive

HAMNER AVE

2231 HAMNER AVE

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.
1996	KELLY FARMS STRAWBERRIES	Pacific Bell
1961	NO RETURN	Luskey Brothers & Co.
1956	Ogan L W	Luskey Brothers & Co.

Hamner Ave

2233 Hamner Ave

Year	Uses	Source
2014	DUVO CORP	EDR Digital Archive
2010	DUVO CORP	EDR Digital Archive
2005	ADVENTUR R V SALES CONSIGNMENT	EDR Digital Archive

HAMNER AVE

2233 HAMNER AVE

Year	Uses	Source
2001	WOOKui	Haines & Company, Inc.
	WHOLESALE INC 8 UNIUE MOTOR CARS	Haines & Company, Inc.
	INDEPENDENT DEALER UNIQUEAUTO	Haines & Company, Inc.
	UHAULCO	Haines & Company, Inc.

2238 HAMNER AVE

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.
1977	SAV MOR PLUMBING SUPPLIES	Pacific Telephone
	Sav Mor Oil Gas Co	Pacific Telephone

FINDINGS

Hamner Ave

2248 Hamner Ave

Year	Uses	Source
2010	NORCO FOREIGN & DOMESTIC	EDR Digital Archive
2005	NORCO FOREIGN & DOMESTIC	EDR Digital Archive

HAMNER AVE

2248 HAMNER AVE

Year	Uses	Source
2002	NORCO FOREIGN & DOMESTIC	SBC PACIFIC BELL
	NORCO FOREIGN & DOMESTIC	SBC PACIFIC BELL
2001	DOMESTIC	Haines & Company, Inc.
	DISCOUNT AUTO	Haines & Company, Inc.
	BARRETOAn Ionio	Haines & Company, Inc.
	TOWING NORCOFOREIGNANO	Haines & Company, Inc.
1996	NORCO FOREIGN AND DOMESTIC	Pacific Bell
1990	MIDAS MUFFLER SHOPS	Pacific Bell

2249 HAMNER AVE

Year	Uses	Source
1993	Keily DV	Pacific Bell
	Kelly Craig	Pacific Bell
1990	Granado Seledonio	Pacific Bell
1961	A GRANADO	Luskey Brothers & Co.
	J G GRANADO	Luskey Brothers & Co.
1956	Warren E T	Luskey Brothers & Co.

2252 HAMNER AVE

Year	Uses	Source
1961	J G GRANADO	Luskey Brothers & Co.
1956	Leonard G D	Luskey Brothers & Co.

Hamner Ave

2259 Hamner Ave

Year	Uses	Source
2014	F J HOOVER PLUMBING INC	EDR Digital Archive
	BONANZA PLUMBING INC	EDR Digital Archive
2010	PPC ENTERPRISES INC	EDR Digital Archive

Year	Uses	Source
2005	P P C ENTERPRISES INC	EDR Digital Archive

HAMNER AVE

2259 HAMNER AVE

Year	Uses	Source
2002	PREMIER PLUMBING CO	SBC PACIFIC BELL
1996	PREMIER PLUMBING CO	Pacific Bell
1993	Premier Plumbing Co	Pacific Bell
1990	PREMIER PLUMBING CO	Pacific Bell
1981	CANADAS & COULSON	Pacific Telephone
	Granado Seledonio	Pacific Telephone

2266 HAMNER AVE

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.

Hamner Ave

2269 Hamner Ave

Year	Uses	Source
2014	HAMMERCO INC	EDR Digital Archive
	HAMMERCO LLC	EDR Digital Archive
	WATERTRAILERS DOT NET	EDR Digital Archive
2010	VALLEY CITIES GONZALES FENCE	EDR Digital Archive
2005	VALLEY CITIES GONZALES FENCE	EDR Digital Archive

HAMNER AVE

2269 HAMNER AVE

Year	Uses	Source
2002	VALLEY CITIES GONZALES	SBC PACIFIC BELL
	FENCE CO	SBC PACIFIC BELL
	VALLEY CITIES FENCE	SBC PACIFIC BELL
2001	GONZALES David	Haines & Company, Inc.
	VALLEY CITIES FENCE	Haines & Company, Inc.
	VALLEY CITIES	Haines & Company, Inc.
	GONZALES FNCECO	Haines & Company, Inc.
1996	VALLEY CITIES GONZALES FENCE CO	Pacific Bell
	VALLEY CITIES FENCE	Pacific Bell

FINDINGS

Year	Uses	Source
1993	From Arlington Telephones Call	Pacific Bell
1990	VALLEY CITIES FENCE CO	Pacific Bell
1986	Valley Cities Fence Co	Pacific Bell Yellow Pages
1981	Valley Cities Fence Co	Pacific Telephone
	CORONA COUNTRY FENCE	Pacific Telephone
	From Riverside Telephones Call	Pacific Telephone
1977	Valley Cities Fence Co	Pacific Telephone
	From Riverside Telephones Call	Pacific Telephone
1961	G O BRIGNEC	Luskey Brothers & Co.
1956	Brignac G O rabbit rnch	Luskey Brothers & Co.

2296 HAMNER AVE

Year	Uses	Source
2001	X 0 X	Haines & Company, Inc.

Hamner Ave

2298 Hamner Ave

Year	Uses	Source
2005	RICKS TRUCK SALES	EDR Digital Archive

2300 Hamner Ave

Year	Uses	Source
2005	R V GUYS	EDR Digital Archive

HAMNER AVE

2300 HAMNER AVE

Year	Uses	Source
1996	HUFFMAN AUTO SALES	Pacific Bell
1990	NORCO MITSUBISHI	Pacific Bell

Hamner Ave

2333 Hamner Ave

Year	Uses	Source
2014	YAVELAK RHONDA	EDR Digital Archive
2010	YAVELAK RHONDA	EDR Digital Archive
	MEGA MOVE INC	EDR Digital Archive
	BRANIC INVESTMENTS INC	EDR Digital Archive

FINDINGS

Year	Uses	Source
2010	FIRE & ICE INC	EDR Digital Archive
	U-HAUL CO OF CALIFORNIA	EDR Digital Archive
2005	CASH FLOW INTERNATIONAL	EDR Digital Archive
	U-HAUL CO OF CALIFORNIA	EDR Digital Archive
	BRANIC INVESTMENTS INC	EDR Digital Archive
	C P C L INCORPORATED	EDR Digital Archive
	FIRE & ICE INC	EDR Digital Archive
	FALCONHEAD ENTERPRISES	EDR Digital Archive
	MEGA MOVE INC	EDR Digital Archive
	YAVELAK RHONDA	EDR Digital Archive

HAMNER AVE

2333 HAMNER AVE

Year	Uses	Source
2002	TRAVIS AND ASSOCIATES	SBC PACIFIC BELL
	BRANIC INVESTMENTS INC	SBC PACIFIC BELL
	C FALCONHEAD ENTERPRISES	SBC PACIFIC BELL
	OFFICE	SBC PACIFIC BELL
	UNIQUE MOTOR CARS	SBC PACIFIC BELL
	UNIQUE AUTO WHOLESALE	SBC PACIFIC BELL
1996	NORCO AUTO SALES	Pacific Bell
1981	RINEHART ROBERT L atty	Pacific Telephone
	Realty World Realty World Farmers Real	Pacific Telephone
	From Riverside Telephones Call	Pacific Telephone
	From Riverside Telephones Call	Pacific Telephone
	From @Orange@ Telephones Call	Pacific Telephone
	From @Orange@ Telephones Call	Pacific Telephone
	LEONARD JEAN PFEIFFER atty	Pacific Telephone
	XKingJeffers Sharon atty	Pacific Telephone
	Real Estate Store	Pacific Telephone
1977	Winners Circle Realty	Pacific Telephone
	Winners Circle Construction	Pacific Telephone
	Winners Circle Construction	Pacific Telephone

FINDINGS

Hamner Ave

2335 Hamner Ave

Year	Uses	Source
2010	RANCHO DELATORRE	EDR Digital Archive
2005	RANCHO DELATORRE	EDR Digital Archive

HAMNER AVE

2335 HAMNER AVE

Year	Uses	Source
2002	RANCHO DELATORRE	SBC PACIFIC BELL
2001	RANCHODELATORRE	Haines & Company, Inc.
	SLAUGHTER Roberl	Haines & Company, Inc.
1996	RASPBERRYS RESTAURANT	Pacific Bell
1993	Raspberrys Restaurant	Pacific Bell
1990	RASPBERRYS RESTAURANT	Pacific Bell
1981	Farmers Real Estate	Pacific Telephone
	Estate Inc	Pacific Telephone

Hamner Ave

2395 Hamner Ave

Year	Uses	Source
2014	MINDY MARIE WILLIAMS	EDR Digital Archive
	PEGGY MOORE DEFINITIONS TOO	EDR Digital Archive
	BOOMERANG SECOND HAND THRIFT	EDR Digital Archive
	KAZA MAZA GRILL	EDR Digital Archive
	QUEST	EDR Digital Archive
	MICHAEL DRIVING SCHOOL	EDR Digital Archive
	AFFORDABLE CDS & COLLECTIBLES	EDR Digital Archive
	C AND N LIQUOR	EDR Digital Archive
	JAGTAR SINGH	EDR Digital Archive
	PERMANENT COSMETICS BY PAULA	EDR Digital Archive
	DEFINITION CUTS PERMS COLORS	EDR Digital Archive
	NICKS SUNLESS TANNING	EDR Digital Archive
	TROPICAL RAYZ	EDR Digital Archive
	CRUSTYS PIZZA	EDR Digital Archive
2010	NEIGHBORHOOD CHRISTIAN CENTER	EDR Digital Archive
	CRUSTYS PIZZA	EDR Digital Archive

FINDINGS

Year	Uses	Source
2010	NICKS SUNLESS TANNING	EDR Digital Archive
	DEFINITION CUTS PERMS COLORS	EDR Digital Archive
	C AND N LIQUOR	EDR Digital Archive
	JAGTAR SINGH	EDR Digital Archive
	AFFORDABLE CDS & COLLECTIBLES	EDR Digital Archive
	THORNTONS ICE CREAM PARLOR	EDR Digital Archive
	DOLLAR CHECK CASHING	EDR Digital Archive
	TROPICAL RAYZ	EDR Digital Archive
	PEGGY MOORE DEFINITIONS TOO	EDR Digital Archive
2005	INLAND EMPIRE ESCROW INC	EDR Digital Archive
	HARRINGTON DAVID INSUR AGCY	EDR Digital Archive
	NEIGHBORHOOD CHRISTIAN CENTER	EDR Digital Archive
	AFFORDABLE CDS & COLLECTIBLES	EDR Digital Archive
	MICHAELS DRIVING SCHOOL	EDR Digital Archive
	C AND N LIQUOR	EDR Digital Archive
	STEER GRILL	EDR Digital Archive
	DEFINITION CUTS PERMS COLORS	EDR Digital Archive
	CRUSTYS PIZZA	EDR Digital Archive
	FARMERS INSURANCE INC	EDR Digital Archive

HAMNER AVE

2395 HAMNER AVE

Year	Uses	Source
2002	DAVID L HARRINGTON	SBC PACIFIC BELL
	INSURANCE	SBC PACIFIC BELL
	OFFICE	SBC PACIFIC BELL
	A CRUSTY S PIZZA	SBC PACIFIC BELL
	C C & N LIQUOR	SBC PACIFIC BELL
	E DEFINITION CUTS PERMS COLOR	SBC PACIFIC BELL
	F AFFORDABLE CARDS	SBC PACIFIC BELL
	COLLECTIBLES	SBC PACIFIC BELL
	G INLAND EMPIRE ESCROW	SBC PACIFIC BELL
	H MICHAEL S DRIVING SCHOOL	SBC PACIFIC BELL
	H MICHAEL S DRIVING SCHOOL	SBC PACIFIC BELL
	M STEER GRILL RESTAURANT	SBC PACIFIC BELL
	CALIFORNIA BOOK EXCHANGE	SBC PACIFIC BELL
2001	AFFORDABLE	Haines & Company, Inc.
	CARDS&CQLLECTIBLE	Haines & Company, Inc.

FINDINGS

Year	Uses	Source
2001	S C 0 N LIQUOR	Haines & Company, Inc.
	r CRUSTYSPIZA	Haines & Company, Inc.
	DAVID LHARRINOTON	Haines & Company, Inc.
	INSURANCE DEFINITIONCUTSPERM	Haines & Company, Inc.
	INLAND EMPIRE	Haines & Company, Inc.
	ESCROW MEREDITH KAREN HAIR	Haines & Company, Inc.
	STYLIST STEER GRILL	Haines & Company, Inc.
	RESTAURANT	Haines & Company, Inc.
	VERLEYShehby	Haines & Company, Inc.
1996	CRUSTYS PIZZA	Pacific Bell
	C & N LIQUOR	Pacific Bell
	CHERYL COUNTRY CRAFT	Pacific Bell
	DEFINITION CUTS PERMS COLOR	Pacific Bell
	AFFORDABLE CARDS & COLLECTIBLES	Pacific Bell
	HAMNER PLAZA ANTIQUES & COLLECTABLES	Pacific Bell
	QUILT N CROSS	Pacific Bell
	STEER GRILL RESTAURANT	Pacific Bell
1993	J & P Liquor & Market	Pacific Bell
	RUSSOS PIZZA PARLOR	Pacific Bell
	STEER GRILL RESTAURANT	Pacific Bell
	Steevens D & P	Pacific Bell
	Cheryl Country Craft	Pacific Bell
1990	RUSSOS PIZZA PARLOR	Pacific Bell
	J & P LIQUOR & MARKET	Pacific Bell
	CHERYL COUNTRY CRAFT	Pacific Bell
	DEFINITION CUTS PERMS COLOR	Pacific Bell
	STEER GRILL RESTAURANT	Pacific Bell
1981	Petes Bike Shop	Pacific Telephone
	Steer N Stein Restaurant	Pacific Telephone

2400 HAMNER AVE

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.
1981	Crest Drive in Theatre	Pacific Telephone

2407 HAMNER AVE

Year	Uses	Source
2001	X 6 XX	Haines & Company, Inc.

FINDINGS

2419 HAMNER AVE

Year	Uses	Source
2001	XXXX	Haines & Company, Inc.
1990	NORCO DIET CENTER	Pacific Bell
	HEMMING WAYS	Pacific Bell
	Shadle Wm	Pacific Bell
1981	Community Transit Services	Pacific Telephone
	DIET CENTER	Pacific Telephone
	Great Western Realty Investments Inc	Pacific Telephone
	Greathouse Jack	Pacific Telephone
	NORCO DIAL A RIDE	Pacific Telephone
1977	Century	Pacific Telephone
	MC COLLUM POOLS	Pacific Telephone
	Crown Realty Escrow Dept	Pacific Telephone
	MC COLLUM CONSTRUCTION CO	Pacific Telephone
	MC COLLUM POOLS	Pacific Telephone
	From Riverside Telephones Call	Pacific Telephone
	Mc Combs D E	Pacific Telephone
	Shiadle Wm	Pacific Telephone
	Shafal T MD pediatrcn	Pacific Telephone
	From @Orange@ Telephones Call	Pacific Telephone
	From Riverside Teleahones Call	Pacific Telephone
1967	Crown Realty	Luskey Brothers & Co.
1961	B & H CONSTR	Luskey Brothers & Co.
1956	Swartz Jack	Luskey Brothers & Co.

Hamner Ave

2429 Hamner Ave

Year	Uses	Source
2005	ADVANCETEK INC	EDR Digital Archive
	AVAN MANAGEMENT CORP A CORP	EDR Digital Archive
	NC RAZON MANAGEMENT CORP	EDR Digital Archive
	CHAT ROOM COFFEE HOUSE	EDR Digital Archive

HAMNER AVE

2429 HAMNER AVE

Year	Uses	Source
2002	CALIFORNIA S CHATROOM	SBC PACIFIC BELL

FINDINGS

Year	Uses	Source
2002	COFFEE & TEA SHOPPE	SBC PACIFIC BELL
2001	CHAT ROOM COFFEE	Haines & Company, Inc.
	HOUSE THE	Haines & Company, Inc.
	VICARYRenee	Haines & Company, Inc.
1996	EMILYS BAGEL & BAKERY HOUSE	Pacific Bell
1990	ANMAR REALTY & CONSTRUCTION INC	Pacific Bell
	SAVINGS & LOAN ASSOCIATES	Pacific Bell
1981	HAMNER REALTY	Pacific Telephone
	HAMNER TOWING	Pacific Telephone
	NORCO PONY EXPRESS	Pacific Telephone
	Pony Express	Pacific Telephone
1977	HAMNER REALTY	Pacific Telephone
	NORCO PONY EXPRESS	Pacific Telephone
	Pony Express	Pacific Telephone
	PONY EXPRESS NORCO	Pacific Telephone
1961	E ALLBRIGHT	Luskey Brothers & Co.
	FRANCES BTY HAVEN	Luskey Brothers & Co.
1956	Neely J H bldg contr	Luskey Brothers & Co.

2438 HAMNER AVE

Year	Uses	Source
1981	I Stewart TV	Pacific Telephone
1977	Stewart T V	Pacific Telephone
1961	L S DANNER	Luskey Brothers & Co.
1956	Danner L S	Luskey Brothers & Co.

Hamner Ave

2441 Hamner Ave

Year	Uses	Source
2014	KASTNER JOSEPH C	EDR Digital Archive
	NORCO FOREIGN & DOMESTIC SALES	EDR Digital Archive
	BUDGET TRUCK RENTAL	EDR Digital Archive
2010	BUDGET TRUCK RENTAL	EDR Digital Archive
	MY FAVORITE UNCLE INC	EDR Digital Archive
	NORCO FOREIGN & DOMESTIC SALES	EDR Digital Archive
	KASTNER JOSEPH C	EDR Digital Archive
2005	KASTNER JOSEPH C	EDR Digital Archive
	AUTO BUYERS PLUS	EDR Digital Archive

Year	Uses	Source
2005	MY FAVORITE UNCLE INC	EDR Digital Archive
	DAVIS & DRESHER INC	EDR Digital Archive
	UNIQUE GOLF KARTS INC	EDR Digital Archive

HAMNER AVE

2441 HAMNER AVE

Year	Uses	Source
2002	KASTNER JOSEPH C	SBC PACIFIC BELL
2001	MORRISWillham	Haines & Company, Inc.
	KASTNER JOSEPH C	Haines & Company, Inc.
1996	KASTNER JOSEPH C	Pacific Bell
1993	Morris Bill Realtor	Pacific Bell
1990	MORRIS BILL REALTOR	Pacific Bell
1981	North Hills Development Co	Pacific Telephone
	MORRIS BILL REALTOR	Pacific Telephone
1977	MORRIS BILL REALTOR	Pacific Telephone

Hamner Ave

2448 Hamner Ave

Year	Uses	Source
2005	WIEST DRAPERIES	EDR Digital Archive

HAMNER AVE

2448 HAMNER AVE

Year	Uses	Source
2001	WIEST Richard	Haines & Company, Inc.
1977	Wiest Richard W	Pacific Telephone
	WIEST CUSTOM STUDIO drpries	Pacific Telephone
	Wiest Connie	Pacific Telephone
1961	M RIOS	Luskey Brothers & Co.
	JOLLY RL EST	Luskey Brothers & Co.
1956	Mc Allister A J	Luskey Brothers & Co.
	Jolly C S	Luskey Brothers & Co.

FINDINGS

Hamner Ave

2454 Hamner Ave

Year	Uses	Source
2014	CASH FOR GOLD	EDR Digital Archive
	GOLD FEVER JEWELRY	EDR Digital Archive
2005	VITAMIN CORRAL	EDR Digital Archive

HAMNER AVE

2454 HAMNER AVE

Year	Uses	Source
2001	VITAMINCORRAL	Haines & Company, Inc.
1993	Vlach D	Pacific Bell
	Vivar Raul	Pacific Bell
	Vitelle R K	Pacific Bell
	Vitatoe Rene	Pacific Bell
	Vitamin Corral	Pacific Bell
1981	Perez Richard A cement contractors	Pacific Telephone
1977	ARNOLD J W GENERAL CONTRACTOR	Pacific Telephone

Hamner Ave

2456 Hamner Ave

Year	Uses	Source
2014	DOLLAR CHECK CASHING	EDR Digital Archive
2010	BLUE WATER TRS	EDR Digital Archive
2005	NORCO TATTOO	EDR Digital Archive

HAMNER AVE

2456 HAMNER AVE

Year	Uses	Source
2002	NORCO TATTOO	SBC PACIFIC BELL
2001	HORCOTATTOO	Haines & Company, Inc.
1993	Stout Larry Insurance Services	Pacific Bell
	Stout Larry Insurance Services	Pacific Bell
1990	SHARONS NAIL BOX	Pacific Bell
1981	Telephone Shop The	Pacific Telephone
1977	I TELEPHONE SHOP THE	Pacific Telephone
	Telephone Shop The	Pacific Telephone

FINDINGS

Year	Uses	Source
1977	From Riverside Telephones Call	Pacific Telephone

2458 HAMNER AVE

Year	Uses	Source
2001	BOOKSTORE	Haines & Company, Inc.
	NORCO COLLEGE	Haines & Company, Inc.
1996	NAIL GARDEN THE	Pacific Bell
	NORCO NEWS	Pacific Bell
1993	Norco News	Pacific Bell
1990	NORCO NEWS	Pacific Bell
1981	Village Riverside The	Pacific Telephone
	VILLAGE LOCKSMITH	Pacific Telephone
1977	Village Locksmith Of @Norco@	Pacific Telephone
	Mc Cune Refrigeration	Pacific Telephone
	Mc Cune Harriett	Pacific Telephone

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
1631 3RD	2014, 2010, 2005, 2001, 1996, 1990, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1631 3RD ST	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1636 3RD	2014, 2010, 2005, 2001, 1996, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1636 3RD ST	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1636 3RD ST	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1647 3RD	2014, 2010, 2005, 2001, 1996, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1647 3RD ST	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1647 3RD ST	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1967, 1966, 1961, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1650 3RD	2014, 2010, 2005, 2001, 1996, 1990, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1650 3RD ST	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1650 3RD ST	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1665 3RD	2014, 2010, 2005, 2001, 1996, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1665 3RD ST	2014, 2010, 2005, 2002, 2001, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1665 3rd St	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1695 3RD	2014, 2010, 2005, 2002, 2001, 1996, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921

FINDINGS

Address Researched	Address Not Identified in Research Source
1695 3RD ST	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1695 3rd St	2014, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1697 3RD ST	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1731 3rd St	2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1741 3rd St	2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
1751 3rd St	2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2231 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2231 HAMNER AVE	2014, 2010, 2005, 2002, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2233 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2233 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2238 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2248 HAMNER AVE	2014, 2010, 2005, 1993, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2248 Hamner Ave	2014, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2249 HAMNER AVE	2014, 2010, 2005, 2002, 2001, 1996, 1986, 1981, 1977, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2252 HAMNER AVE	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2259 HAMNER AVE	2014, 2010, 2005, 2001, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2259 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2266 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921

FINDINGS

Address Researched	Address Not Identified in Research Source
2269 HAMNER AVE	2014, 2010, 2005, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2269 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2296 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2298 Hamner Ave	2014, 2010, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2300 Hamner Ave	2014, 2010, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2300 HAMNER AVE	2014, 2010, 2005, 2002, 2001, 1993, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2333 HAMNER AVE	2014, 2010, 2005, 2001, 1993, 1990, 1986, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2333 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2335 HAMNER AVE	2014, 2010, 2005, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2335 Hamner Ave	2014, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2395 HAMNER AVE	2014, 2010, 2005, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2395 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2400 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2407 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2419 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1986, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2419 HAMNER AVE	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2429 HAMNER AVE	2014, 2010, 2005, 1993, 1986, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2429 Hamner Ave	2014, 2010, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2438 HAMNER AVE	2014, 2010, 2005, 2002, 2001, 1996, 1993, 1990, 1986, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921

FINDINGS

Address Researched	Address Not Identified in Research Source
2441 HAMNER AVE	2014, 2010, 2005, 1986, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2441 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2448 Hamner Ave	2014, 2010, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2448 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1993, 1990, 1986, 1981, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2454 HAMNER AVE	2014, 2010, 2005, 2002, 1996, 1990, 1986, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2454 Hamner Ave	2010, 2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2456 Hamner Ave	2002, 2001, 1996, 1993, 1990, 1986, 1981, 1977, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2456 HAMNER AVE	2014, 2010, 2005, 1996, 1986, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921
2458 HAMNER AVE	2014, 2010, 2005, 2002, 1986, 1970, 1967, 1966, 1961, 1960, 1956, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
2350 Hamner Avenue	2010, 1996, 1993, 1990, 1986, 1981, 1970, 1967, 1966, 1960, 1955, 1951, 1946, 1945, 1941, 1939, 1936, 1931, 1930, 1927, 1925, 1924, 1921

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.7
October 03, 2019

EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

2350 Hamner Avenue
Norco Project
Norco, CA 92860

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

Riverside Recorder
Riverside, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	deed
Title is vested in:	Eddie R Fischer Trustee
Title received from:	Eddie R Fischer
Deed Dated	7/11/2012
Deed Recorded:	9/10/2012
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	Eddie R Fischer Trustee
Parcel # / Property Identifier:	126-050-002
Comments:	See Exhibit

Deed Exhibit 1

DOC # 2012-0429607
09/10/2012 09:05A Fee:28.00
Page 1 of 2
Recorded in Official Records
County of Riverside
Larry W. Ward
Assessor, County Clerk & Recorder

RECORDING REQUESTED BY:
EDDIE R. FISCHER

AND WHEN RECORDED MAIL THIS
DEED AND TAX STATEMENTS TO:

EDDIE R. FISCHER
LE BARON INVESTMENTS
2020 E. ORANGETHORPE AVE., #210
FULLERTON, CA 92831-5327

S	R	U	PAGE	SIZE	DA	MISC	LONG	RFD	COPY
1			2						
M	A	L	465	426	RCOR	NCOR	SMF	NCHG	EXAM
						T:	CTY	UNI	074

TRUST TRANSFER DEED

APN: 126050002-6 and 126050004-8 (28)

QUITCLAIM DEED (Excluded from Reappraisal Under Proposition 13, i.e. Calif. Const. Art. 13A, Sec. 1 et seq.)
The undersigned Grantor declares under penalty of perjury that the following is true and correct:
THERE IS NO CONSIDERATION FOR THIS TRANSFER.
The undersigned declares that the documentary transfer tax is: -0- and is exempt from tax under R & T Section 11930 because: This conveyance transfers an interest into or out of a revocable living trust, and is as follows:

M 074

EDDIE R. FISCHER, an unmarried man, DBA LaBaron Investments,

Do(es) hereby Remise, Release and Forever Quitclaim to

EDDIE R. FISCHER and his successors, as Trustees of the EDDIE R. FISCHER REVOCABLE TRUST, established under agreement originally dated January 24, 1975.

The following described real property in the City of Norco, County of Riverside, State of California:

LEGAL DESCRIPTION ATTACHED HERETO AS EXHIBIT "A" AND MADE A PART HEREOF,

Property commonly known as: Southwest Corner of Hamner Ave., & Third St., Norco, CA 92860.

Dated: July 11, 2012

Eddie R. Fischer

State of California)
) ss.
County of Orange)

On July 11, 2012, before me, Patricia Sue Hoag, a notary public, personally appeared Eddie R. Fischer, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify that under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

PATRICIA SUE HOAG
Commission # 1933221
Notary Public - California
Orange County
My Comm. Expires May 17, 2015

Signature of Notary

(Seal)

EXHIBIT "A"

The land referred to in this report is situated in the County of Riverside, State of California, and is described as follows:

That portion of Fractional Section 13, Township 3 South, Range 7 West, in the Rancho La Sierra, City of Norco, County of Riverside, State of California, as per map showing subdivisions of portions of the Jurupa and La Sierra Ranchos recorded in Book 6, Page 70 of Maps, in the Office of the County Recorder of said County, described as follows:

Beginning at the Northwest corner of Lot 3 in Block 7 of Riverside Orange Heights Tract, as per map filed in Book 6, Page 74 of Maps, in the Office of the County Recorder of said County;

thence Northerly on a line produced by the prolongation of the Westerly line of said Lot 3 in Block 7, a distance of 322.90 feet to the true point of beginning;

thence Northerly on said last described line, 337.10 feet;

thence Easterly, parallel with the North line of said Lot 3 in Block 7 to a point on the Westerly line of Hamner Avenue;

thence Southwesterly, along the Westerly line of Hamner Avenue, to a point 322.90 feet Northerly, measured at right angles, from the Northerly line of said Lot 3, produced Easterly;

thence Westerly, parallel with the Northerly line of said Lot 3, to the true point of beginning.

EXCEPT that portion lying Southeast of the Northwest line of the land conveyed to the Riverside County Flood Control and Water Conservation District by deed recorded November 5, 1965 as Instrument No. 126111 of Official Records.

ALSO EXCEPT that portion conveyed to the City of Norco by deed recorded March 13, 1969 as Instrument No. 24550 of Official Records.

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.4
October 02, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

10/02/19

Site Name:

Norco Project
2350 Hamner Avenue
Norco, CA 92860
EDR Inquiry # 5813845.4

Client Name:

Geotek
1548 North Maple Street
Corona, CA 92880
Contact: Anna M. Scott

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Geotek were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA
Project: 2250-CR

Coordinates:

Latitude:	33.91512 33° 54' 54" North
Longitude:	-117.562033 -117° 33' 43" West
UTM Zone:	Zone 11 North
UTM X Meters:	448045.59
UTM Y Meters:	3752886.90
Elevation:	618.41' above sea level

Maps Provided:

2012
1981
1973
1967
1954
1947
1942
1902

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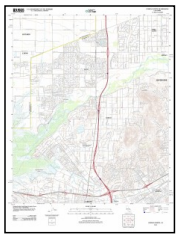
Topo Sheet Key

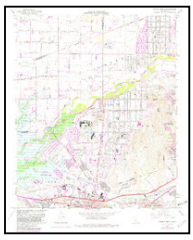
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Corona North
2012
7.5-minute, 24000

1981 Source Sheets



Corona North
1981
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets

Corona North
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1967 Source Sheets

Corona North
1967
7.5-minute, 24000
Aerial Photo Revised 1966

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

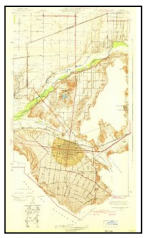
1954 Source Sheets

Corona North
1954
7.5-minute, 24000
Aerial Photo Revised 1952

1947 Source Sheets

CORONA
1947
15-minute, 50000

1942 Source Sheets



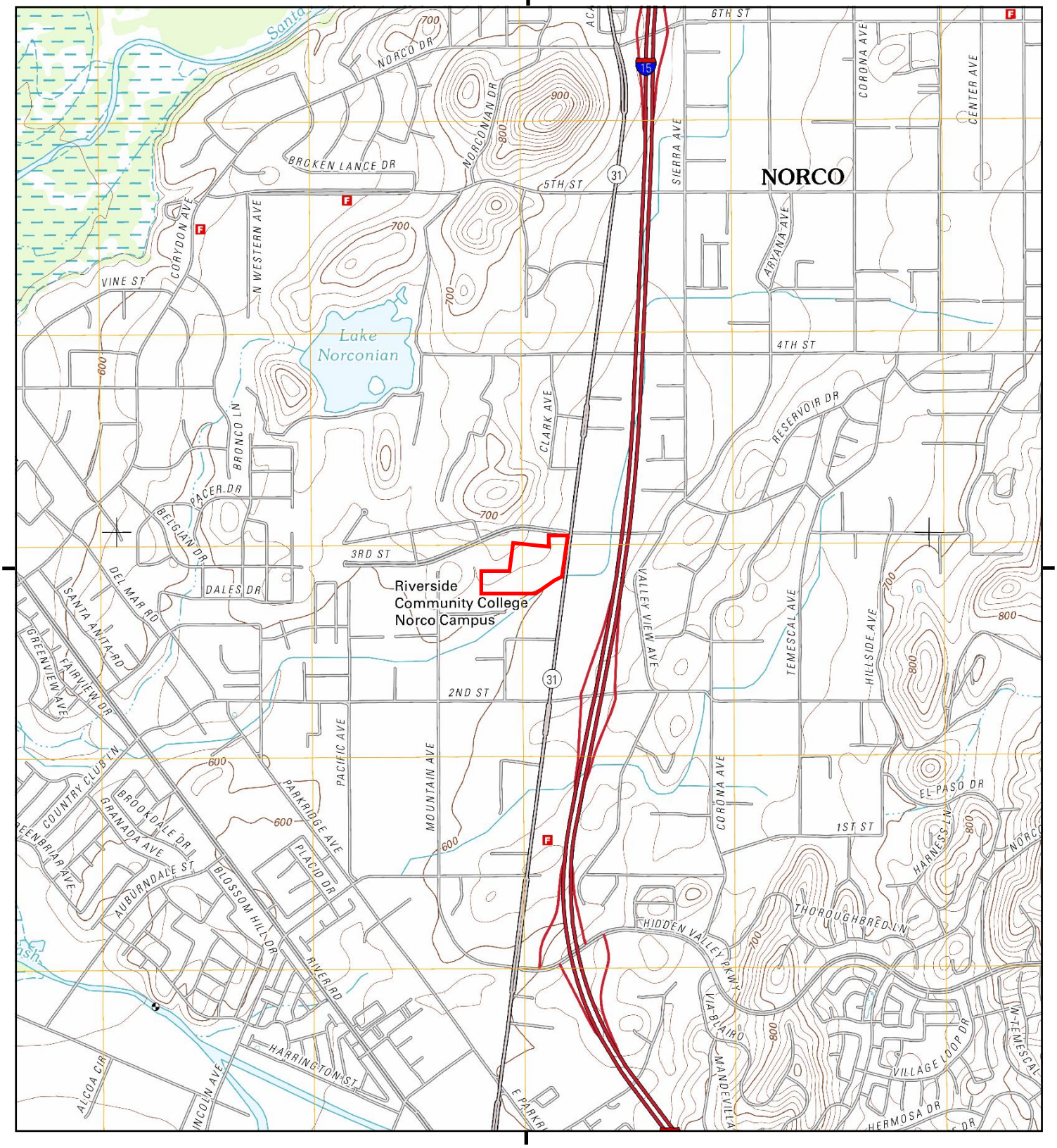
Corona and Vicinity
1942
7.5-minute, 31680

1902 Source Sheets

Corona
1902
30-minute, 125000

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

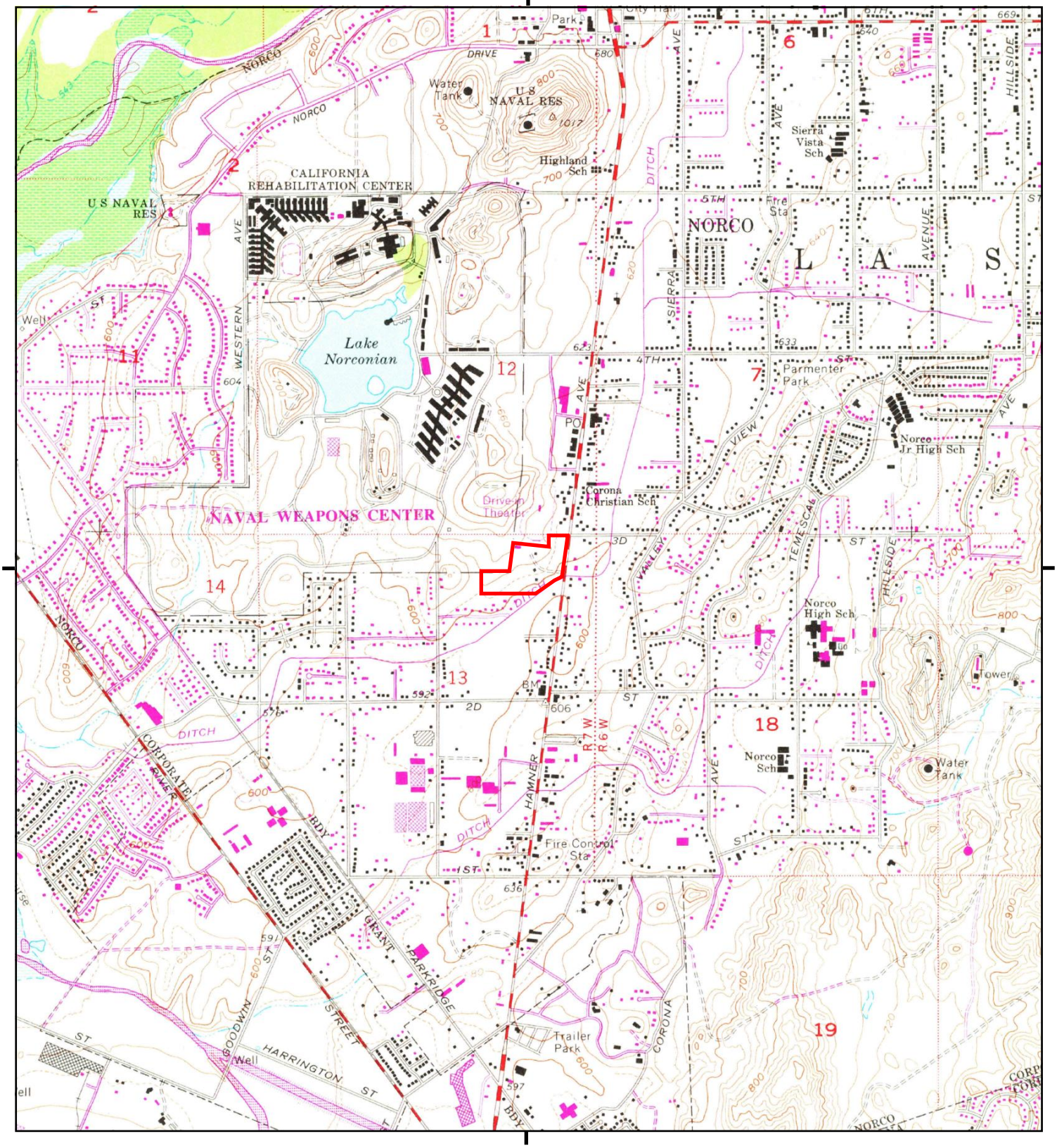
TP, Corona North, 2012, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1981



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

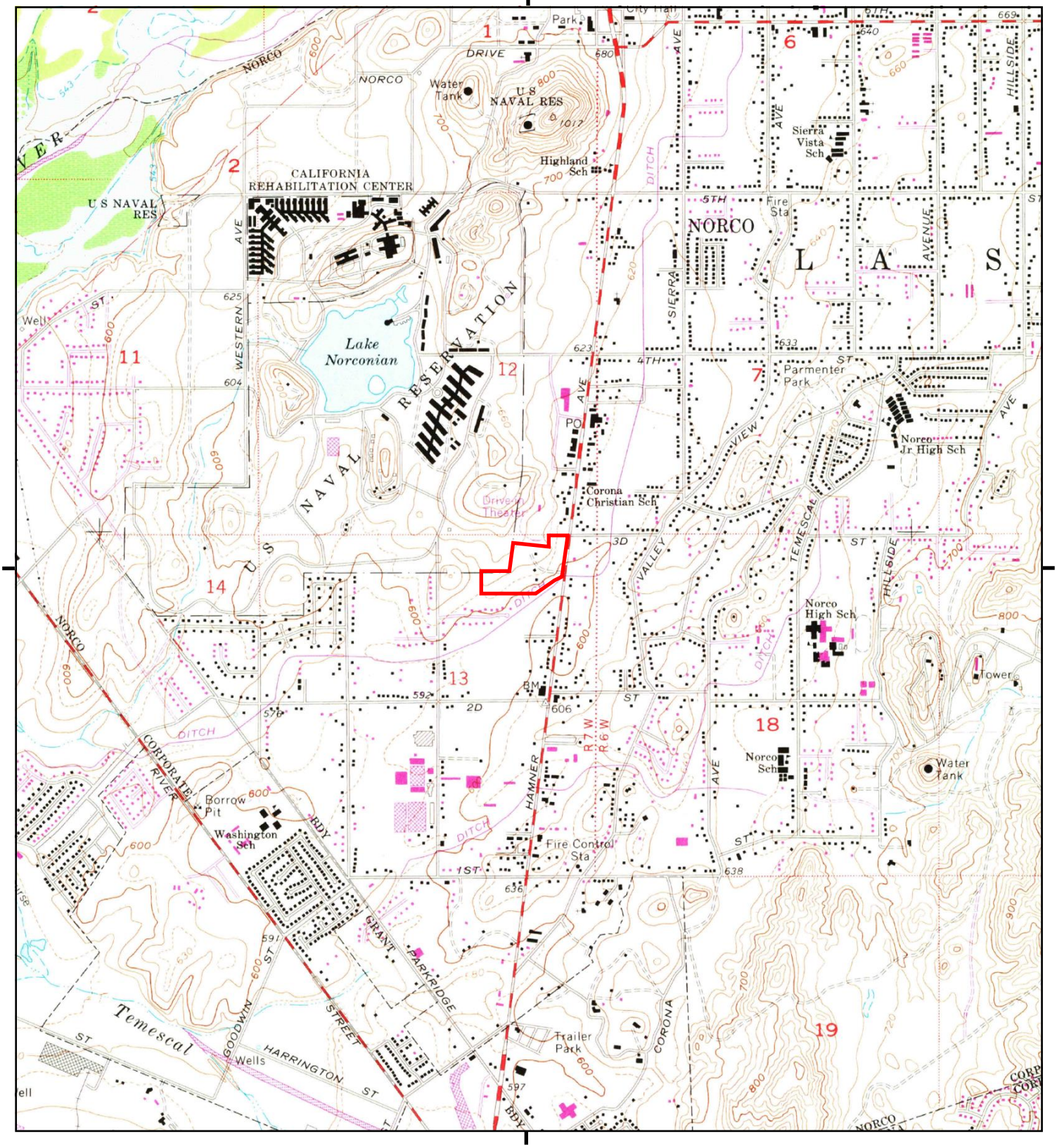
TP, Corona North, 1981, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1973



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

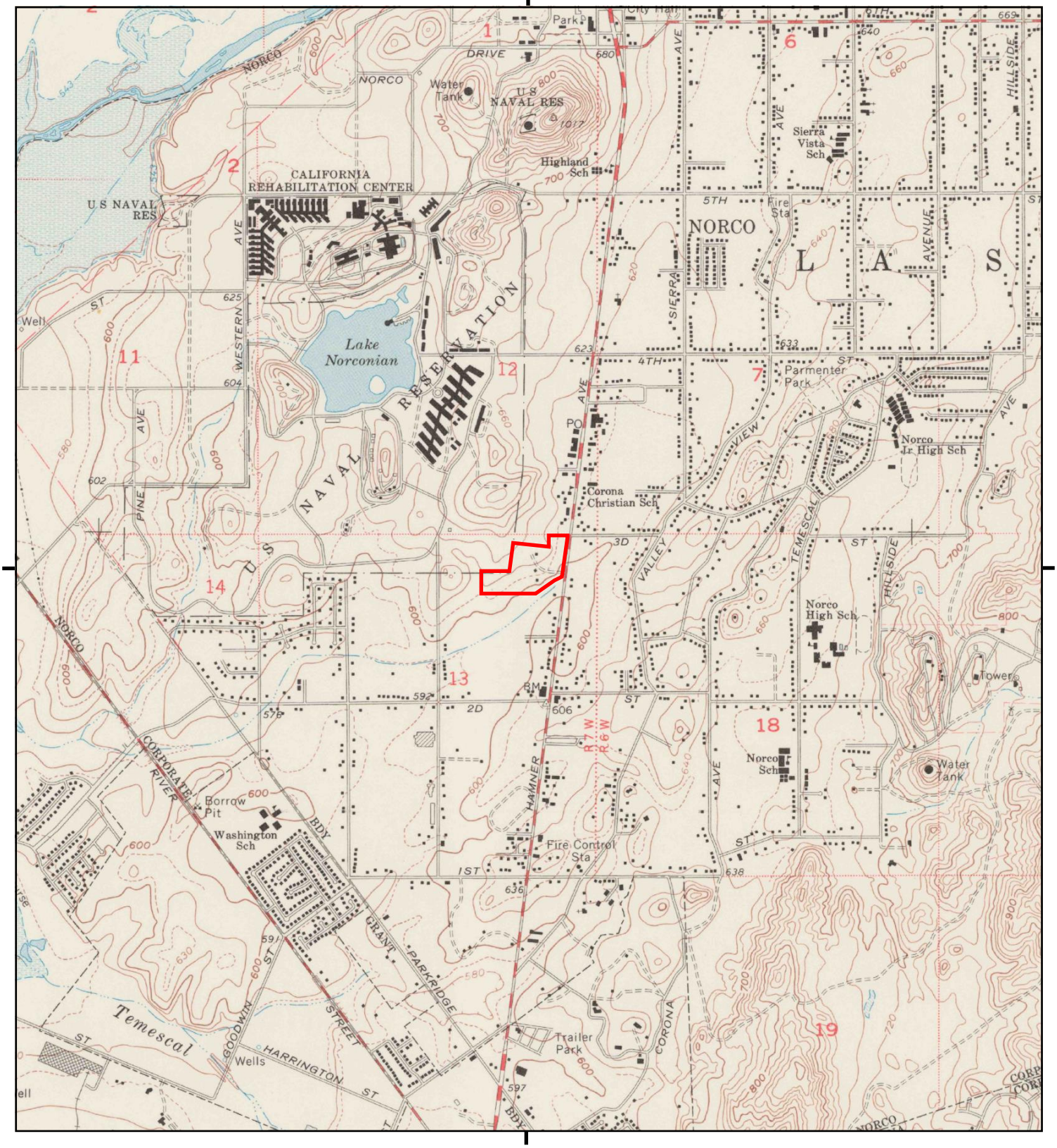
TP, Corona North, 1973, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1967



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

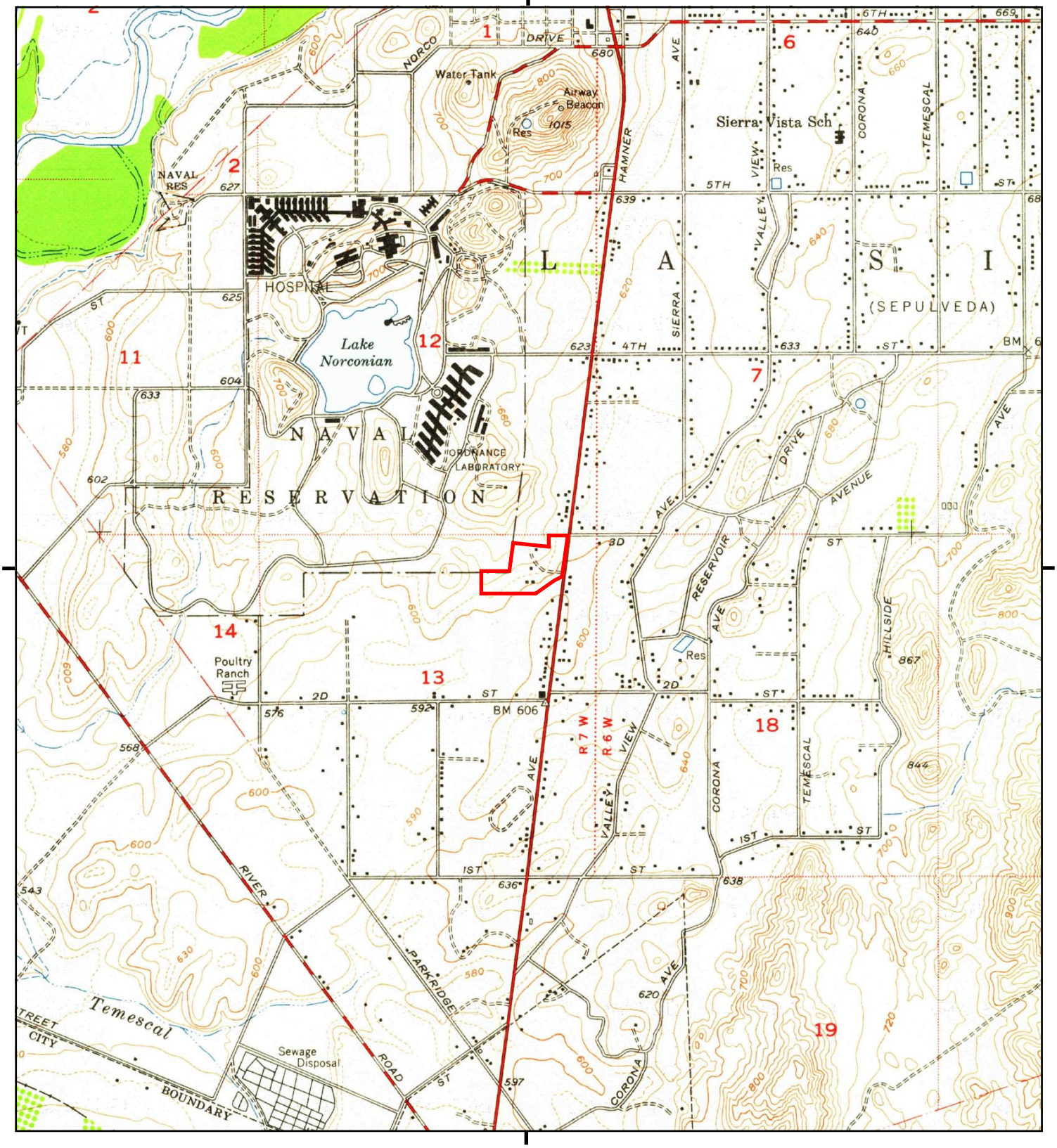
TP, Corona North, 1967, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1954



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

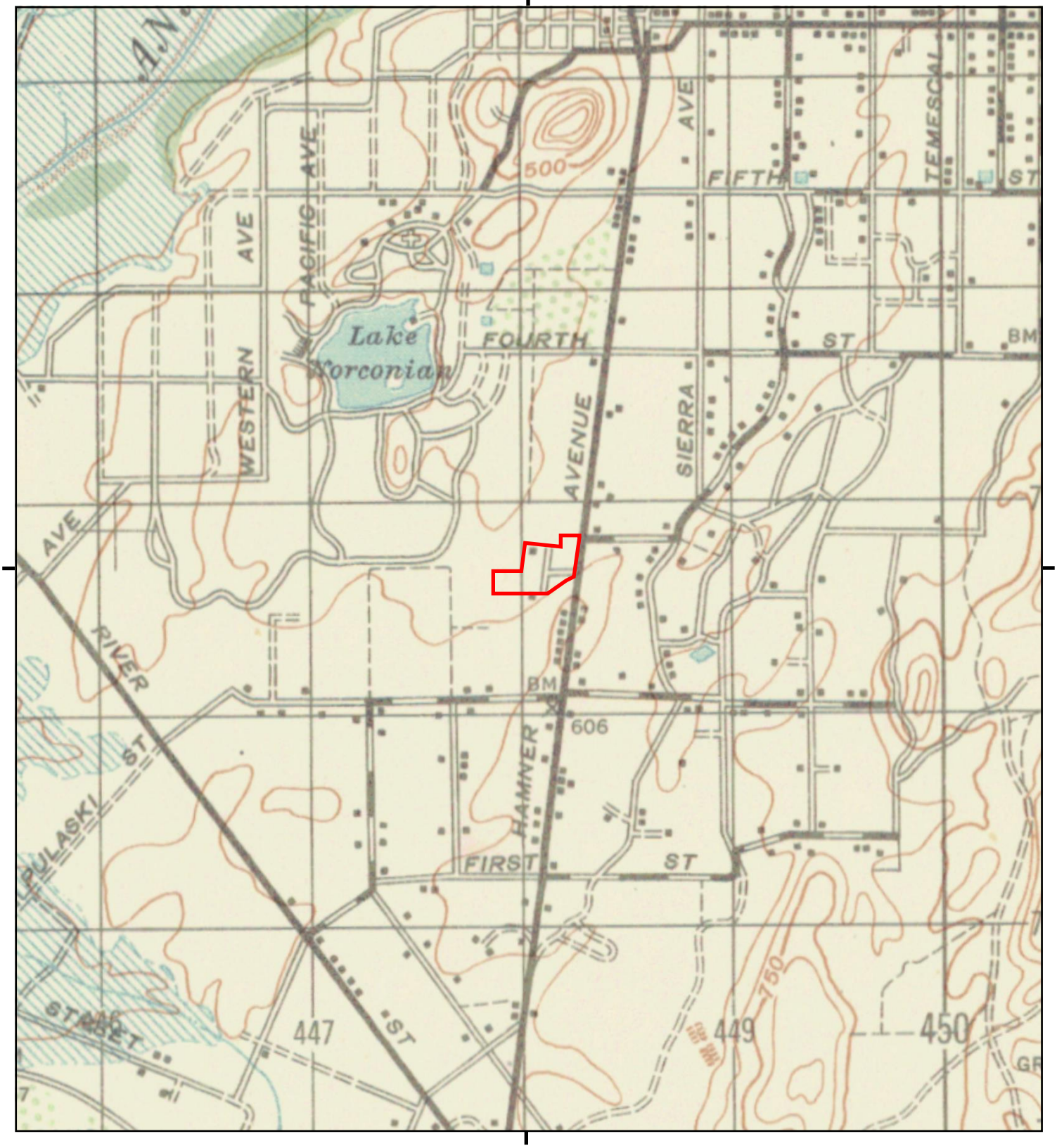
TP, Corona North, 1954, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

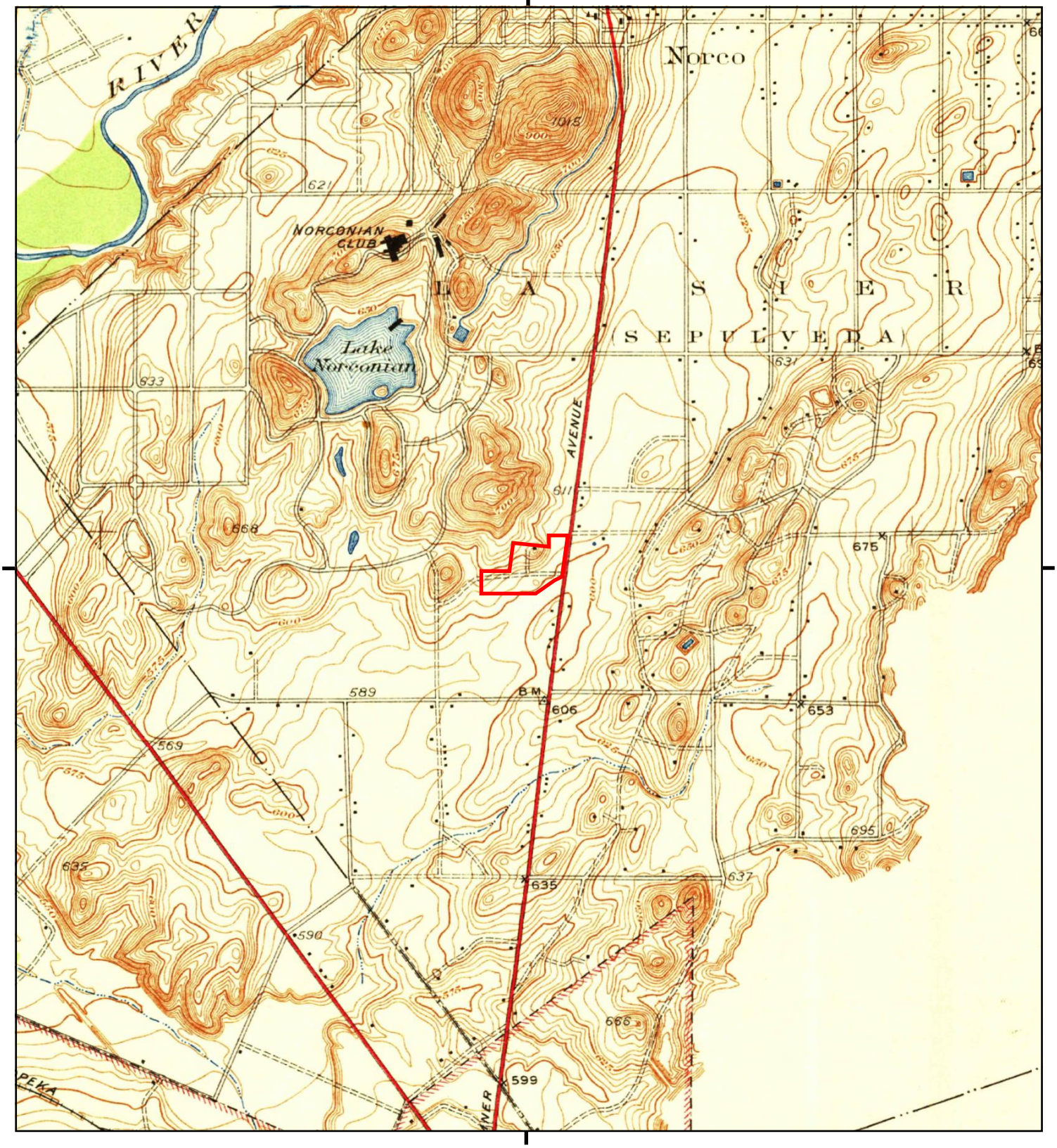
TP, CORONA, 1947, 15-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Historical Topo Map

1942



This report includes information from the following map sheet(s).

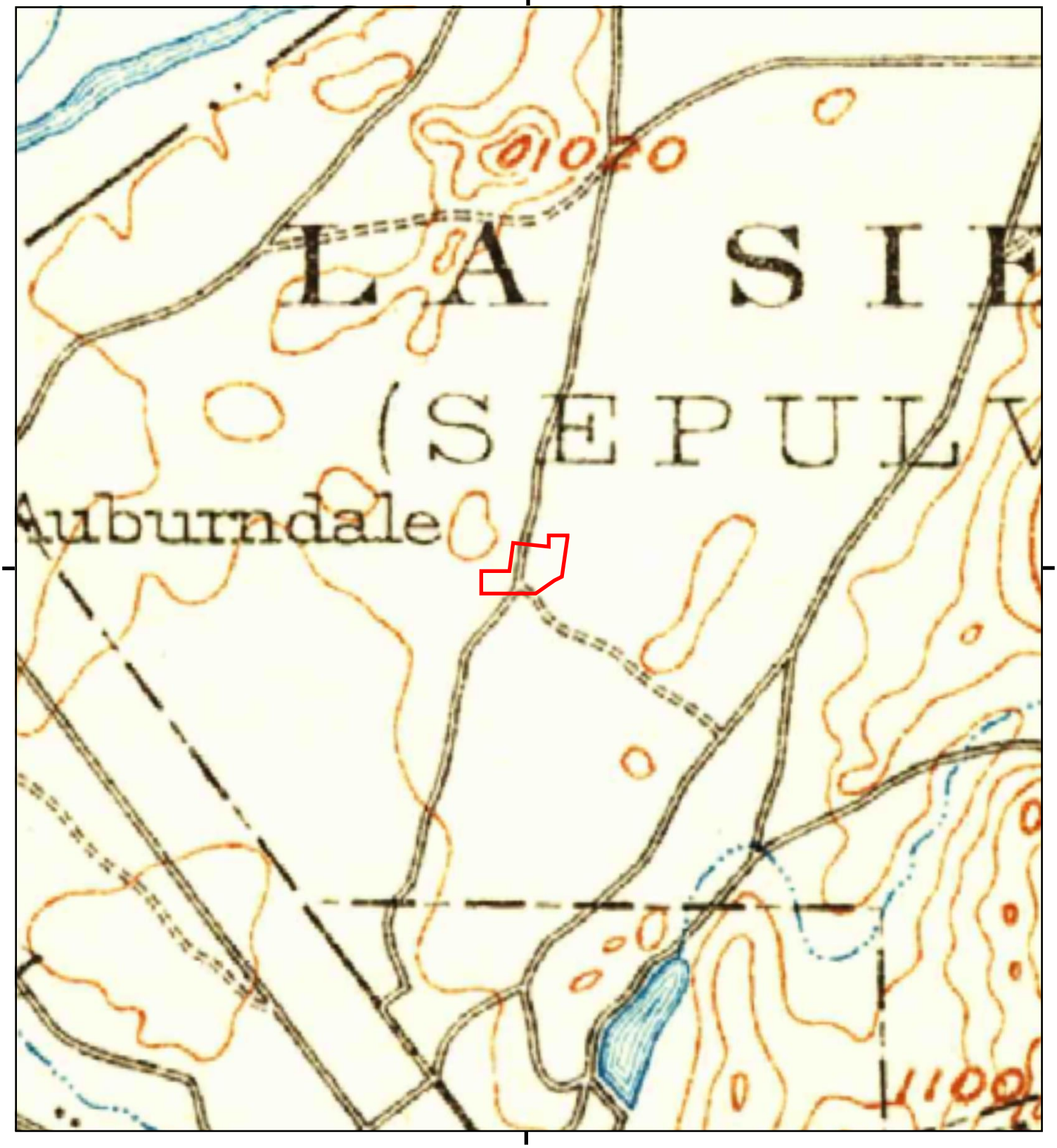
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Corona and Vicinity, 1942, 7.5-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Corona, 1902, 30-minute

SITE NAME: Norco Project
ADDRESS: 2350 Hamner Avenue
Norco, CA 92860
CLIENT: Geotek

N

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.6
October 02, 2019

The EDR Property Tax Map Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Property Tax Map Report

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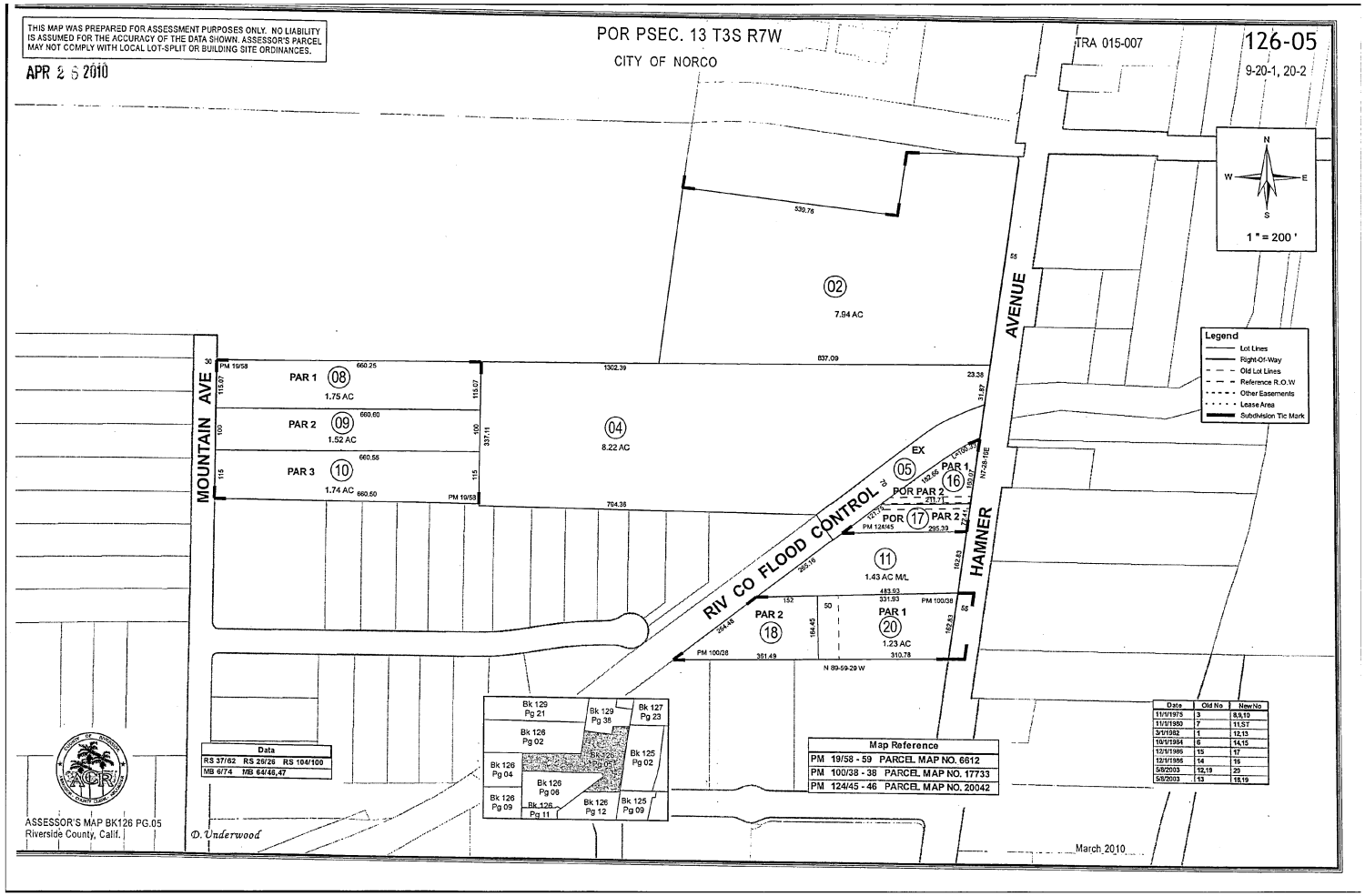
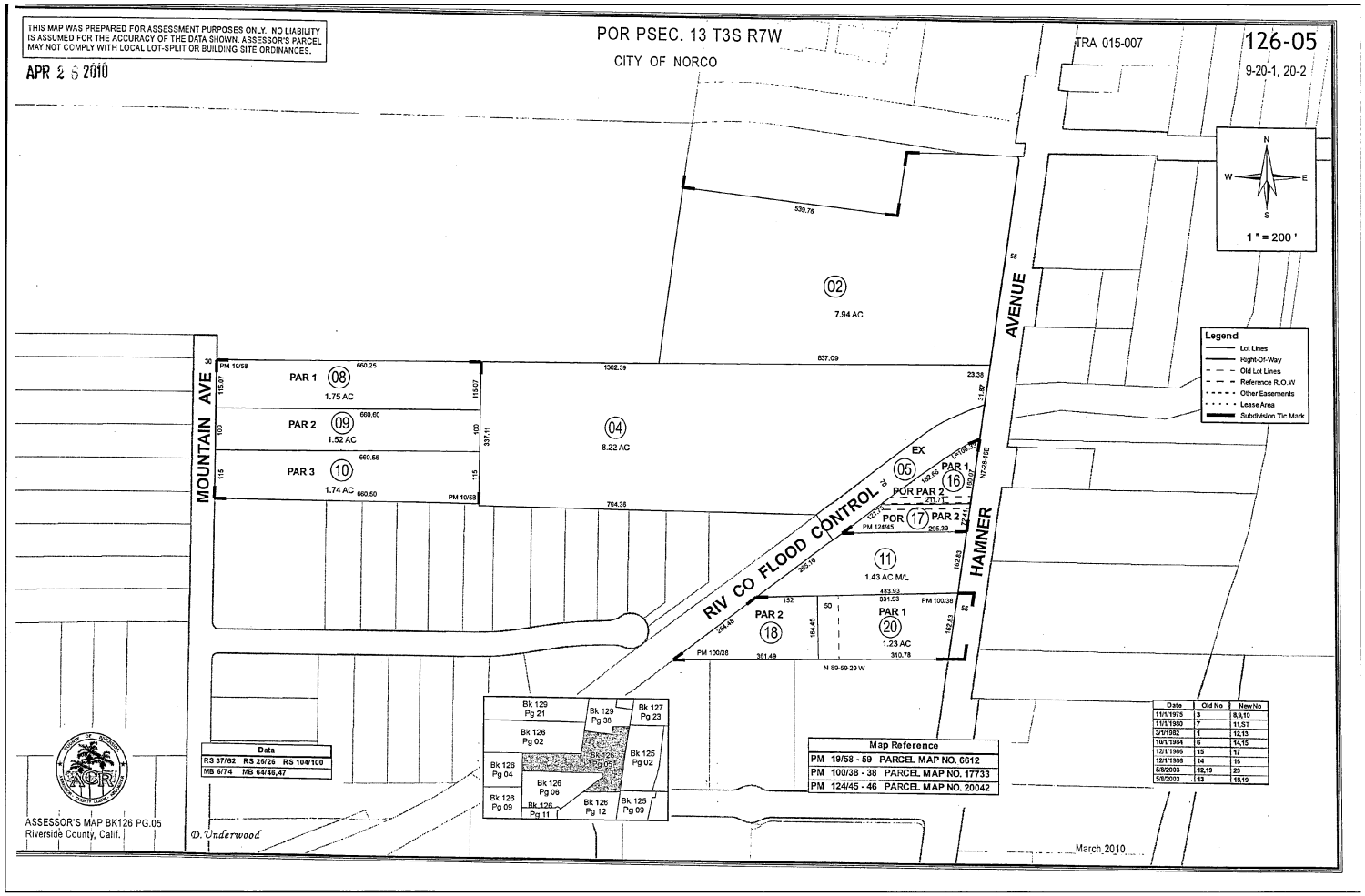

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.
APR 2 5 2010
POR PSEC. 13 T3S R7W
CITY OF NORCO
TRA 015-007
126-05
9-20-1, 20-2
1 " = 200 '
MOUNTAIN AVE
HAMNER AVENUE
RIV CO FLOOD CONTROL
PAR 1 08 1.75 AC
PAR 2 09 1.52 AC
PAR 3 10 1.74 AC
02 7.94 AC
04 8.22 AC
05
11 1.43 AC M/L
16
17
18
20 1.23 AC
EX
POR PAR 2
POR
Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark
Data
RS 37/62 RS 26/26 RS 104/100
MB 6/74 MB 64/46,47
Map Reference
PM 19/58 - 59 PARCEL MAP NO. 6612
PM 100/38 - 38 PARCEL MAP NO. 17733
PM 124/45 - 46 PARCEL MAP NO. 20042
Date | Old No | New No
11/1/1975 | 3 | 8,9,10
11/1/1980 | 7 | 11,17
3/1/1982 | 1 | 12,13
10/1/1984 | 6 | 14,15
12/1/1986 | 15 | 17
12/1/1986 | 14 | 16
5/8/2003 | 12,19 | 20
5/8/2003 | 13 | 18,19
ASSESSOR'S MAP BK126 PG.05
Riverside County, Calif.
D. Underwood
March 2010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APR 2 5 2010
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PAR 2 09 1.52 AC
PAR 3 10 1.74 AC
02 7.94 AC
04 8.22 AC
05 EX
11 1.43 AC M/L
PAR 1 16
POR PAR 2
POR 17 PAR 2
PAR 2 18
PAR 1 20 1.23 AC
Legend
Lot Lines
Right-Of-Way
Old Lot Lines
Reference R.O.W
Other Easements
Lease Area
Subdivision Tic Mark
Data
RS 37/62 RS 26/26 RS 104/100
MB 6/74 MB 64/46,47
Map Reference
PM 19/58 - 59 PARCEL MAP NO. 6612
PM 100/38 - 38 PARCEL MAP NO. 17733
PM 124/45 - 46 PARCEL MAP NO. 20042
Date | Old No | New No
11/1/1975 | 3 | 8,9,10
11/1/1980 | 7 | 11,17
3/1/1982 | 1 | 12,13
10/1/1984 | 6 | 14,15
12/1/1986 | 15 | 17
12/1/1986 | 14 | 16
5/8/2003 | 12,19 | 20
5/8/2003 | 13 | 18,19
ASSESSOR'S MAP BK126 PG.05
Riverside County, Calif.
D. Underwood
March 2010

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.2s
October 7, 2019

EDR Vapor Encroachment Screen

Prepared using EDR's Vapor Encroachment Worksheet

EDR® Environmental Data Resources Inc

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Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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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 EDR. The report was designed to assist parties seeking to meet the search requirements of the ASTM Standard Practice for Assessment of Vapor Encroachment into Structures on Property Involved in Real Estate Transactions (E 2600).

STANDARD ENVIRONMENTAL RECORDS	Default Area of Concern (Miles)*	property	1/10	> 1/10
Federal NPL site list	1.0	0	0	0
Federal Delisted NPL site list	1.0	0	0	0
Federal CERCLIS list	0.5	0	0	0
Federal CERCLIS NFRAP site list	0.5	0	0	0
Federal RCRA CORRACTS facilities list	1.0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list	0.5	0	0	0
Federal RCRA generators list	0.25	0	0	0
Federal institutional controls / engineering controls registries	0.5	0	0	0
Federal ERNS list	0.001	0	0	-
State- and tribal - equivalent NPL	1.0	0	0	0
State- and tribal - equivalent CERCLIS	1.0	0	0	2
State and tribal landfill and/or solid waste disposal site lists	0.5	0	0	0
State and tribal leaking storage tank lists	0.5	0	0	2
State and tribal registered storage tank lists	0.25	0	0	0
State and tribal institutional control / engineering control registries	not searched	-	-	-
State and tribal voluntary cleanup sites	0.5	0	0	0
State and tribal Brownfields sites	0.5	0	0	0

ADDITIONAL ENVIRONMENTAL RECORDS				
Local Brownfield lists	0.5	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites	0.5	0	0	0
Local Lists of Hazardous waste / Contaminated Sites	1.0	0	2	8
Local Lists of Registered Storage Tanks	0.25	0	1	2
Local Land Records	0.5	0	0	0
Records of Emergency Release Reports	0.5	0	0	0
Other Ascertainable Records	1.0	0	2	7

EDR HIGH RISK HISTORICAL RECORDS				
EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

EDR Exclusive Records	1.0	0	0	0
Exclusive Recovered Govt. Archives	0.001	0	0	-

*The Default Area of Concern may be adjusted by the environmental professional using experience and professional judgement. Each category may include several databases, and each database may have a different distance. A list of individual databases is provided at the back of this report.

EXECUTIVE SUMMARY

TARGET PROPERTY INFORMATION

ADDRESS

NORCO PROJECT
2350 HAMNER AVENUE
NORCO, CA 92860

COORDINATES

Latitude (North):	33.91512 - 33° 54′ 54.429016″
Longitude (West):	117.562033 - 117° 33′ 43.324585″
Elevation:	619 ft. above sea level

EXECUTIVE SUMMARY

SEARCH RESULTS

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
KENNEDY MIDDLE COLLEGE HIGH SCHOOL ENVIROSTOR: ENVIROSTOR SCH: SCH	THIRD STREET	1/10 - 1/3 WNW	▲ D4	9
NAVAL ORDNANCE LAB ENVIROSTOR: ENVIROSTOR	Not Reported	1/10 - 1/3 WNW	▲ D9	10
THRIFTY OIL #338 HIST CORTESE: HIST CORTESE CERS TANKS: CERS TANKS CERS: CERS LUST: LUST CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	2600 HAMNER AVE	1/10 - 1/3 NNE	◆ H12	11
THRIFTY OIL STN. #338 CERS: CERS LUST: LUST HIST UST: HIST UST	2600 HAMNER AVE	1/10 - 1/3 NNE	◆ H13	11

ADDITIONAL ENVIRONMENTAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
LES SCHWAB TIRE CENTER #569 CERS: CERS CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	1701 3RD ST	<1/10 NE	◆ 1	9
POPE CONSTRUCTION COMPANY CERS: CERS SWEEPS UST: SWEEPS UST CERS HAZ WASTE: CERS HAZ WASTE	2466 HAMNER AVE	<1/10 NNE	◆ 2	9
NORCO TRANSMISSION CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	2521 HAMNER AVE	1/10 - 1/3 NNE	◆ C3	9
KENNEDY MIDDLE COLLEGE HIGH SCHOOL ENVIROSTOR: ENVIROSTOR SCH: SCH	THIRD STREET	1/10 - 1/3 WNW	▲ D4	9
NORCO BRAKE AND ALIGNMENT CERS: CERS CERS HAZ WASTE: CERS HAZ WASTE	2531 HAMNER AVE	1/10 - 1/3 NNE	◆ C5	10
MCCARTHY AUTOMOTIVE REPAIR CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	2551 HAMNER AVE	1/10 - 1/3 NNE	◆ C6	10

EXECUTIVE SUMMARY

Name	Address	Dist/Dir	Map ID	Page
AL GARCIA'S TRUCK REPAIR CERS HAZ WASTE: CERS HAZ WASTE	2553 HAMNER AVE	1/10 - 1/3 NNE	◆ C7	10
GS FLEET SERVICE CERS: CERS CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	2555 HAMNER AVE	1/10 - 1/3 NNE	◆ C8	10
NAVAL ORDNANCE LABORATORY UXO: UXO	Not Reported	1/10 - 1/3 WNW	▲ D10	10
NO PORK MOTORSPORTS, INC CERS HAZ WASTE: CERS HAZ WASTE	2585 HAMNER AVE STE.B	1/10 - 1/3 NNE	◆ H11	11
THRIFTY OIL #338 HIST CORTESE: HIST CORTESE CERS TANKS: CERS TANKS CERS: CERS LUST: LUST CERS HAZ WASTE: CERS HAZ WASTE HAZNET: HAZNET	2600 HAMNER AVE	1/10 - 1/3 NNE	◆ H12	11
THRIFTY OIL STN. #338 CERS: CERS LUST: LUST HIST UST: HIST UST	2600 HAMNER AVE	1/10 - 1/3 NNE	◆ H13	11

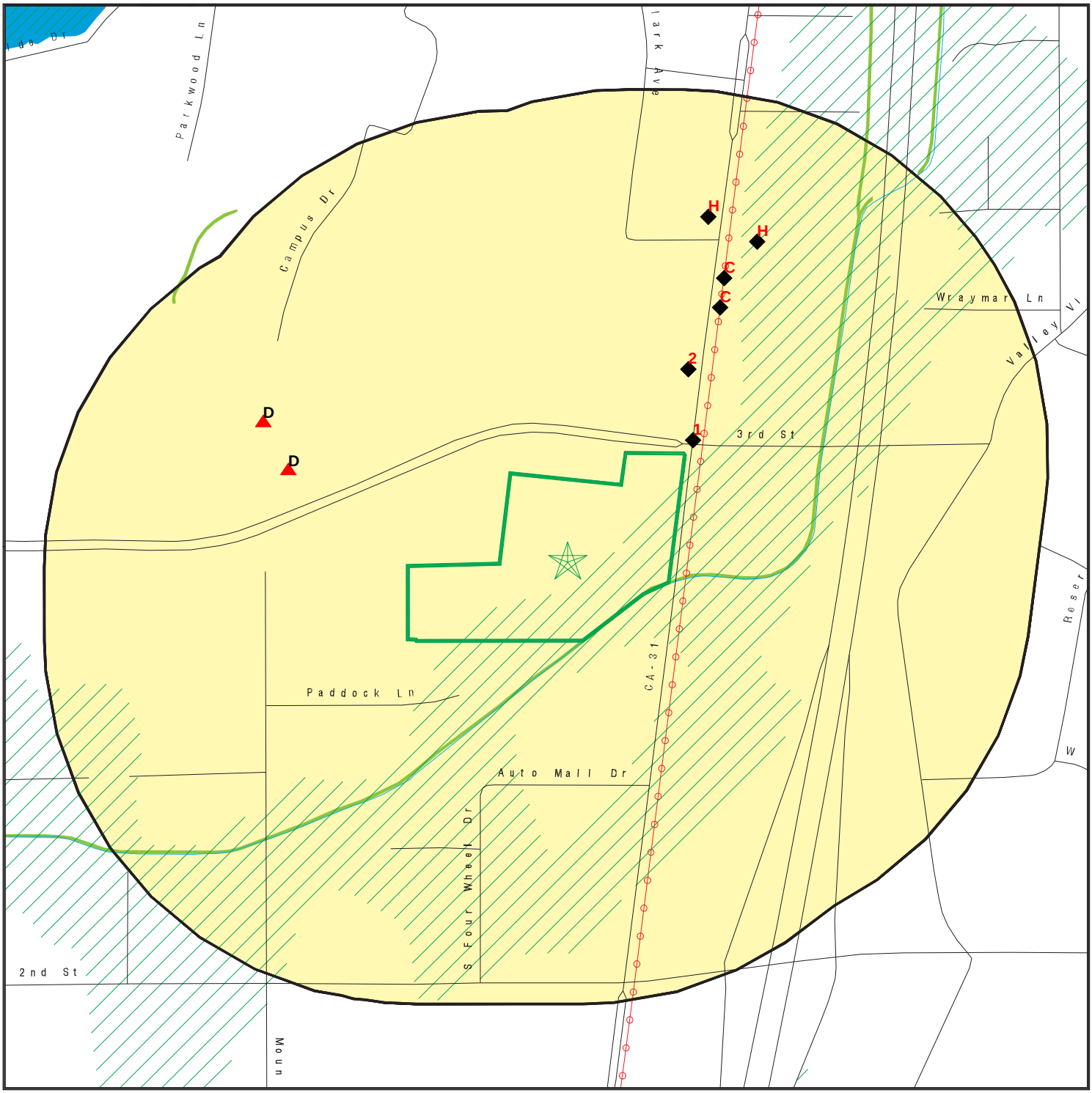
EDR HIGH RISK HISTORICAL RECORDS

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

EDR RECOVERED GOVERNMENT ARCHIVES

Name	Address	Dist/Dir	Map ID	Page
Not Reported				

PRIMARY MAP - 5813845.2S



0 300 1/3 1/2 Miles

- 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
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- 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:	Norco Project	CLIENT:	Geotek
ADDRESS:	2350 Hamner Avenue Norco CA 92860	CONTACT:	Anna M. Scott
LAT/LONG:	33.91512 / 117.562033	INQUIRY #:	5813845.2s
		DATE:	October 02, 2019 8:51 pm

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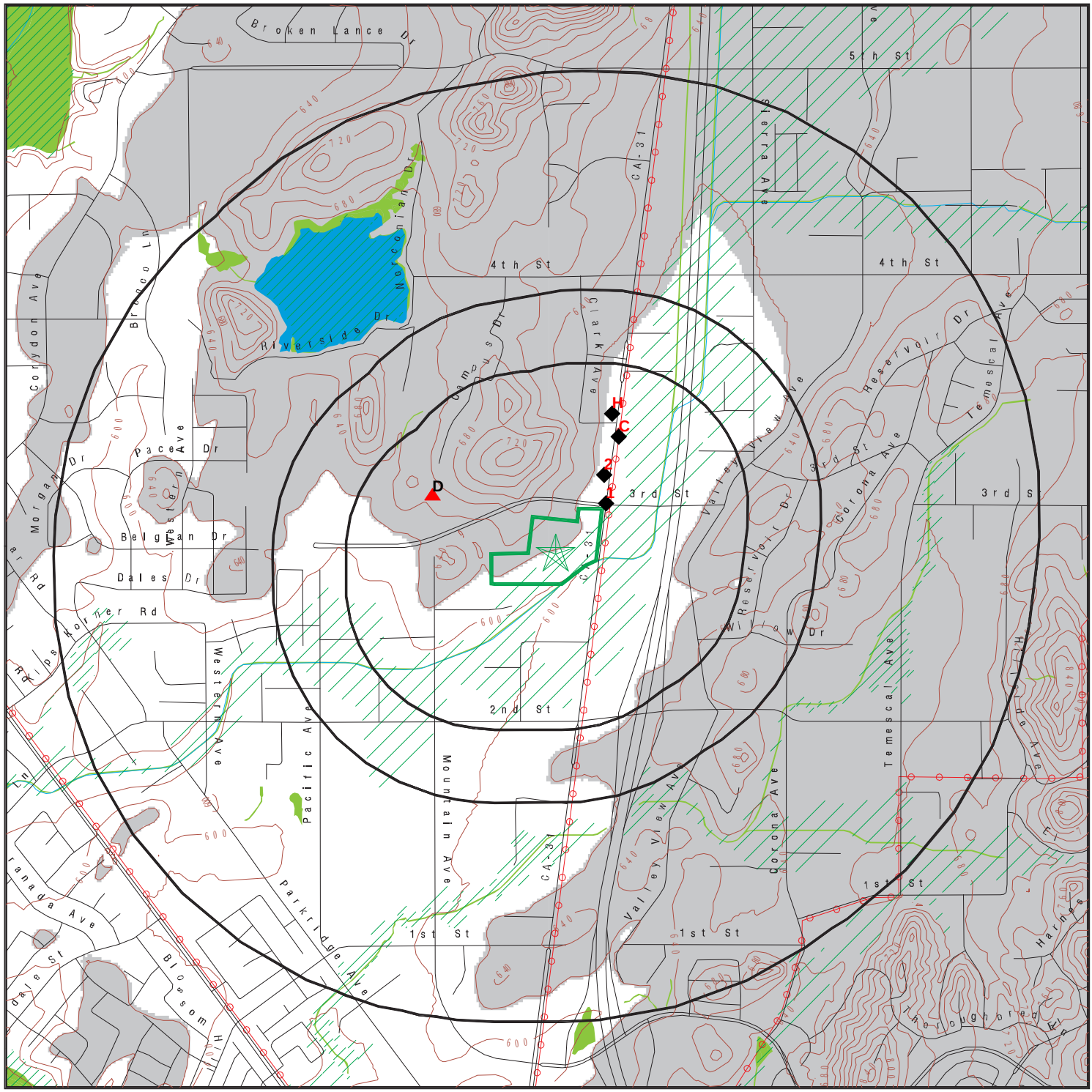
SECONDARY MAP - 5813845.2S



0 1/3 1/2 1 Miles

- 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
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Upgradient Area
- 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: Norco Project ADDRESS: 2350 Hamner Avenue Norco CA 92860 LAT/LONG: 33.91512 / 117.562033	CLIENT: Geotek CONTACT: Anna M. Scott INQUIRY #: 5813845.2s DATE: October 02, 2019 8:48 pm

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MAP FINDINGS

LEGEND

FACILITY NAME **FACILITY ADDRESS, CITY, ST, ZIP**		EDR SITE ID NUMBER
◆ **MAP ID#**	Direction Distance Range (Distance feet / miles) Relative Elevation Feet Above Sea Level	ASTM 2600 Record Sources found in this report. Each database searched has been assigned to one or more categories. For detailed information about categorization, see the section of the report Records Searched and Currency.

Worksheet:

Comments:
Comments may be added on the online Vapor Encroachment Worksheet.

DATABASE ACRONYM: Applicable categories (A hoverbox with database description).

LES SCHWAB TIRE CENTER #569 1701 3RD ST, NORCO, CA, 928602670		S121020272
◆ 1	NE <1/10 (76 ft. / 0.014 mi.) 9 ft. Lower Elevation 610 ft. Above Sea Level	Local Lists of Hazardous waste / Contaminated Sites Other Ascertainable Records

Worksheet:

POPE CONSTRUCTION COMPANY 2466 HAMNER AVE, NORCO, CA, 91760		S106930820
◆ 2	NNE <1/10 (406 ft. / 0.077 mi.) 4 ft. Lower Elevation 615 ft. Above Sea Level	Local Lists of Hazardous waste / Contaminated Sites Local Lists of Registered Storage Tanks Other Ascertainable Records

Worksheet:

NORCO TRANSMISSION 2521 HAMNER AVE, NORCO, CA, 92860		S113127886
◆ C3	NNE 1/10 - 1/3 (726 ft. / 0.138 mi.) 4 ft. Lower Elevation 615 ft. Above Sea Level	Local Lists of Hazardous waste / Contaminated Sites Other Ascertainable Records

Worksheet:

KENNEDY MIDDLE COLLEGE HIGH SCHOOL THIRD STREET, NORCO, CA, 92860		S105754264
▲ D4	WNW 1/10 - 1/3 (739 ft. / 0.14 mi.) 22 ft. Higher Elevation 641 ft. Above Sea Level	State- and tribal - equivalent CERCLIS Local Lists of Hazardous waste / Contaminated Sites

Worksheet:

NORCO BRAKE AND ALIGNMENT 2531 HAMNER AVE, NORCO, CA, 92860			S123521555
◆ C5	NNE 1/10 - 1/3	(773 ft. / 0.146 mi.)	Local Lists of Hazardous waste / Contaminated Sites Other Ascertainable Records
	4 ft. Lower Elevation	615 ft. Above Sea Level	

Worksheet:

MCCARTHY AUTOMOTIVE REPAIR 2551 HAMNER AVE, NORCO, CA, 92860			S113109818
◆ C6	NNE 1/10 - 1/3	(869 ft. / 0.165 mi.)	Local Lists of Hazardous waste / Contaminated Sites Other Ascertainable Records
	4 ft. Lower Elevation	615 ft. Above Sea Level	

Worksheet:

AL GARCIA'S TRUCK REPAIR 2553 HAMNER AVE, NORCO, CA, 92860			S123538534
◆ C7	NNE 1/10 - 1/3	(878 ft. / 0.166 mi.)	Local Lists of Hazardous waste / Contaminated Sites
	4 ft. Lower Elevation	615 ft. Above Sea Level	

Worksheet:

GS FLEET SERVICE 2555 HAMNER AVE, NORCO, CA, 928601923			S113801293
◆ C8	NNE 1/10 - 1/3	(889 ft. / 0.168 mi.)	Local Lists of Hazardous waste / Contaminated Sites Other Ascertainable Records
	4 ft. Lower Elevation	615 ft. Above Sea Level	

Worksheet:

NAVAL ORDNANCE LAB Not Reported, CORONA, CA,			S107736845
▲ D9	WNW 1/10 - 1/3	(985 ft. / 0.187 mi.)	State- and tribal - equivalent CERCLIS
	28 ft. Higher Elevation	647 ft. Above Sea Level	

Worksheet:

NAVAL ORDNANCE LABORATORY Not Reported, NORCO, CA,			1024714147
▲ D10	WNW 1/10 - 1/3	(996 ft. / 0.189 mi.)	Other Ascertainable Records
	27 ft. Higher Elevation	646 ft. Above Sea Level	

Worksheet:

NO PORK MOTORSPORTS, INC 2585 HAMNER AVE STE.B, NORCO, CA, 92860			S123536952
◆ H11	NNE 1/10 - 1/3	(1083 ft. / 0.205 mi.)	Local Lists of Hazardous waste / Contaminated Sites
	6 ft. Lower Elevation	613 ft. Above Sea Level	

Worksheet:

THRIFTY OIL #338 2600 HAMNER AVE, NORCO, CA, 91760			S104755098
◆ H12	NNE 1/10 - 1/3	(1150 ft. / 0.218 mi.)	State and tribal leaking storage tank lists Local Lists of Hazardous waste / Contaminated Sites Local Lists of Registered Storage Tanks Other Ascertainable Records
	2 ft. Lower Elevation	617 ft. Above Sea Level	

Worksheet:

THRIFTY OIL STN. #338 2600 HAMNER AVE, NORCO, CA, 91760			U001569928
◆ H13	NNE 1/10 - 1/3	(1150 ft. / 0.218 mi.)	State and tribal leaking storage tank lists Local Lists of Registered Storage Tanks Other Ascertainable Records
	2 ft. Lower Elevation	617 ft. Above Sea Level	

Worksheet:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
ENVIRONMENTAL RECORDS						
Federal NPL site list						
US	NPL	National Priority List	EPA	07/19/2019	07/30/2019	09/03/2019
US	Proposed NPL	Proposed National Priority List Sites	EPA	07/19/2019	07/30/2019	09/03/2019
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
Federal CERCLIS list						
US	SEMS	Superfund Enterprise Management System	EPA	07/19/2019	07/30/2019	09/03/2019
Federal RCRA CORRACTS facilities list						
US	CORRACTS	Corrective Action Report	EPA	03/25/2019	03/27/2019	04/17/2019
Federal RCRA TSD facilities list						
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/25/2019	03/27/2019	04/17/2019
Federal RCRA generators list						
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/25/2019	03/27/2019	04/17/2019
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/25/2019	03/27/2019	04/17/2019
US	RCRA-VSQG	RCRA - Very Small Quantity Generators (Formerly Conditionall	Environmental Protection Agency	03/25/2019	03/27/2019	04/17/2019
Federal institutional controls / engineering controls registries						
US	LUCIS	Land Use Control Information System	Department of the Navy	08/13/2019	08/20/2019	08/26/2019
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	08/19/2019	08/20/2019	08/26/2019
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	08/19/2019	08/20/2019	08/26/2019
Federal ERNS list						
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	09/09/2019	09/09/2019	09/23/2019
State and tribal - equivalent NPL						
CA	RESPONSE	State Response Sites	Department of Toxic Substances Control	04/29/2019	04/30/2019	06/27/2019
State and tribal - equivalent CERCLIS						
CA	ENVIROSTOR	EnviroStor Database	Department of Toxic Substances Control	04/29/2019	04/30/2019	06/27/2019
State and tribal landfill / solid waste disposal						
CA	SWF/LF (SWIS)	Solid Waste Information System	Department of Resources Recycling and Recover	05/13/2019	05/14/2019	07/17/2019
State and tribal leaking storage tank lists						
CA	LUST REG 3	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	05/19/2003	05/19/2003	06/02/2003
CA	LUST REG 4	Underground Storage Tank Leak List	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	LUST REG 5	Leaking Underground Storage Tank Database	California Regional Water Quality Control Boa	07/01/2008	07/22/2008	07/31/2008
CA	LUST REG 7	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	02/26/2004	02/26/2004	03/24/2004
CA	LUST REG 8	Leaking Underground Storage Tanks	California Regional Water Quality Control Boa	02/14/2005	02/15/2005	03/28/2005
CA	LUST REG 9	Leaking Underground Storage Tank Report	California Regional Water Quality Control Boa	03/01/2001	04/23/2001	05/21/2001
CA	LUST	Leaking Underground Fuel Tank Report (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	08/05/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	LUST REG 6L	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	09/09/2003	09/10/2003	10/07/2003
CA	LUST REG 6V	Leaking Underground Storage Tank Case Listing	California Regional Water Quality Control Boa	06/07/2005	06/07/2005	06/29/2005
CA	LUST REG 1	Active Toxic Site Investigation	California Regional Water Quality Control Boa	02/01/2001	02/28/2001	03/29/2001
CA	LUST REG 2	Fuel Leak List	California Regional Water Quality Control Boa	09/30/2004	10/20/2004	11/19/2004
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	10/16/2018	03/07/2019	05/01/2019
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	09/24/2018	03/12/2019	05/01/2019
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	10/12/2018	03/07/2019	05/01/2019
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	02/19/2019	03/07/2019	05/01/2019
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	10/17/2018	03/07/2019	05/01/2019
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	10/10/2018	03/08/2019	05/01/2019
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	11/01/2018	03/07/2019	05/01/2019
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	10/13/2018	03/07/2019	05/01/2019
CA	CPS-SLIC	Statewide SLIC Cases (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	08/05/2019
CA	SLIC REG 1	Active Toxic Site Investigations	California Regional Water Quality Control Boa	04/03/2003	04/07/2003	04/25/2003
CA	SLIC REG 2	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board San Fran	09/30/2004	10/20/2004	11/19/2004
CA	SLIC REG 3	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	05/18/2006	05/18/2006	06/15/2006
CA	SLIC REG 4	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Region Water Quality Control Board Los Angele	11/17/2004	11/18/2004	01/04/2005
CA	SLIC REG 5	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board Central	04/01/2005	04/05/2005	04/21/2005
CA	SLIC REG 6V	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	Regional Water Quality Control Board, Victorv	05/24/2005	05/25/2005	06/16/2005
CA	SLIC REG 6L	SLIC Sites	California Regional Water Quality Control Boa	09/07/2004	09/07/2004	10/12/2004
CA	SLIC REG 7	SLIC List	California Regional Quality Control Board, Co	11/24/2004	11/29/2004	01/04/2005
CA	SLIC REG 8	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Region Water Quality Control Board	04/03/2008	04/03/2008	04/14/2008
CA	SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing	California Regional Water Quality Control Boa	09/10/2007	09/11/2007	09/28/2007
State and tribal registered storage tank lists						
CA	UST	Active UST Facilities	SWRCB	06/10/2019	06/11/2019	07/23/2019
CA	MILITARY UST SITES	Military UST Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	UST CLOSURE	Proposed Closure of Underground Storage Tank (UST) Cases	State Water Resources Control Board	06/10/2019	06/12/2019	07/23/2019
CA	UST MENDOCINO	Mendocino County UST Database	Department of Public Health	12/04/2018	12/06/2018	12/14/2018
CA	AST	Aboveground Petroleum Storage Tank Facilities	California Environmental Protection Agency	07/06/2016	07/12/2016	09/19/2016
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	10/10/2018	03/08/2019	05/01/2019
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	10/17/2018	03/07/2019	05/01/2019
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	10/03/2018	03/07/2019	05/01/2019
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	09/24/2018	03/12/2019	05/01/2019
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	10/12/2018	03/07/2019	05/01/2019
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	11/01/2018	03/07/2019	05/01/2019
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	11/07/2018	03/07/2019	05/01/2019
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	10/16/2018	03/07/2019	05/01/2019
US	FEMA UST	Underground Storage Tank Listing	FEMA	05/15/2017	05/30/2017	10/13/2017

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
State and tribal voluntary cleanup sites						
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
CA	VCP	Voluntary Cleanup Program Properties	Department of Toxic Substances Control	04/29/2019	04/30/2019	06/27/2019
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
State and tribal Brownfields sites						
CA	BROWNFIELDS	Considered Brownfieds Sites Listing	State Water Resources Control Board	06/24/2019	06/25/2019	08/21/2019
Other Records						
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	03/31/2019	04/23/2019	05/23/2019
US	ROD	Records Of Decision	EPA	07/19/2019	07/30/2019	09/03/2019
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	07/30/2019	07/30/2019	09/03/2019
CA	HIST CAL-SITES	Calsites Database	Department of Toxic Substance Control	08/08/2005	08/03/2006	08/24/2006
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
CA	SWRCY	Recycler Database	Department of Conservation	06/11/2019	06/12/2019	08/15/2019
CA	CA FID UST	Facility Inventory Database	California Environmental Protection Agency	10/31/1994	09/05/1995	09/29/1995
CA	HIST UST	Hazardous Substance Storage Container Database	State Water Resources Control Board	10/15/1990	01/25/1991	02/12/1991
CA	SAN FRANCISCO AST	Aboveground Storage Tank Site Listing	San Francisco County Department of Public Hea	09/11/2018	09/12/2018	10/11/2018
CA	SWEEPS UST	SWEEPS UST Listing	State Water Resources Control Board	06/01/1994	07/07/2005	08/11/2005
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	08/08/2017	09/11/2018	09/14/2018
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	06/24/2019	06/26/2019	09/23/2019
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	05/24/2017	11/30/2017	12/15/2017
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	07/19/2019	07/30/2019	09/03/2019
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	06/11/2019	06/13/2019	09/03/2019
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	Delisted NPL	National Priority List Deletions	EPA	07/19/2019	07/30/2019	09/03/2019
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	07/19/2019	07/30/2019	09/03/2019
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/25/2019	03/27/2019	04/17/2019
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	06/24/2019	06/26/2019	09/23/2019
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	04/01/2019	04/30/2019	08/08/2019
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	06/11/2019	06/13/2019	09/03/2019
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/03/2019	06/04/2019	08/26/2019
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	05/15/2019	05/21/2019	08/08/2019
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	06/23/2017	10/11/2017	11/03/2017
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/03/2019	05/29/2019	08/08/2019
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
US	PRP	Potentially Responsible Parties	EPA	08/20/2019	09/05/2019	09/23/2019
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2016	01/10/2018	01/12/2018
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/21/2017	01/05/2018
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	SSTS	Section 7 Tracking Systems	EPA	09/30/2018	04/24/2019	08/08/2019
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	PADS	PCB Activity Database System	EPA	03/20/2019	04/10/2019	05/14/2019
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	06/20/2019	06/20/2019	08/08/2019
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/01/2019	07/01/2019	09/23/2019
US	FINDS	Facility Index System/Facility Registry System	EPA	05/03/2019	06/05/2019	09/03/2019
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RMP	Risk Management Plans	Environmental Protection Agency	04/25/2019	05/02/2019	05/23/2019
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2015	02/22/2017	09/28/2017
US	PWS	Public Water System Data	EPA	12/17/2013	01/09/2014	10/15/2014
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	ABANDONED MINES	Abandoned Mines	Department of Interior	03/27/2019	03/28/2019	05/01/2019
CA	CA BOND EXP. PLAN	Bond Expenditure Plan	Department of Health Services	01/01/1989	07/27/1994	08/02/1994
CA	CDL	Clandestine Drug Labs	Department of Toxic Substances Control	06/30/2018	07/16/2019	09/24/2019
CA	CHMIRS	California Hazardous Material Incident Report System	Office of Emergency Services	05/15/2019	06/24/2019	08/21/2019
CA	CORTESE	"Cortese" Hazardous Waste & Substances Sites List	CAL EPA/Office of Emergency Information	06/24/2019	06/25/2019	08/21/2019
CA	CUPA SAN FRANCISCO CO	CUPA Facility Listing	San Francisco County Department of Environmen	04/18/2019	04/19/2019	04/30/2019
CA	CUPA LIVERMORE-PLEASANTON	CUPA Facility Listing	Livermore-Pleasanton Fire Department	05/01/2019	05/14/2019	07/17/2019
CA	DEED	Deed Restriction Listing	DTSC and SWRCB	06/04/2019	06/04/2019	08/08/2019
CA	DRYCLEAN SOUTH COAST	South Coast Air Quality Management District Drycleaner Listi	South Coast Air Quality Management District	03/19/2019	03/22/2019	04/09/2019
CA	DRYCLEAN AVAQMD	Antelope Valley Air Quality Management District Drycleaner L	Antelope Valley Air Quality Management Distri	06/03/2019	06/04/2019	08/08/2019
CA	DRYCLEANERS	Cleaner Facilities	Department of Toxic Substance Control	06/04/2019	06/28/2019	08/22/2019
CA	EMI	Emissions Inventory Data	California Air Resources Board	12/31/2017	06/24/2019	08/22/2019
CA	ENF	Enforcement Action Listing	State Water Resoruces Control Board	07/19/2019	07/22/2019	09/26/2019
CA	Financial Assurance 1	Financial Assurance Information Listing	Department of Toxic Substances Control	07/19/2019	07/23/2019	09/30/2019
CA	Financial Assurance 2	Financial Assurance Information Listing	California Integrated Waste Management Board	05/15/2019	05/16/2019	07/18/2019
CA	HAULERS	Registered Waste Tire Haulers Listing	Integrated Waste Management Board	03/26/2019	03/27/2019	04/30/2019
CA	HAZNET	Facility and Manifest Data	California Environmental Protection Agency	12/31/2017	05/29/2019	07/22/2019
CA	HIST CORTESE	Hazardous Waste & Substance Site List	Department of Toxic Substances Control	04/01/2001	01/22/2009	04/08/2009
CA	HWP	EnviroStor Permitted Facilities Listing	Department of Toxic Substances Control	05/20/2019	05/21/2019	07/18/2019
CA	HWT	Registered Hazardous Waste Transporter Database	Department of Toxic Substances Control	07/08/2019	07/09/2019	09/20/2019
CA	ICE	ICE	Department of Toxic Subsances Control	05/20/2019	05/21/2019	07/18/2019
CA	LDS	Land Disposal Sites Listing (GEOTRACKER)	State Water Qualilty Control Board	06/10/2019	06/11/2019	08/05/2019
CA	LIENS	Environmental Liens Listing	Department of Toxic Substances Control	06/05/2019	06/06/2019	08/09/2019
CA	MCS	Military Cleanup Sites Listing (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	MINES	Mines Site Location Listing	Department of Conservation	06/10/2019	06/11/2019	08/15/2019
CA	MWMP	Medical Waste Management Program Listing	Department of Public Health	05/17/2019	06/04/2019	08/09/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	NPDES	NPDES Permits Listing	State Water Resources Control Board	05/13/2019	05/14/2019	07/17/2019
CA	PEST LIC	Pesticide Regulation Licenses Listing	Department of Pesticide Regulation	06/04/2019	06/04/2019	08/09/2019
CA	PROC	Certified Processors Database	Department of Conservation	06/11/2019	06/12/2019	08/15/2019
CA	NOTIFY 65	Proposition 65 Records	State Water Resources Control Board	06/17/2019	06/18/2019	08/22/2019
CA	SCH	School Property Evaluation Program	Department of Toxic Substances Control	04/29/2019	04/30/2019	06/27/2019
CA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	06/06/2012	01/03/2013	02/22/2013
CA	TOXIC PITS	Toxic Pits Cleanup Act Sites	State Water Resources Control Board	07/01/1995	08/30/1995	09/26/1995
CA	UIC	UIC Listing	Deaprtment of Conservation	04/27/2018	06/13/2018	07/17/2018
CA	WASTEWATER PITS	Oil Wastewater Pits Listing	RWQCB, Central Valley Region	05/08/2018	07/11/2018	09/13/2018
CA	WDS	Waste Discharge System	State Water Resources Control Board	06/19/2007	06/20/2007	06/29/2007
CA	WIP	Well Investigation Program Case List	Los Angeles Water Quality Control Board	07/03/2009	07/21/2009	08/03/2009
CA	WMUDS/SWAT	Waste Management Unit Database	State Water Resources Control Board	04/01/2000	04/10/2000	05/10/2000
CA	SAMPLING POINT	Sampling Point ? Public Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	PROJECT	Project Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	UIC GEO	Underground Injection Control Sites (GEOTRACKER)	State Water Resource Control Board	06/10/2019	06/11/2019	07/24/2019
CA	CERS	CalEPA Regulated Site Portal Data	California Environmental Protection Agency	08/14/2019	08/14/2019	08/21/2019
CA	CERS HAZ WASTE	CERS HAZ WASTE	CalEPA	08/14/2019	08/14/2019	08/21/2019
CA	CERS TANKS	California Environmental Reporting System (CERS) Tanks	California Environmental Protection Agency	08/14/2019	08/14/2019	08/21/2019
CA	OTHER OIL GAS	Other Oil & Gas Projects Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	04/07/2019	04/09/2019	05/23/2019
CA	WDR	Waste Discharge Requirements Listing	State Water Resources Control Board	06/11/2019	06/12/2019	08/15/2019
US	UXO	Unexploded Ordnance Sites	Department of Defense	12/31/2017	01/17/2019	04/01/2019
CA	PFAS	PFAS Contamination Site Location Listing	State Water Resources Control Board	06/28/2019	06/28/2019	07/24/2019
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	05/20/2019	05/21/2019	08/08/2019
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	05/31/2018	07/26/2018	10/05/2018
CA	CIWQS	California Integrated Water Quality System	State Water Resources Control Board	06/04/2019	06/04/2019	08/08/2019
CA	MILITARY PRIV SITES	Military Privatized Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	NON-CASE INFO	Non-Case Information Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019
CA	PROD WATER PONDS	Produced Water Ponds Sites (GEOTRACKER)	State Water Resources Control Board	06/10/2019	06/11/2019	07/24/2019

HISTORICAL USE RECORDS

US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
CA	RGA LF	Recovered Government Archive Solid Waste Facilities List	Department of Resources Recycling and Recover		07/01/2013	01/13/2014
CA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	State Water Resources Control Board		07/01/2013	12/30/2013

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
COUNTY RECORDS						
CA	CS ALAMEDA	Contaminated Sites	Alameda County Environmental Health Services	01/09/2019	01/11/2019	03/05/2019
CA	UST ALAMEDA	Underground Tanks	Alameda County Environmental Health Services	04/10/2019	04/11/2019	06/20/2019
CA	CUPA AMADOR	CUPA Facility List	Amador County Environmental Health	06/27/2019	06/28/2019	07/24/2019
CA	CUPA BUTTE	CUPA Facility Listing	Public Health Department	04/21/2017	04/25/2017	08/09/2017
CA	CUPA CALVERAS	CUPA Facility Listing	Calveras County Environmental Health	05/01/2019	05/02/2019	05/29/2019
CA	CUPA COLUSA	CUPA Facility List	Health & Human Services	05/17/2019	05/21/2019	07/18/2019
CA	SL CONTRA COSTA	Site List	Contra Costa Health Services Department	05/22/2019	05/23/2019	07/18/2019
CA	CUPA DEL NORTE	CUPA Facility List	Del Norte County Environmental Health Divisio	02/20/2019	05/01/2019	05/30/2019
CA	CUPA EL DORADO	CUPA Facility List	El Dorado County Environmental Management Dep	06/05/2019	06/06/2019	07/23/2019
CA	CUPA FRESNO	CUPA Resources List	Dept. of Community Health	07/11/2019	07/11/2019	09/20/2019
CA	CUPA GLENN	CUPA Facility List	Glenn County Air Pollution Control District	01/22/2018	01/24/2018	03/14/2018
CA	CUPA HUMBOLDT	CUPA Facility List	Humboldt County Environmental Health	07/08/2019	07/10/2019	09/20/2019
CA	CUPA IMPERIAL	CUPA Facility List	San Diego Border Field Office	07/19/2019	07/23/2019	09/26/2019
CA	CUPA INYO	CUPA Facility List	Inyo County Environmental Health Services	04/02/2018	04/03/2018	06/14/2018
CA	UST KERN	Underground Storage Tank Sites & Tank Listing	Kern County Environment Health Services Depar	05/06/2019	05/07/2019	07/16/2019
CA	CUPA KINGS	CUPA Facility List	Kings County Department of Public Health	05/16/2019	05/17/2019	05/30/2019
CA	CUPA LAKE	CUPA Facility List	Lake County Environmental Health	05/30/2019	05/31/2019	07/23/2019
CA	CUPA LASSEN	CUPA Facility List	Lassen County Environmental Health	07/22/2019	07/23/2019	09/26/2019
CA	AOCONCERN	Key Areas of Concerns in Los Angeles County		03/30/2009	03/31/2009	10/23/2009
CA	HMS LOS ANGELES	HMS: Street Number List	Department of Public Works	07/09/2019	07/11/2019	09/20/2019
CA	LF LOS ANGELES	List of Solid Waste Facilities	La County Department of Public Works	07/15/2019	07/17/2019	09/26/2019
CA	LF LOS ANGELES CITY	City of Los Angeles Landfills	Engineering & Construction Division	01/01/2019	01/15/2019	03/07/2019
CA	LOS ANGELES AST	Active & Inactive AST Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	LOS ANGELES CO LF METHANE	Methane Producing Landfills	Los Angeles County Department of Public Works	04/30/2012	04/17/2019	05/29/2019
CA	LOS ANGELES HM	Active & Inactive Hazardous Materials Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	LOS ANGELES UST	Active & Inactive UST Inventory	Los Angeles Fire Department	06/01/2019	06/25/2019	08/22/2019
CA	SITE MIT LOS ANGELES	Site Mitigation List	Community Health Services	07/15/2019	07/17/2019	08/05/2019
CA	UST EL SEGUNDO	City of El Segundo Underground Storage Tank	City of El Segundo Fire Department	01/21/2017	04/19/2017	05/10/2017
CA	UST LONG BEACH	City of Long Beach Underground Storage Tank	City of Long Beach Fire Department	04/22/2019	04/23/2019	06/27/2019
CA	UST TORRANCE	City of Torrance Underground Storage Tank	City of Torrance Fire Department	04/04/2019	04/23/2019	06/27/2019
CA	CUPA MADERA	CUPA Facility List	Madera County Environmental Health	05/28/2019	05/30/2019	08/05/2019
CA	UST MARIN	Underground Storage Tank Sites	Public Works Department Waste Management	09/26/2018	10/04/2018	11/02/2018
CA	CUPA MERCED	CUPA Facility List	Merced County Environmental Health	05/29/2019	05/30/2019	07/22/2019
CA	CUPA MONO	CUPA Facility List	Mono County Health Department	05/23/2019	05/30/2019	07/22/2019
CA	CUPA MONTEREY	CUPA Facility Listing	Monterey County Health Department	07/25/2019	07/30/2019	09/30/2019
CA	LUST NAPA	Sites With Reported Contamination	Napa County Department of Environmental Manag	01/09/2017	01/11/2017	03/02/2017
CA	UST NAPA	Closed and Operating Underground Storage Tank Sites	Napa County Department of Environmental Manag	02/21/2019	02/22/2019	03/08/2019
CA	CUPA NEVADA	CUPA Facility List	Community Development Agency	05/20/2019	05/21/2019	05/30/2019
CA	IND_SITE ORANGE	List of Industrial Site Cleanups	Health Care Agency	05/01/2019	05/09/2019	05/30/2019
CA	LUST ORANGE	List of Underground Storage Tank Cleanups	Health Care Agency	05/01/2019	05/09/2019	05/30/2019
CA	UST ORANGE	List of Underground Storage Tank Facilities	Health Care Agency	04/02/2019	05/07/2019	07/16/2019
CA	MS PLACER	Master List of Facilities	Placer County Health and Human Services	06/03/2019	06/04/2019	08/12/2019
CA	CUPA PLUMAS	CUPA Facility List	Plumas County Environmental Health	03/31/2019	04/23/2019	06/26/2019
CA	LUST RIVERSIDE	Listing of Underground Tank Cleanup Sites	Department of Environmental Health	07/10/2019	07/11/2019	09/20/2019
CA	UST RIVERSIDE	Underground Storage Tank Tank List	Department of Environmental Health	07/10/2019	07/11/2019	09/23/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
CA	CS SACRAMENTO	Toxic Site Clean-Up List	Sacramento County Environmental Management	05/06/2019	06/28/2019	08/22/2019
CA	ML SACRAMENTO	Master Hazardous Materials Facility List	Sacramento County Environmental Management	05/06/2019	06/28/2019	09/13/2019
CA	CUPA SAN BENITO	CUPA Facility List	San Benito County Environmental Health	07/16/2019	07/16/2019	09/24/2019
CA	PERMITS SAN BERNARDINO	Hazardous Material Permits	San Bernardino County Fire Department Hazardo	05/31/2019	05/31/2019	07/22/2019
CA	HMMD SAN DIEGO	Hazardous Materials Management Division Database	Hazardous Materials Management Division	06/04/2019	06/04/2019	08/08/2019
CA	LF SAN DIEGO	Solid Waste Facilities	Department of Health Services	04/18/2018	04/24/2018	06/19/2018
CA	SAN DIEGO CO LOP	Local Oversight Program Listing	Department of Environmental Health	07/16/2019	07/23/2019	09/30/2019
CA	SAN DIEGO CO SAM	Environmental Case Listing	San Diego County Department of Environmental	03/23/2010	06/15/2010	07/09/2010
CA	LUST SAN FRANCISCO	Local Oversite Facilities	Department Of Public Health San Francisco Cou	09/19/2008	09/19/2008	09/29/2008
CA	UST SAN FRANCISCO	Underground Storage Tank Information	Department of Public Health	11/05/2018	11/06/2018	12/14/2018
CA	UST SAN JOAQUIN	San Joaquin Co. UST	Environmental Health Department	06/22/2018	06/26/2018	07/11/2018
CA	CUPA SAN LUIS OBISPO	CUPA Facility List	San Luis Obispo County Public Health Departme	05/20/2019	05/21/2019	07/18/2019
CA	BI SAN MATEO	Business Inventory	San Mateo County Environmental Health Service	08/06/2019	08/14/2019	08/15/2019
CA	LUST SAN MATEO	Fuel Leak List	San Mateo County Environmental Health Service	03/29/2019	03/29/2019	05/29/2019
CA	CUPA SANTA BARBARA	CUPA Facility Listing	Santa Barbara County Public Health Department	09/08/2011	09/09/2011	10/07/2011
CA	CUPA SANTA CLARA	Cupa Facility List	Department of Environmental Health	05/16/2019	05/23/2019	07/18/2019
CA	HIST LUST SANTA CLARA	HIST LUST - Fuel Leak Site Activity Report	Santa Clara Valley Water District	03/29/2005	03/30/2005	04/21/2005
CA	LUST SANTA CLARA	LOP Listing	Department of Environmental Health	03/03/2014	03/05/2014	03/18/2014
CA	SAN JOSE HAZMAT	Hazardous Material Facilities	City of San Jose Fire Department	05/19/2019	05/23/2019	07/22/2019
CA	CUPA SANTA CRUZ	CUPA Facility List	Santa Cruz County Environmental Health	01/21/2017	02/22/2017	05/23/2017
CA	CUPA SHASTA	CUPA Facility List	Shasta County Department of Resource Manageme	06/15/2017	06/19/2017	08/09/2017
CA	LUST SOLANO	Leaking Underground Storage Tanks	Solano County Department of Environmental Man	06/04/2019	06/06/2019	08/13/2019
CA	UST SOLANO	Underground Storage Tanks	Solano County Department of Environmental Man	06/04/2019	06/06/2019	07/23/2019
CA	CUPA SONOMA	Cupa Facility List	County of Sonoma Fire & Emergency Services De	06/18/2019	06/25/2019	07/24/2019
CA	LUST SONOMA	Leaking Underground Storage Tank Sites	Department of Health Services	07/02/2019	07/02/2019	09/20/2019
CA	CUPA STANISLAUS	CUPA Facility List	Stanislaus County Department of Ennvironmenta	07/18/2019	07/18/2019	09/26/2019
CA	UST SUTTER	Underground Storage Tanks	Sutter County Environmental Health Services	06/03/2019	06/04/2019	07/23/2019
CA	CUPA TEHAMA	CUPA Facility List	Tehama County Department of Environmental Hea	05/20/2019	05/21/2019	07/18/2019
CA	CUPA TRINITY	CUPA Facility List	Department of Toxic Substances Control	07/19/2019	07/23/2019	09/26/2019
CA	CUPA TULARE	CUPA Facility List	Tulare County Environmental Health Services D	05/09/2019	05/10/2019	07/17/2019
CA	CUPA TUOLUMNE	CUPA Facility List	Divison of Environmental Health	04/23/2018	04/25/2018	06/25/2018
CA	BWT VENTURA	Business Plan, Hazardous Waste Producers, and Operating Unde	Ventura County Environmental Health Division	05/29/2019	07/29/2019	09/30/2019
CA	LF VENTURA	Inventory of Illegal Abandoned and Inactive Sites	Environmental Health Division	12/01/2011	12/01/2011	01/19/2012
CA	LUST VENTURA	Listing of Underground Tank Cleanup Sites	Environmental Health Division	05/29/2008	06/24/2008	07/31/2008
CA	MED WASTE VENTURA	Medical Waste Program List	Ventura County Resource Management Agency	05/29/2019	07/29/2019	09/30/2019
CA	UST VENTURA	Underground Tank Closed Sites List	Environmental Health Division	06/10/2019	06/12/2019	07/24/2019
CA	UST YOLO	Underground Storage Tank Comprehensive Facility Report	Yolo County Department of Health	06/26/2019	06/28/2019	07/31/2019
CA	CUPA YUBA	CUPA Facility List	Yuba County Environmental Health Department	05/03/2019	05/07/2019	07/16/2019

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date

STREET AND ADDRESS INFORMATION

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Riverside County Parcel Report

APN(s) 126-050-002
126-050-004

MAPS/IMAGES

PARCEL

APN	126-050-002-6 126-050-004-8
Previous APN	126-050-002 came from 092-001-104 126-050-004 came from 092-002-200
Owners	Not Available Online
Address	126-050-002 NOT AVAILABLE 126-050-004 NOT AVAILABLE
Mailing Address	126-050-002 2020 E ORANGETHORPE 210 FULLERTON CA 92831 126-050-004 2020 E ORANGETHORPE 210 FULLERTON CA 92831
Legal Description	126-050-002 Recorded Book/Page: Subdivision Name: Lot/Parcel: Block: Tract Number: 0 126-050-004 Recorded Book/Page: Subdivision Name: Lot/Parcel: Block: Tract Number: 0
Lot Size	126-050-002 7.94 126-050-004 8.22
Property Characteristics	126-050-002 Year Constructed: 1951 Baths: 0.00 Bedrooms: 0 Construction Type: SPECIAL Garage Type: CONSTRUCTION Property Area (sq ft): 0 Roof Type: UNKNOWN Stories: Pool: NO Central Cool: YES Central Heat: YES 126-050-004 Year Constructed: 1963 Baths: 0.00 Bedrooms: 0

	Construction Type: SPECIAL Garage Type: CONSTRUCTION Property Area (sq ft): 0 Roof Type: UNKNOWN Stories: Pool: NO Central Cool: YES Central Heat: YES
Supervisorial District	KAREN SPIEGEL, DISTRICT 2
Township/Range	T3SR7W SEC 13 PSEC
Elevation Range (ft.)	MIN: 604, AVG: 625, MAX: 640
Thomas Bros. Maps Page/Grid	PAGE: 713, GRID: D7
Indian Tribal Land	NOT IN A TRIBAL LAND
City Boundary	NORCO
City Spheres of Influence	NOT IN A CITY SPHERE
LAFCO Annexation	N/A
Proposals	PROPOSED_CITY
March Joint Powers Authority	NOT A THE JURSIDICTION OF THE MARCH POWERS AUTHORITY
County Service Area	NOT IN A COUNTY SERVICE AREA

PLANNING more...

Specific Plans	NOT IN A SPECIFIC PLAN
Land Use Designations	CITY
General Plan Policy Overlays	NOT IN A GENERAL PLAN POLICY OVERLAY
Area Plan (RCIP)	Cities of Riverside and Norco
General Plan Policy Areas	NOT IN A GENERAL PLAN POLICY AREA
Zoning Classifications (ORD. 348)	CONTACT THE CITY FOR MORE INFORMATION
Zoning Overlays	NOT IN A ZONING OVERLAY
Historical Preservation Districts	NOT IN A HISTORIC PRESERVATION DISTRICT
Agricultural Preserve	NOT IN AN AGRICULTURAL PRESERVE
Airport Influence Areas	NOT IN AN AIRPORT INFLUENCE AREA
Airport Compatibility Zones	NOT IN AN AIRPORT COMPATIBILITY AREA
Zoning Districts/Areas	NOT IN A ZONING DISTRICT/AREA
Community Advisory Councils	NOT IN A COMMUNITY ADVISORY COUNCIL
Residential Permit Statistics	N/A Expected Units: BRS Permit Units: Final Issued Active Current Permits: Cumulative Total: % of Expected:

ENVIRONMENTAL more...

CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Plan Area	NOT IN A COACHELLA VALLEY MSHCP FEE AREA
CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Conservation Area	NOT COACHELLA VALLEY CONSERVATION AREA
CVMSHCP Fluvial Sand Transport Special Provision Areas	NOT IN A FLUVIAL SAND TRANSPORT SPECIAL PROVISION AREA
WRMSHCP (Western Riverside County Multi-Species Habitat Conservation Plan) Plan Area	WESTERN RIVERSIDE COUNTY
WRMSHCP (Western Riverside County Multi-Species Habitat Conservation Plan) Cell Group	NOT IN A CELL GROUP
WRMSHCP Cell Number	NOT IN A CELL NUMBER
HANS/ERP (Habitat Acquisition and Negotiation Strategy/Expedited Review Process)	Project: NOT IN A PROJECT Conserve: Status: Notes: Intake Num: LMS Case:
Vegetation (2005)	California Annual Grassland Alliance Urban or development Mapping Unit

FIRE

Fire Hazard Classification (Ord. 787)	NOT IN A FIRE HAZARD ZONE
Fire Responsibility Area	NOT IN A FIRE RESPONSIBILITY AREA

DEVELOPMENT FEES

CVMSHCP (Coachella Valley Multi-Species Habitat Conservation Plan) Fee Area (Ord 875)	NOT IN A COACHELLA VALLEY MSHCP FEE AREA
WRMSHCP (Western	

WRMSHCP (Western Riverside County Multi-Species Habitat Conservation Plan) Fee Area (Ord 810)	WESTERN RIVERSIDE COUNTY
Western TUMF (Transportation Uniform Mitigation Fee Ord. 824)	NORTHWEST
Eastern TUMF (Transportation Uniform Mitigation Fee Ord. 673)	NOT IN THE EASTERN TUMF FEE AREA
Road & Bridge Benefit District	NOT IN A ROAD BRIDGE BENEFIT DISTRICT
DIF (Development Impact Fee Area Ord. 659)	HIGHGROVE/NORTHSIDE, AREA 3
SKR Fee Area (Stephen's Kagaroo Rat Ord. 663.10)	NOT IN THE SKR FEE AREA
Development Agreements	AGREEMENT: NOT IN A AMENDMENT: DEVELOPMENT EXPERATION DATE: AGREEMENT

TRANSPORTATION more...

Circulation Element Ultimate Right-of-Way	IN OR PARTIALLY WITHIN A CIRCULATION ELEMENT RIGHT-OF-WAY
Road Book Page	18
Transportation Agreements	NOT IN A TRANS AGREEMENT
CETAP (Community and Environmental Transportation Acceptability Process) Corridors	NOT IN A CETAP CORRIDOR

HYDROLOGY

Flood Plain Review	OUTSIDE FLOODPLAIN, REVIEW NOT REQUIRED
Flood Control District	RIVERSIDE COUNTY FLOOD CONTROL
Watershed	SANTA ANA RIVER
Water District	WESTERN MUNICIPAL WATER DISTRICT

GEOLOGIC

Fault Zone	NOT IN A FAULT ZONE
Faults	NOT IN A FAULT LINE
Liquefaction Potential	High
Subsidence	Susceptible
Paleontological Sensitivity	HIGH SENSITIVITY (HIGH A): BASED ON GEOLOGIC FORMATIONS OR MAPPABLE ROCK UNITS THAT ARE ROCKS THAT CONTAIN FOSSILIZED BODY ELEMENTS, AND TRACE FOSSILS SUCH AS TRACKS, NESTS AND EGGS. THESE FOSSILS OCCUR ON OR BELOW THE SURFACE LOW POTENTIAL (L): FOLLOWING A LITERATURE SEARCH, RECORDS CHECK AND A FIELD SURVEY, AREAS MAY BE DETERMINED BY A QUALIFIED VERTEBRATE PALEONTOLOGIST AS HAVING LOW POTENTIAL FOR CONTAINING SIGNIFICANT PALEONTOLOGICAL RESOURCES SUBJECT TO ADVERSE IMPACTS.

MISCELLANEOUS

School Districts	CORONA-NORCO UNIFIED
Communities	NORCO
Lighting (Ord. 655)	NOT IN A PALOMAR OBSERVATORY ZONE
2010 Census Tract	466.02
Farmland	OTHER LANDS URBAN-BUILT UP LAND
Special Notes	NO SPECIAL NOTES
Tax Rate Area & District Name	015007 - CITY OF NORCO 015007 - CO FREE LIBRARY 015007 - CORONA NORCO UNIFIED SCHOOL 015007 - CSA 152 015007 - FLOOD CONTROL ADMIN 015007 - FLOOD CONTROL ZN 2 015007 - GENERAL 015007 - GENERAL PURPOSE 015007 - MWD WEST 1302999 015007 - NORCO COMMUNITY SRV DS 015007 - NW MOSQUITO & VECTOR CNTL 015007 - RDV NORCO 84 ANX 015007 - RIV CORONA RESOURCE 015007 - RIVERSIDE CITY COMMUNITY 015007 - RIVERSIDE CO OFC OF EDUCATION 015007 - SO. CALIF,JT(19,30,33,36,37,56) 015007 - WESTERN MUNICIPAL WATER

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PLUS PERMITS & CASES

Administrative Cases

Case	Case Description	Status
N/A	N/A	N/A

Building and Safety Cases

Case	Case Description	Status
N/A	N/A	N/A

Code Cases

Case	Case Description	Status
N/A	N/A	N/A

Fire Cases

Case	Case Description	Status
N/A	N/A	N/A

Planning Cases

Case	Case Description	Status
N/A	N/A	N/A

Survey Cases

Case	Case Description	Status
N/A	N/A	N/A

Transportation Cases

Case	Case Description	Status
N/A	N/A	N/A

DEPARTMENT of ENVIRONMENTAL HEALTH PERMITS

Septic Permits

Record Id	Application Date	Plan Check Approved Date	Final Inspection Date	Approved Date
N/A	N/A	N/A	N/A	N/A

Well Water Permits

Record Id	PE	Permit Paid Date	Permit Approved Date	Well Finaled Date
N/A	N/A	N/A	N/A	N/A

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state	county	city	address1	date
California	Alameda	Berkeley	2240 9th Street	7/19/2008
California	Alameda	Castro Valley	19127 Santa Maria Avenue	3/24/2010
California	Alameda	Castro Valley	19127 Santa Maria Avenue	3/24/2010
California	Alameda	Fremont	35856 Toledo Court	7/28/2006
California	Alameda	Hayward	333 Jackson St 219	3/12/2004
California	Alameda	Hayward	333 Jackson St 219	3/12/2004
California	Alameda	Hayward	1032 Central Blvd	6/9/2004
California	Alameda	Hayward	1032 Central Blvd	6/9/2004
California	Alameda	Hayward	231 Culp Ave	8/29/2004
California	Alameda	Hayward	231 Culp Ave	8/29/2004
California	Alameda	Hayward	27948 Pueblo Serena Way	1/9/2006
California	Alameda	Hayward	698 Overhill Drive	5/16/2008
California	Alameda	Hayward	698 Overhill Drive	5/16/2008
California	Alameda	Newark	37120 Spruce St G	2/29/2004
California	Alameda	Oakland	923 39th Street	11/25/2008
California	Alameda	Oakland	1950 86th Avenue	12/7/2015
California	Alameda	Oakland	1950 86th Avenue	12/7/2015
California	Alameda	Pleasanton	6443 Alisal St	1/19/2005
California	Alameda	Pleasanton	818 Angela Street	3/10/2010
California	Alameda	Pleasanton	818 Angela Street	3/10/2010
California	Alameda	San Leandro	1735 138th Ave	2/18/2004
California	Alameda	San Leandro	1735 138th Ave	2/18/2004
California	Alameda	San Leandro	872 Donovan Dr	5/4/2005
California	Alameda	San Leandro	14446 Elm St	5/31/2005
California	Alameda	San Leandro	1553 Santa Maria Road	11/28/2007
California	Alameda	San Leandro	1553 Santa Maria Road	11/28/2007
California	Alameda	San Lorenzo	17283 Via Annette Dr	2/6/2004
California	Alameda	San Lorenzo	17283 Via Annette Dr	2/6/2004
California	Alameda	San Lorenzo	1302 Via San Juan Street	10/25/2007
California	Alameda	San Lorenzo	16150 Arriba Viaduct	4/8/2009
California	Alameda	Union City	32673 Brenda Way 3	9/28/2004
California	Alameda	Union City	32673 Brenda Way 3	9/28/2004
California	Alameda	Union City	2351 Hartford Drive	4/7/2006
California	Alameda	Union City	2351 Hartford Drive	4/7/2006
California	Butte	Biggs	2164 Larkin	4/9/2004
California	Butte	Biggs	2164 Larkin	4/9/2004
California	Butte	Biggs	488 G St	10/26/2004
California	Butte	Biggs	488 G St	10/26/2004
California	Butte	Chico	939 W East Ave 4	4/19/2004
California	Butte	Chico	939 W East Ave 4	4/19/2004
California	Butte	Chico	853 E 7th St	7/14/2004
California	Butte	Chico	453 Posada Way 12	8/4/2004
California	Butte	Chico	453 Posada Way 12	8/4/2004
California	Butte	Chico	1056 E 8th St	3/18/2005
California	Butte	Chico	1056 E 8th St	3/18/2005
California	Butte	Chico	696 7th E St	10/19/2005

state	county	city	address1	date
California	Butte	Chico	1402 Pomona Ln	11/17/2005
California	Butte	Chico	997 E 16th St	12/15/2005
California	Butte	Chico	997 E 16th St	12/15/2005
California	Butte	Chico	1735 Magnolia Avenue	2/26/2007
California	Butte	Chico	1735 Magnolia Avenue	2/26/2007
California	Butte	Chico	1024 Neal Dow Avenue	6/7/2008
California	Butte	Chico	729 Nord Avenue	9/30/2008
California	Butte	Chico	729 Nord Avenue	9/30/2008
California	Butte	Durham	9606 Fimple Rd	7/15/2005
California	Butte	Durham	8200 Durnel Drive	5/22/2010
California	Butte	Durham	8200 Durnel Drive	5/22/2010
California	Butte	Gridley	275 Kentucky St	2/21/2006
California	Butte	Gridley	275 Kentucky St	2/21/2006
California	Butte	Gridley	233 Kentucky Street	2/21/2006
California	Butte	Gridley	233 Kentucky Street	2/21/2006
California	Butte	Gridley	124 East Gridley Road	5/14/2010
California	Butte	Gridley	124 East Gridley Road	5/14/2010
California	Butte	Honcut	16 Truxton Court	9/2/2008
California	Butte	Honcut	16 Truxton Court	9/2/2008
California	Butte	Magalia	3 Jordan Hill Rd	3/31/2004
California	Butte	Magalia	14723 Gold Cone Dr	9/21/2004
California	Butte	Oroville	1940 Helman St	2/4/2004
California	Butte	Oroville	1940 Helman St	2/4/2004
California	Butte	Oroville	110 Greenback Dr	2/5/2004
California	Butte	Oroville	110 Greenback Dr	2/5/2004
California	Butte	Oroville	2437 Oro Quincy Hwy	3/17/2004
California	Butte	Oroville	2437 Oro Quincy Hwy	3/17/2004
California	Butte	Oroville	126 Canyon Highlands Dr	5/5/2004
California	Butte	Oroville	126 Canyon Highlands Dr	5/5/2004
California	Butte	Oroville	208 Misty View Ln	5/10/2004
California	Butte	Oroville	208 Misty View Ln	5/10/2004
California	Butte	Oroville	2750 De Bangar Hwy	7/21/2004
California	Butte	Oroville	2720 Oro Dam Blvd 6a	8/3/2004
California	Butte	Oroville	2720 Oro Dam Blvd 6a	8/3/2004
California	Butte	Oroville	1130 Tehama St	1/12/2005
California	Butte	Oroville	1130 Tehama St	1/12/2005
California	Butte	Oroville	1915 Plumas St	6/9/2005
California	Butte	Oroville	2794 Oak Knoll Way	11/30/2005
California	Butte	Oroville	91 Toyon Hills Drive	2/23/2007
California	Butte	Oroville	165 Hurles Circle	3/18/2007
California	Butte	Oroville	165 Hurles Circle	3/18/2007
California	Butte	Oroville	4210 Oro Bangor Highway	6/1/2007
California	Butte	Oroville	4210 Oro Bangor Highway	6/1/2007
California	Butte	Oroville	2349 Via Madero	9/11/2007
California	Butte	Oroville	1616 Oro Dam Boulevard	10/29/2007
California	Butte	Oroville	1616 Oro Dam Boulevard	10/29/2007

state	county	city	address1	date
California	Butte	Oroville	1660 20th Street	1/31/2008
California	Butte	Oroville	1660 20th Street	1/31/2008
California	Butte	Oroville	3 Alverda Drive	5/13/2008
California	Butte	Oroville	3 Alverda Drive	5/13/2008
California	Butte	Oroville	1840 7th Street	9/17/2008
California	Butte	Oroville	1840 7th Street	9/17/2008
California	Butte	Oroville	1960 Rose Street	4/7/2009
California	Butte	Oroville	5075 Lower Wyandotte Avenue	4/7/2009
California	Butte	Oroville	5075 Lower Wyandotte Avenue	4/7/2009
California	Butte	Oroville	1960 Rose Street	4/7/2009
California	Butte	Palermo	2398 Louis Avenue	8/27/2007
California	Butte	Palermo	2398 Louis Avenue	8/27/2007
California	Butte	Paradise	6441 Moss Ln	3/31/2004
California	Butte	Paradise	6441 Moss Ln	3/31/2004
California	Butte	Paradise	538 Castle	7/23/2004
California	Butte	Paradise	538 Castle	7/23/2004
California	Butte	Paradise	5955 Hazel Way	5/25/2006
California	Calaveras	Mountain Ranch	5645 Doster Rd	12/20/2004
California	Calaveras	Mountain Ranch	5645 Doster Rd	12/20/2004
California	Contra Costa	Antioch	1927 Birch Ave	12/12/2004
California	Contra Costa	Bay Point	71 Mountain View Avenue	3/22/2011
California	Contra Costa	Bay Point	71 Mountain View Avenue	3/22/2011
California	Contra Costa	Brentwood	638 Summerwood Drive	2/11/2010
California	Contra Costa	Brentwood	638 Summerwood Drive	2/11/2010
California	Contra Costa	Brentwood	1880 East Eden Plains Street	10/2/2014
California	Contra Costa	Brentwood	1880 East Eden Plains Street	10/2/2014
California	Contra Costa	Crockett	815 1st Avenue	12/9/2010
California	Contra Costa	Crockett	815 1st Avenue	12/9/2010
California	Contra Costa	El Sobrante	2211 Rancho Road	9/20/2007
California	Contra Costa	El Sobrante	2211 Rancho Road	9/20/2007
California	Contra Costa	Martinez	625 Marina Vista St	3/22/2005
California	Contra Costa	Martinez	625 Marina Vista St	3/22/2005
California	Contra Costa	Richmond	2420 Esmond Avenue	12/5/2006
California	Contra Costa	Richmond	712 Bradford Drive	7/29/2008
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California	Contra Costa	Rodeo	1120 4th St	7/8/2004
California	Contra Costa	Rodeo	1120 4th St	7/8/2004
California	Del Norte	Crescent City	1733 Wildwood Ln	4/14/2004
California	Del Norte	Crescent City	1733 Wildwood Ln	4/14/2004
California	El Dorado	El Dorado	6841 Union Mine Rd	4/29/2004
California	El Dorado	El Dorado	6841 Union Mine Rd	4/29/2004
California	Fresno	Caruthers	14594 South Elm Avenue	11/28/2006
California	Fresno	Caruthers	14594 South Elm Avenue	11/28/2006
California	Fresno	Clovis	287 West Barstow Avenue 125b	10/26/2012
California	Fresno	Coalinga	47932 Lost Hills Rd	8/30/2004
California	Fresno	Dos Palos	43186 Merrill Avenue	4/15/2010

state	county	city	address1	date
California	Fresno	Dos Palos	43186 Merrill Avenue	4/15/2010
California	Fresno	Fowler	6424 South Fowler Avenue	8/21/2007
California	Fresno	Fresno	12884 S Elm Ave	7/15/2004
California	Fresno	Fresno	1315 E Cornell	7/15/2004
California	Fresno	Fresno	1315 E Cornell	7/15/2004
California	Fresno	Fresno	12884 S Elm Ave	7/15/2004
California	Fresno	Fresno	7090 N Fruit Ave 140	7/29/2004
California	Fresno	Fresno	4822 E Mono St	6/9/2005
California	Fresno	Fresno	4822 E Mono St	6/9/2005
California	Fresno	Fresno	2540 North Floyd Avenue	11/24/2006
California	Fresno	Fresno	2540 North Floyd Avenue	11/24/2006
California	Fresno	Fresno	8971 Mountain View	12/13/2006
California	Fresno	Fresno	8971 Mountain View	12/13/2006
California	Fresno	Fresno	4409 East Hedges Avenue A	12/16/2008
California	Fresno	Fresno	3001 West Swift Ave Avenue 104	8/6/2013
California	Fresno	Fresno	3001 West Swift Ave Avenue 104	8/6/2013
California	Fresno	Fresno	4851 North N Cedar Ave Avenue 117	1/6/2014
California	Fresno	Fresno	3852 East E Olive Ave Avenue 201	1/14/2014
California	Fresno	Fresno	3852 East E Olive Ave Avenue 201	1/14/2014
California	Fresno	Fresno	3025 East E Gettysburg Ave Avenue 102	1/21/2014
California	Fresno	Fresno	3025 East E Gettysburg Ave Avenue 102	1/21/2014
California	Fresno	Fresno	7675 N First Street Box 203	9/6/2015
California	Fresno	Fresno	4102 E North Avenue	12/24/2015
California	Fresno	Fresno	2715 N Millbrook Avenue	2/3/2016
California	Fresno	Fresno	2715 N Millbrook Avenue	2/3/2016
California	Fresno	Reedley	22134 E Hogan Ave	1/15/2004
California	Fresno	Reedley	22134 E Hogan Ave	1/15/2004
California	Fresno	Reedley	20069 Clayton Avenue	12/8/2007
California	Fresno	Reedley	20069 Clayton Avenue	12/8/2007
California	Fresno	San Joaquin	2243 Eldorado S B	3/10/2006
California	Fresno	Squaw Valley	46992 Creekside Road	11/18/2013
California	Glenn	Willows	5627 County Road 69	5/12/2004
California	Glenn	Willows	5627 County Road 69	5/12/2004
California	Humboldt	Arcata	258 Lupin Avenue	8/30/2006
California	Humboldt	Arcata	258 Lupin Avenue	8/30/2006
California	Humboldt	Blue Lake	113 Raymar Ave	5/9/2005
California	Humboldt	Eureka	1984 Gage Ln	4/27/2004
California	Humboldt	Eureka	1034 14th St	6/6/2005
California	Humboldt	Eureka	1034 14th St	6/6/2005
California	Humboldt	Eureka	1323 Summer Street	6/15/2006
California	Humboldt	Fortuna	1788 Penn Ave	3/2/2004
California	Humboldt	Fortuna	1788 Penn Ave	3/2/2004
California	Humboldt	Mckinleyville	2331 Central Ave 4	3/25/2004
California	Imperial	Holtville	819 1/2 Fern St	1/28/2004
California	Imperial	Holtville	819 1/2 Fern St	1/28/2004
California	Imperial	Holtville	2300 Slayton Rd	2/5/2004

state	county	city	address1	date
California	Imperial	Holtville	819 1/2 Fern Ave	3/20/2006
California	Imperial	Holtville	819 1/2 Fern Ave	3/20/2006
California	Imperial	Seeley	2205 Haskell Rd	7/20/2004
California	Kern	Bakersfield	8614 Fuller	2/22/2004
California	Kern	Bakersfield	2600 Norman Ave	5/26/2004
California	Kern	Bakersfield	2600 Norman Ave	5/26/2004
California	Kern	Bakersfield	321 Oakdale Dr	3/15/2005
California	Kern	Bakersfield	2714 Allen Rd	3/22/2005
California	Kern	Bakersfield	2714 Allen Rd	3/22/2005
California	Kern	Bakersfield	2314 Center St	10/19/2005
California	Kern	Bakersfield	200 Miraflores	2/28/2006
California	Kern	Bakersfield	200 Miraflores	2/28/2006
California	Kern	Bakersfield	101 Agarnsey Ln	3/20/2006
California	Kern	Bakersfield	101 Agarnsey Ln	3/20/2006
California	Kern	Bakersfield	109 Clyde Street	4/26/2006
California	Kern	Bakersfield	109 Clyde Street	4/26/2006
California	Kern	Bakersfield	200 Miraflores Avenue	3/18/2007
California	Kern	Bakersfield	200 Miraflores Avenue	3/18/2007
California	Kern	Bakersfield	8th Street	6/22/2009
California	Kern	Bakersfield	3804 La Tonia Court	3/3/2011
California	Kern	Bakersfield	3804 La Tonia Court	3/3/2011
California	Kern	Bakersfield	3801 Newcombe Court	3/3/2011
California	Kern	Bakersfield	3801 Newcombe Court	3/3/2011
California	Kern	Bakersfield	218 El Tejon Avenue	7/8/2011
California	Kern	Bakersfield	218 El Tejon Avenue	7/8/2011
California	Kern	Bakersfield	7601 Redbank	12/13/2011
California	Kern	Bakersfield	7601 Redbank	12/13/2011
California	Kern	Delano	1305 20th Ave	2/4/2004
California	Kern	Delano	1305 20th Ave	2/4/2004
California	Kern	Johannesburg	405 Broadway Avenue	10/9/2008
California	Kern	Johannesburg	405 Broadway Avenue	10/9/2008
California	Kern	Lake Isabella	3105 Wenyor	9/21/2004
California	Kern	Lake Isabella	3105 Wenyor	9/21/2004
California	Kern	Lamont	10224 San Emidio Street	7/11/2007
California	Kern	Lamont	10224 San Emidio Street	7/11/2007
California	Kern	Lamont	8008 Middleton Lane	5/19/2008
California	Kern	Lamont	8008 Middleton Lane	5/19/2008
California	Kern	Ridgecrest	709 W Atkins Ave	12/9/2004
California	Kern	Ridgecrest	345 West Moyer Avenue	6/4/2007
California	Kern	Ridgecrest	345 West Moyer Avenue	6/4/2007
California	Kern	Shafter	18478 S Shafter Ave	1/23/2004
California	Kern	Shafter	18478 S Shafter Ave	1/23/2004
California	Kern	Shafter	31396 Burbank Ave	6/12/2004
California	Kern	Taft	412 Kern St	8/26/2004
California	Kern	Taft	217 Lierly St	6/20/2005
California	Kings	Hanford	11111 9 3/4 Avenue	4/16/2007

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California	Kings	Hanford	11111 9 3/4 Avenue	4/16/2007
California	Kings	Unincorporated City	6260 Barstow Ave	5/21/2004
California	Kings	Unincorporated City	6260 Barstow Ave	5/21/2004
California	Lake	Clearlake	13660 East Lake Dr	4/19/2004
California	Lake	Clearlake	13660 East Lake Dr	4/19/2004
California	Lake	Clearlake	15888 19th St	4/28/2004
California	Lake	Clearlake	15888 19th St	4/28/2004
California	Lake	Clearlake	16537 35th Ave	6/18/2005
California	Lake	Clearlake	13820 Manakee Drive	1/20/2010
California	Lake	Clearlake	13820 Manakee Drive	1/20/2010
California	Lake	Finley	3424 Stone Dr	9/15/2004
California	Lake	Finley	3424 Stone Dr	9/15/2004
California	Lake	Lakeport	525 Esplanade St	1/27/2004
California	Lake	Lower Lake	10243 Siegler Canyon Rd	11/17/2004
California	Lake	Lower Lake	10243 Siegler Canyon Rd	11/17/2004
California	Lake	Nice	6643 Collier	2/15/2006
California	Los Angeles	Artesia	11635 Artesia Boulevard	5/1/2013
California	Los Angeles	Baldwin Park	3109 Robinette Ave	9/28/2004
California	Los Angeles	Baldwin Park	4442 Edra Avenue	6/16/2008
California	Los Angeles	Bell	3717 Bell Avenue	6/6/2009
California	Los Angeles	Bell Gardens	7534 Purdy Street	5/1/2010
California	Los Angeles	Bellflower	17122 Downey Avenue	11/2/2008
California	Los Angeles	Beverly Hills	712 North Rexford Drive	6/1/2013
California	Los Angeles	Cerritos	12513 Sandy Creek Lane	3/9/2007
California	Los Angeles	City Of Commerce	5820 Ramon Ct	4/14/2005
California	Los Angeles	Compton	1016 Poinsettia S Ave	3/10/2004
California	Los Angeles	Compton	14502 S Keene Ave	8/14/2016
California	Los Angeles	Covina	444 Citrus N Ave	1/13/2004
California	Los Angeles	Covina	19850 Arrow Highway	8/6/2006
California	Los Angeles	Covina	771 Rancho Simi Drive	6/1/2016
California	Los Angeles	Diamond Bar	2620 Castlerock Road	8/1/2006
California	Los Angeles	Diamond Bar	749 Featherwood Drive	11/1/2007
California	Los Angeles	Downey	9322 Stamps Ave	2/18/2005
California	Los Angeles	Downey	10350 Haledon Avenue	5/21/2008
California	Los Angeles	East Los Angeles	4135 Floral Ave	3/5/2004
California	Los Angeles	El Monte	11828 Emery St	11/18/2004
California	Los Angeles	El Monte	4350 Ranger Ave	11/29/2004
California	Los Angeles	Encino	17448 Ventura Boulevard	8/11/2008
California	Los Angeles	Gardena	14903 Chadron Ave 1	3/1/2006
California	Los Angeles	Gardena	1218 W 134th St	9/25/2016
California	Los Angeles	Glendora	19104 Manua Loa	7/21/2004
California	Los Angeles	Hawthorne	12600 Prairie Avenue	7/19/2010
California	Los Angeles	Hawthorne	2851 West 120th Street	7/22/2010
California	Los Angeles	Hawthorne	13611 Doty Avenue	2/3/2011
California	Los Angeles	Huntington Park	2505 Olive Street	5/15/2007
California	Los Angeles	Huntington Park	6418 Seville	9/18/2007

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California	Los Angeles	Huntington Park	2409 Olive Street	11/18/2008
California	Los Angeles	Inglewood	8815 South Van Ness Avenue	5/4/2010
California	Los Angeles	La Canada Flintridge	5016 Angeles Crest Hwy	5/25/2004
California	Los Angeles	La Puente	410 Evanwood Ave	9/22/2004
California	Los Angeles	La Puente	18631 Altario St	1/13/2005
California	Los Angeles	Lancaster	3995 Avenue H W	3/3/2004
California	Los Angeles	Lancaster	42705 6th E St	2/3/2005
California	Los Angeles	Lancaster	44634 Date Avenue	6/2/2006
California	Los Angeles	Lancaster	45448 Elm	7/14/2007
California	Los Angeles	Lancaster	42835 San Francisco Av	12/10/2017
California	Los Angeles	Littlerock	8632 Avenue U E	1/21/2004
California	Los Angeles	Llano	25757 V E Ave	3/24/2004
California	Los Angeles	Long Beach	2520 Pacific Coast E Hwy 221	1/27/2004
California	Los Angeles	Long Beach	1401 11 E St	7/1/2004
California	Los Angeles	Long Beach	2124 Mc Kenzie Avenue	4/25/2006
California	Los Angeles	Long Beach	1624 Junipero Avenue	4/4/2007
California	Los Angeles	Long Beach	3613 La Jara Street	11/14/2007
California	Los Angeles	Long Beach	1875 Lime Avenue	12/22/2008
California	Los Angeles	Long Beach	2345 East Harding Street	2/4/2010
California	Los Angeles	Long Beach	2454 Easy Avenue	2/10/2010
California	Los Angeles	Los Angeles	2742 Lanfranco St 7	1/7/2004
California	Los Angeles	Los Angeles	560 Keenan Ave	5/12/2004
California	Los Angeles	Los Angeles	5320 1/2 Ithaca Ave	6/22/2004
California	Los Angeles	Los Angeles	21150 Hobart	8/18/2004
California	Los Angeles	Los Angeles	1406 Gordon Street	3/26/2006
California	Los Angeles	Los Angeles	123 S Lake Street	7/14/2006
California	Los Angeles	Los Angeles	3015 Sunnynook Drive	8/11/2006
California	Los Angeles	Los Angeles	244 West 47th Place	10/12/2006
California	Los Angeles	Los Angeles	244 47th Place	10/12/2006
California	Los Angeles	Los Angeles	11630 West 207th Street	12/7/2006
California	Los Angeles	Los Angeles	321 Westminster Avenue	8/9/2007
California	Los Angeles	Los Angeles	1216 Hanover Avenue	8/12/2007
California	Los Angeles	Los Angeles	359 71st Street	10/10/2007
California	Los Angeles	Los Angeles	3744 59th Street	12/20/2007
California	Los Angeles	Los Angeles	218 1/2 54th Street	3/14/2008
California	Los Angeles	Los Angeles	4154 Compton Avenue	4/17/2008
California	Los Angeles	Los Angeles	6118 Hooper Street	4/24/2009
California	Los Angeles	Los Angeles	5170 South Normandie Avenue	1/3/2010
California	Los Angeles	Los Angeles	2109 Estrella Avenue	2/2/2010
California	Los Angeles	Los Angeles	6516 South Main Street	6/2/2010
California	Los Angeles	Los Angeles	213 1/2 West 66 Street	9/21/2010
California	Los Angeles	Los Angeles	1564 East 117th Street	4/4/2013
California	Los Angeles	Lynwood	10868 Drury Ln	10/29/2004
California	Los Angeles	North Hollywood	7829 Nagle Av	12/10/2017
California	Los Angeles	Norwalk	11026 Imperial E Hwy 10	4/21/2004
California	Los Angeles	Norwalk	12618 Studebaker Road	6/14/2010

state	county	city	address1	date
California	Los Angeles	Palmdale	38233 Hendon Dr	4/3/2004
California	Los Angeles	Palmdale	38566 East 35th Street	10/3/2006
California	Los Angeles	Panorama City	8154 Allott	1/19/2006
California	Los Angeles	Pomona	320 Jefferson W Ave	10/19/2004
California	Los Angeles	Pomona	1347 Cambrin Road	12/7/2006
California	Los Angeles	Pomona	260 La Verne Avenue	7/12/2007
California	Los Angeles	Redondo Beach	208 B Ave	1/4/2004
California	Los Angeles	San Dimas	1717 Monte Vista Dr	10/7/2004
California	Los Angeles	San Pedro	975 5th W St	8/3/2005
California	Los Angeles	Santa Fe Springs	11462 Telegraph Rd	1/14/2004
California	Los Angeles	Santa Fe Springs	13310 Telegraph Road	4/14/2010
California	Los Angeles	Shadow Hills	10339 Johanna Avenue	6/22/2006
California	Los Angeles	Signal Hill	2210 Gaviota N Ave C	7/6/2004
California	Los Angeles	South Gate	2634 Palm Place	5/29/2007
California	Los Angeles	Sylmar	12600 Bradley Street	7/19/2006
California	Los Angeles	Torrance	4111 Pacific Coast Highway 308	4/11/2004
California	Los Angeles	Van Nuys	15149 Domino St	11/8/2005
California	Los Angeles	Van Nuys	7400 Sepulveda Boulevard	2/12/2008
California	Los Angeles	Whittier	8171 Washington Ave	6/24/2004
California	Los Angeles	Whittier	6133 Mcnees Ave	1/14/2006
California	Los Angeles	Whittier	10816 Townley Drive	5/11/2007
California	Los Angeles	Wilmington	1724 Fries Ave	2/17/2006
California	Los Angeles	Wilmington	1630 Sandison Street	7/20/2007
California	Los Angeles	Winnetka	8474 Quartz Ave	9/28/2005
California	Madera	Chowchilla	18899 Road 16	4/28/2004
California	Madera	Chowchilla	1304 Colusa Ave A	1/25/2005
California	Madera	Madera	21442 Avenue 19 Ave	2/10/2005
California	Madera	Madera	815 East Clinton Avenue	8/29/2006
California	Madera	Madera	18697 Avenue Pass	8/21/2007
California	Madera	Madera	512 Fein Street	8/25/2007
California	Madera	Madera	35626 14 1/2 Avenue	2/1/2008
California	Madera	Madera	13577 20th Avenue	9/4/2008
California	Madera	Madera	19184 Ave 18	5/15/2014
California	Madera	Madera	25816 Avenue 18 1/2	6/14/2016
California	Madera	Madera	11265 Iowa Av	12/27/2017
California	Mendocino	Fort Bragg	16900 Franklin Road	5/9/2006
California	Mendocino	Fort Bragg	621 West St	9/16/2016
California	Mendocino	Hopland	14410 Mountain House Rd	9/21/2016
California	Mendocino	Philo	3500 Little Mill Creek Road	5/6/2010
California	Mendocino	Redwood Valley	9800 West Road	4/9/2009
California	Mendocino	Willits	65000 Sherwood Ridge Road	2/20/2008
California	Merced	Atwater	9000 Moran Ave	5/11/2005
California	Merced	Atwater	1236 Hull Rd	9/23/2005
California	Merced	Atwater	1001 Sandpiper Way	11/15/2006
California	Merced	Atwater	4146 South Elliott Road	8/11/2008
California	Merced	Atwater	2521 Boulder Dr	9/21/2016

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California	Merced	Ballico	11368 North Santa Fe Avenue	1/10/2010
California	Merced	Cressey	9835 Cressey	6/3/2004
California	Merced	Delhi	16235 Redbud Ct	6/29/2004
California	Merced	Delhi	8620 Hinton	11/15/2006
California	Merced	Delhi	15575 August Avenue	9/8/2008
California	Merced	Delhi	9640 Sands Road	6/6/2010
California	Merced	Gustine	8450 Highway 33 S Hwy	3/2/2005
California	Merced	Hilmar	20295 August Rd	4/15/2004
California	Merced	Hilmar	19511 Williams Ave	10/13/2004
California	Merced	Hilmar	250 N Union	10/12/2007
California	Merced	Hilmar	19542 East First Street	4/1/2010
California	Merced	Livingston	5679 Arena Way	4/6/2004
California	Merced	Livingston	15290 Sunset Drive	5/22/2010
California	Merced	Los Banos	313 J Street	8/11/2006
California	Merced	Merced	2536 Lobo	2/4/2004
California	Merced	Merced	3613 N Garner Rd	2/27/2004
California	Merced	Merced	321 S 59 S Hwy	1/3/2005
California	Merced	Merced	824 S Freya	1/25/2007
California	Merced	Merced	2499 East Gerard Avenue	3/21/2007
California	Merced	Merced	14717 East 272nd	9/6/2007
California	Merced	Merced	5 West 25th Street 2	1/16/2008
California	Merced	South Dos Palos	8827 W K St	7/23/2004
California	Merced	Stevinson	18910 W 6th St	2/10/2004
California	Merced	Stevinson	23875 Second Avenue	3/27/2006
California	Merced	Stevinson	2917 Cemetery Road	2/20/2008
California	Merced	Stevinson	2991 Cemetery	2/20/2008
California	Merced	Stevinson	2228 Nelander Avenue	4/27/2010
California	Merced	Winton	6280 Central Ave	8/8/2004
California	Merced	Winton	9605 Eucalyptus Ave	8/8/2004
California	Merced	Winton	7409 Amanda Drive	3/13/2007
California	Merced	Winton	6814 Arlene Way	3/12/2008
California	Merced	Winton	7125 North Vine Avenue	4/21/2010
California	Merced	Winton	7040 Myrtle Avenue	2/8/2016
California	Monterey	Greenfield	424 7th Avenue	9/19/2010
California	Monterey	Pacific Grove	316 Prescott Ln	7/16/2004
California	Monterey	Salinas	1769 Yosemite Cir	5/21/2004
California	Monterey	Salinas	18840 Northeast Eisenhowere Drive	6/20/2007
California	Monterey	Salinas	1233 East Polk Street	6/20/2007
California	Nevada	Grass Valley	439 Neal St 1	7/30/2004
California	Orange	Anaheim	131 Magnolia Avenue	3/21/2008
California	Orange	Anaheim	3554 West Cornelia Circle	3/24/2008
California	Orange	Anaheim	1819 Cris	3/27/2008
California	Orange	Anaheim	1261 Placentia Street	3/29/2008
California	Orange	Anaheim	2500 East Terrace Street	4/8/2008
California	Orange	Anaheim	622 Velare Avenue	9/16/2008
California	Orange	Anaheim	1303 West Marlboro Avenue	2/22/2010

state	county	city	address1	date
California	Orange	Anaheim	10141 Gravier St	12/8/2017
California	Orange	Brea	2595 Imperial Highway	5/20/2010
California	Orange	Buena Park	7555 Beach Blvd 128	2/10/2004
California	Orange	Buena Park	7111 Beach Boulevard	2/10/2010
California	Orange	Costa Mesa	929 Joann Street	5/13/2008
California	Orange	Cypress	4812 Grace Avenue	4/10/2006
California	Orange	Fullerton	641 Commonwealth Avenue	12/7/2007
California	Orange	Garden Grove	8062 Garden Grove Blvd 241	9/21/2004
California	Orange	Garden Grove	9755 Bixby Avenue	4/11/2008
California	Orange	Garden Grove	10042 Lampson Avenue	5/13/2009
California	Orange	Garden Grove	13691 Barnett Way	2/13/2010
California	Orange	Huntington Beach	8230 Talbert	4/7/2010
California	Orange	Irvine	173 Topeka	2/11/2004
California	Orange	Irvine	87 Pinestone	3/23/2010
California	Orange	La Habra	2320 Story Ave	7/16/2004
California	Orange	La Palma	4761 Sharon Drive A	7/17/2006
California	Orange	Laguna Beach	985 Pacific Coast N Hwy	2/1/2004
California	Orange	Orange	2135 Almond W St	10/15/2004
California	Orange	Orange	207 Esplande Street	5/30/2008
California	Orange	Orange	2300 North Tustin Avenue	3/29/2010
California	Orange	Placentia	745 Dunn	3/16/2010
California	Orange	Santa Ana	1137 Mcfadden W	7/7/2004
California	Orange	Santa Ana	1233 Genoa S Dr	11/30/2004
California	Orange	Santa Ana	1314 Harbor Boulevard	4/9/2008
California	Orange	Santa Ana	3012 Halladay	5/19/2008
California	Orange	Santa Ana	412 Baker Street	5/21/2008
California	Orange	Santa Ana	702 Santa Ana Boulevard	7/14/2008
California	Orange	Santa Ana	1450 Auto Drive	5/11/2009
California	Orange	Santa Ana	4417 Morningside	4/28/2010
California	Orange	Santa Ana	800 South Sullivan Street D3	12/23/2011
California	Orange	Stanton	10698 Court Street	9/15/2006
California	Orange	Stanton	7701 Westbrook Way	4/19/2007
California	Orange	Tustin	13624 Estero Cir	4/24/2004
California	Orange	Westminster	7681 Baylor Dr	7/15/2004
California	Orange	Westminster	9851 Bolsa Avenue	5/5/2006
California	Orange	Westminster	5051 Princeton Avenue	5/17/2006
California	Orange	Westminster	13100 Goldenwest Street	4/28/2009
California	Orange	Westminster	6942 Garden Grove Boulevard	5/21/2009
California	Orange	Yorba Linda	5471 Jefferson Street	11/13/2007
California	Plumas	Chester	460 Melissa Avenue	10/11/2007
California	Plumas	Portola	5630 Casey Jones Road	4/14/2006
California	Plumas	Portola	324 Bella Vista	3/9/2010
California	Plumas	Quincy Junction	1426 Butterfly Valley Road	2/17/2010
California	Riverside	Anza	57310 Valley Vista	6/11/2004
California	Riverside	Banning	1007 Linda Vista Rd	10/26/2004
California	Riverside	Banning	514 East Victory Avenue	3/21/2010

state	county	city	address1	date
California	Riverside	Beaumont	34250 San Timiteo Canyon Rd	4/15/2004
California	Riverside	Beaumont	1016 Palm Ave	4/19/2004
California	Riverside	Calimesa	9453 Sharondale Road	6/8/2006
California	Riverside	Cathedral City	68557 C Street	2/16/2004
California	Riverside	Coachella	731 Orchard St	10/4/2016
California	Riverside	Corona	734 Viewtop Ln	3/12/2004
California	Riverside	Corona	995 Pomona Rd 17	4/2/2004
California	Riverside	Corona	1330 W 8th St 18	7/21/2004
California	Riverside	Corona	446 Francis E St	2/2/2006
California	Riverside	Corona	379 East Rancho Road	1/2/2008
California	Riverside	Desert Hot Springs	66366 6th St	1/20/2004
California	Riverside	Desert Hot Springs	13255 Mexquite Avenue	3/23/2006
California	Riverside	Desert Hot Springs	12155 Ocotillo Road	4/29/2009
California	Riverside	El Cerrito	19078 Rising Sun Rd	3/12/2004
California	Riverside	Glen Avon Heights	4080 Conning	2/29/2004
California	Riverside	Hemet	531 Cedar Ln 2	2/7/2004
California	Riverside	Hemet	1675 Cobble Ln	2/11/2004
California	Riverside	Hemet	1097 N State St 2	2/18/2004
California	Riverside	Hemet	772 N State	3/24/2004
California	Riverside	Hemet	225 S Elk St 36	3/30/2004
California	Riverside	Hemet	43939 Florida Ave	5/4/2004
California	Riverside	Hemet	585 S Santa Fe	5/15/2004
California	Riverside	Hemet	2688 E Florida Ave 18	6/4/2004
California	Riverside	Hemet	4400 Florida W Ave 117	12/8/2004
California	Riverside	Hemet	41251 Rope Rd	1/29/2005
California	Riverside	Hemet	525 Gilbert N 49	1/20/2006
California	Riverside	Hemet	25873 Riverview Lane	3/15/2006
California	Riverside	Hemet	32809 Red Mountain Road	2/18/2008
California	Riverside	Hemet	871 San Mateo Circle	5/21/2009
California	Riverside	Hemet	1610 Bluejay Way	3/2/2016
California	Riverside	Indio	46540 Padua Cir	6/9/2004
California	Riverside	Indio	47800 Madison St 169	9/21/2004
California	Riverside	Indio	43430 Monroe St	9/3/2016
California	Riverside	Lake Elsinore	17911 Thoreson	4/29/2004
California	Riverside	Lake Elsinore	34323 Sunrise Drive	1/27/2006
California	Riverside	Lake Matthews	17224 Cajon Dr	9/28/2004
California	Riverside	Menifee	26814 Madera Ct	12/6/2004
California	Riverside	Mira Loma	10351 Oak Bark Lane	11/12/2008
California	Riverside	Mira Loma	12332 Kern River Dr	12/6/2017
California	Riverside	Moreno Valley	25204 Bridle Trail	8/29/2004
California	Riverside	Moreno Valley	16329 Saddleback Lane	2/3/2015
California	Riverside	Moreno Valley	25399 Todd Drive	8/15/2015
California	Riverside	Moreno Valley	16329 Saddlebrook Lane	2/9/2016
California	Riverside	Mountain Center	63137 Jeraboa Road	4/12/2007
California	Riverside	Norco	2574 Ridgecrest	3/16/2004
California	Riverside	Norco	3117 Shadow Canyon Circle	1/31/2008

state	county	city	address1	date
California	Riverside	Nuevo	22788 Via Santana	4/21/2006
California	Riverside	Palm Springs	383 Vereda Norte	6/20/2008
California	Riverside	Perris	332 W 11th St	2/8/2004
California	Riverside	Perris	143 Perou St	6/27/2004
California	Riverside	Perris	618 Bond Dr	7/29/2004
California	Riverside	Perris	4715 Wade Ave	3/3/2005
California	Riverside	Perris	19881 Gustin Rd	12/12/2005
California	Riverside	Perris	21747 Webster Avenue	8/7/2008
California	Riverside	Perris	21881 Oleander Avenue	8/29/2008
California	Riverside	Perris	644 Primrose Place	4/8/2011
California	Riverside	Perris	2520 Spectacular Bid Street	7/29/2014
California	Riverside	Riverside	344 N State 148	1/28/2004
California	Riverside	Riverside	5861 Mitchell	3/31/2004
California	Riverside	Riverside	11235 Cypress	6/27/2006
California	Riverside	Riverside	4080 Pedley Road	2/5/2010
California	Riverside	Riverside	12172 Severn Way	4/2/2010
California	Riverside	Riverside	11744 Hazeldell Drive	4/2/2010
California	Riverside	San Jacinto	437 Mead	8/2/2004
California	Riverside	San Jacinto	344 N State St Sp 196	6/15/2005
California	Riverside	San Jacinto	610 Washington E Ave	2/22/2006
California	Riverside	San Jacinto	182 De Anza	4/20/2006
California	Riverside	Temecula	29774 Calle Pantano	2/2/2010
California	Riverside	Temecula	30984 Lolita Rd	12/7/2017
California	Riverside	Victorville	20197 Nandina Ave	7/9/2004
California	Riverside	Victorville	22875 Rios	11/16/2004
California	Riverside	Winchester	33091 Willard	5/20/2004
California	Sacramento	Citrus Heights	7401 Lovato	6/23/2007
California	Sacramento	Elk Grove	5354 Jade Creek	2/23/2005
California	Sacramento	Elverta	2495 Rhine Way	8/5/2004
California	Sacramento	Elverta	2110 Quail Ranch Court	2/28/2006
California	Sacramento	Galt	132 4th	4/20/2010
California	Sacramento	Rancho Cordova	10892 Walnutwood Way	4/4/2004
California	Sacramento	Sacramento	4405 23rd St	2/4/2004
California	Sacramento	Sacramento	4719 Hayford Way	2/24/2004
California	Sacramento	Sacramento	7624 Birdie Ct	3/23/2004
California	Sacramento	Sacramento	1536 Strader Ave	3/26/2004
California	Sacramento	Sacramento	5867 Auburn Blvd 30	3/30/2004
California	Sacramento	Sacramento	2530 Street S 8	4/1/2004
California	Sacramento	Sacramento	3534 Summer Park Dr 354	10/8/2004
California	Sacramento	Sacramento	4144 Cabinet Circle	3/6/2006
California	Sacramento	Sacramento	7662 Country Park Drive	6/6/2006
California	Sacramento	Sacramento	5230 Palm	1/30/2007
California	Sacramento	Sacramento	2681 Fairfield Street	2/13/2007
California	Sacramento	Sacramento	6316 Welty Way	12/3/2008
California	Sacramento		5140 W Sherman Island Road	5/13/2006
California	San Bernardino	Adelanto	17526 Keats Road	11/29/2007

state	county	city	address1	date
California	San Bernardino	Apple Valley	21845 Arapahoe St 1	2/17/2004
California	San Bernardino	Apple Valley	10620 Matilija	5/21/2004
California	San Bernardino	Apple Valley	10808 Mills Rd	6/2/2004
California	San Bernardino	Apple Valley	12618 Pocono Road	10/15/2006
California	San Bernardino	Apple Valley	20024 Happy Trails Highway	1/4/2007
California	San Bernardino	Apple Valley	9611 Navajo Road	5/5/2009
California	San Bernardino	Baker	71759 Baker Blvd	4/16/2004
California	San Bernardino	Barstow	24966 Camino Del Sol St	6/7/2004
California	San Bernardino	Barstow	2577 Community Blvd	9/18/2004
California	San Bernardino	Barstow	29779 N 1st	11/18/2004
California	San Bernardino	Barstow	434 S Second St 1	1/1/2005
California	San Bernardino	Bloomington	16742 14th St	11/17/2004
California	San Bernardino	Chino	11838 Central Ave 93	2/11/2004
California	San Bernardino	Chino	12018 Central Ave	5/13/2004
California	San Bernardino	Chino Hills	15553 Esther St	12/13/2004
California	San Bernardino	Colton	1822 Admiralty Street	6/15/2007
California	San Bernardino	Fontana	14430 Santa Ana	1/15/2004
California	San Bernardino	Fontana	13519 Arrow Rt	3/30/2004
California	San Bernardino	Fontana	7642 Kempster Ave	9/7/2004
California	San Bernardino	Fontana	17265 Lurelane Street	3/20/2006
California	San Bernardino	Fontana	13449 Ivy	6/15/2006
California	San Bernardino	Fontana	14349 Figwood Drive	12/13/2006
California	San Bernardino	Fontana	16411 Athol Street	4/17/2008
California	San Bernardino	Hesperia	14926 Fir St	2/25/2004
California	San Bernardino	Hesperia	15356 Pendleton	6/16/2004
California	San Bernardino	Hesperia	11976 Mariposa Rd	7/3/2004
California	San Bernardino	Hesperia	7892 Alston	10/1/2004
California	San Bernardino	Hesperia	10721 Maple St	7/29/2005
California	San Bernardino	Hesperia	9553 Los Banos Ave	1/12/2006
California	San Bernardino	Hesperia	11516 Hawthorne	3/25/2006
California	San Bernardino	Hesperia	9393 Hickory	6/8/2006
California	San Bernardino	Hesperia	10983 4th Avenue	6/9/2006
California	San Bernardino	Hesperia	13010 Prairie Trail	2/22/2007
California	San Bernardino	Hesperia	9519 Maple Avenue	10/18/2008
California	San Bernardino	Highland	7409 Los Feliz Dr	4/23/2004
California	San Bernardino	Highland	25715 Lime St	5/18/2004
California	San Bernardino	Highland	28457 Merrion Ave	5/21/2004
California	San Bernardino	Hinkley	23572 State Highway 58	4/5/2009
California	San Bernardino	Joshua Tree	62475 Cove Ln	5/27/2004
California	San Bernardino	Joshua Tree	3255 Sunset Rd	9/26/2004
California	San Bernardino	Joshua Tree	8997 Tortuga Road	1/14/2008
California	San Bernardino	Landers	57646 Linn Road	10/14/2008
California	San Bernardino	Loma Linda	26232 Newport Avenue	8/1/2006
California	San Bernardino	Muscoy	2544 3rd St	6/23/2004
California	San Bernardino	Newberry Springs	52875 Bedford Rd	3/25/2004
California	San Bernardino	Newberry Springs	47962 Horner Rd	6/24/2004

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California	San Bernardino	Newberry Springs	35377 Newberry Rd	10/11/2004
California	San Bernardino	Newberry Springs	42378 Silver Valley Road	4/21/2006
California	San Bernardino	Ontario	844 Wysteria E Ct	1/21/2004
California	San Bernardino	Ontario	1506 E Highland Ct	7/26/2004
California	San Bernardino	Ontario	956 Princeton W St	2/10/2006
California	San Bernardino	Ontario	740 Camalot	9/10/2007
California	San Bernardino	Oro Grande	21451 National Trails Highway	6/13/2006
California	San Bernardino	Phelan	8135 Joshua St	4/27/2004
California	San Bernardino	Phelan	6721 Nielson Rd	9/17/2004
California	San Bernardino	Phelan	11480 Macron	10/19/2004
California	San Bernardino	Pinon Hills	11475 Prado Road	3/27/2007
California	San Bernardino	Rancho Cucamonga	7651 Effen	10/1/2004
California	San Bernardino	Redlands	1034 Alta St	1/28/2004
California	San Bernardino	Redlands	28565 San Timoteo Canyon	10/25/2004
California	San Bernardino	Redlands	2155 Citrus Ave 112	2/14/2005
California	San Bernardino	Redlands	828 6th Street	3/23/2006
California	San Bernardino	Redlands	511 Redlands Boulevard	5/16/2007
California	San Bernardino	Rialto	349 N Lilac	2/17/2004
California	San Bernardino	Rialto	624 Etiwanda Avenue	12/22/2007
California	San Bernardino	San Bernardino	1443 Cedar 23	3/9/2004
California	San Bernardino	San Bernardino	1443 Cedar St 1	4/9/2004
California	San Bernardino	San Bernardino	3160 N State St	4/23/2004
California	San Bernardino	San Bernardino	2176 Amanda St	5/21/2004
California	San Bernardino	San Bernardino	1162 E 2nd	11/16/2004
California	San Bernardino	San Bernardino	2547 3rd Ave	12/28/2004
California	San Bernardino	San Bernardino	123 E 11th St	1/19/2005
California	San Bernardino	San Bernardino	1318 E Gould St	1/22/2005
California	San Bernardino	San Bernardino	11571 5th St	8/29/2005
California	San Bernardino	San Bernardino	2131 Genevieve Street	3/10/2006
California	San Bernardino	San Bernardino	756 W 19 St	3/16/2006
California	San Bernardino	San Bernardino	19829 Kendall Drive	9/12/2006
California	San Bernardino	San Bernardino	2292 Portola Street	10/13/2006
California	San Bernardino	San Bernardino	243 Meridian Avenue	7/18/2007
California	San Bernardino	San Bernardino	223 49th	11/7/2007
California	San Bernardino	San Bernardino	1431 7th Street	11/26/2007
California	San Bernardino	San Bernardino	6317 Bonnie Street	4/3/2008
California	San Bernardino	San Bernardino	7234 Dwight Way	7/1/2008
California	San Bernardino	San Bernardino	205 West Benedict Road	4/2/2010
California	San Bernardino	Trona	13860 Fremont St 2	12/30/2004
California	San Bernardino	Twentynine Palms	4828 Lear Ave	2/22/2004
California	San Bernardino	Twentynine Palms	7580 Mac Rd	3/31/2004
California	San Bernardino	Twentynine Palms	5665 Aeronia	4/15/2004
California	San Bernardino	Twentynine Palms	68077 Indian Trail	6/16/2004
California	San Bernardino	Upland	359 Seventh St	1/5/2005
California	San Bernardino	Victorville	16717 C St	1/30/2004
California	San Bernardino	Victorville	16868 Stoddard Wells Rd	2/19/2004

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California	San Bernardino	Victorville	15330 Condor Rd	3/9/2004
California	San Bernardino	Victorville	17053 B St	10/19/2004
California	San Bernardino	Victorville	16688 Hughes	10/21/2004
California	San Bernardino	Victorville	16262 Yucca Ave	8/1/2005
California	San Bernardino	Victorville	11550 White Rd	10/17/2005
California	San Bernardino	Victorville	13126 Mesa	2/7/2006
California	San Bernardino	Victorville	16755 Union St B	2/24/2006
California	San Bernardino	Victorville	15618 Topango Road	3/2/2006
California	San Bernardino	Victorville	13602 Nassau Drive	3/15/2006
California	San Bernardino	Victorville	14349 Hesperia Road	12/21/2006
California	San Bernardino	Victorville	13852 Burning Tree Lane	5/3/2007
California	San Bernardino	Victorville	16753 Zenda Street	8/6/2007
California	San Bernardino	Victorville	13143 Sleepy Ridge Lane	3/5/2010
California	San Bernardino	Yermo	37933 Grandview Avenue	8/10/2006
California	San Bernardino	Yucaipa	12470 15th St	5/25/2005
California	San Bernardino	Yucca Valley	58620 San Marino Drive	9/6/2006
California	San Diego	Alpine	404 Summerhill Terrace	12/2/2013
California	San Diego	Boulevard	2605 Paseo Alta Ct	1/7/2004
California	San Diego	Carlsbad	382 Acacia	8/8/2010
California	San Diego	Carlsbad	847 Laguna	8/8/2010
California	San Diego	Escondido	1306 Ronda Ave	3/23/2004
California	San Diego	Escondido	431 4th E Ave 1b	8/31/2004
California	San Diego	Escondido	16975 Guejito Rd	3/3/2005
California	San Diego	Escondido	1825 East Valley Way	6/6/2006
California	San Diego	Escondido Junction	1531 Montiel	1/20/2010
California	San Diego	Fallbrook	422 Catalpa Ln	5/19/2004
California	San Diego	La Puente	1254 Bannon	5/10/2007
California	San Diego	Lakeside	11441 El Nopal	8/12/2004
California	San Diego	Oceanside	3965 Brown Street	9/20/2006
California	San Diego	San Diego	875 Hotel S Cir	1/30/2004
California	San Diego	San Diego	6173 Fauna Drive	5/21/2004
California	San Diego	San Diego	4242 34th St D	9/16/2004
California	San Diego	San Diego	3835 Midway #203 Drive	6/20/2007
California	San Diego	San Diego	9777 De La Amistad Viaduct	6/12/2009
California	San Diego	San Ysidro	905 Hwy Caliente Rd	1/16/2004
California	San Diego	Santee	8593 Magnolia Ave	1/30/2004
California	San Diego	Valley Center	30118 Miller Road	11/7/2008
California	San Diego	Vista	1280 Hacienda Dr G6	11/24/2004
California	San Diego	Vista	1710 Avocado Drive	9/14/2006
California	San Diego	Vista	663 Eucalyptus	4/3/2007
California	San Diego	Vista	526 Mar Vista Drive	11/29/2007
California	San Diego	Vista	1610 N Santa Fe	4/9/2008
California	San Francisco	San Francisco	35 Belvedere St 5	3/29/2006
California	San Joaquin	Lathrop	15523 Sixth Street	10/11/2007
California	San Joaquin	Manteca	481 South Union Road	4/20/2007
California	San Joaquin	Stockton	7790 N Ashley Ln	1/20/2004

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California	San Joaquin	Stockton	9800 E Eight Mile Rd	4/16/2004
California	San Joaquin	Stockton	5708 N Highway 99	4/18/2004
California	San Joaquin	Stockton	1560 Silver Creek	4/22/2004
California	San Joaquin	Stockton	10285 Hildreth Ln	6/30/2004
California	San Joaquin	Stockton	2717 W March Ln	7/31/2004
California	San Joaquin	Stockton	2654 W March Ln 304	8/4/2004
California	San Joaquin	Stockton	3416 Farmington E Rd 2	8/26/2004
California	San Joaquin	Stockton	2274 E Fremont	9/25/2004
California	San Joaquin	Stockton	2071 La Jolla Dr	4/25/2005
California	San Joaquin	Stockton	2553 Michaelangelo Drive	6/1/2006
California	San Joaquin	Stockton	301 Morada	4/19/2007
California	San Joaquin	Tracy	14703 Finck Road	8/3/2006
California	San Joaquin	Tracy	11422 West Larch Road	3/14/2008
California	San Luis Obispo	Atascadero	1400 San Ramon	1/5/2004
California	San Luis Obispo	Atascadero	4080 Dolores Avenue	3/14/2006
California	San Luis Obispo	Grover Beach	448 North 9th Street	3/30/2006
California	San Luis Obispo	Morro Bay	525 Atascadero Road	7/12/2006
California	San Luis Obispo	Nipomo	155 East Price Street	4/29/2008
California	San Luis Obispo	Paso Robles	749 Orchard	9/5/2006
California	San Luis Obispo	San Luis Obispo	3500 Bullock	8/29/2006
California	San Luis Obispo	San Luis Obispo	1771 Cordova	12/7/2011
California	San Luis Obispo	Templeton	30 Danelion Road	1/15/2007
California	San Mateo	Belmont	926 South Road	6/21/2006
California	San Mateo	Daly City	439 Bonnie Street	1/14/2010
California	San Mateo	East Palo Alto	1894 Bay Road	6/4/2006
California	Santa Clara	Campbell	768 Nevins Street	7/11/2007
California	Santa Clara	Gilroy	7860 Driftwood Ter A	4/3/2004
California	Santa Clara	Gilroy	2250 Roop Rd Road	8/19/2010
California	Santa Clara	Los Altos	25562 Fernhill Dr	10/26/2004
California	Santa Clara	Morgan Hill	6760 Croy Rd	9/29/2004
California	Santa Clara	San Jose	3570 Columbine Dr	1/15/2004
California	Santa Clara	San Jose	110 Roundtable Dr 1	2/8/2004
California	Santa Clara	San Jose	1374 Randol Ave	5/5/2004
California	Santa Clara	San Jose	90 Saddlebrook Dr	6/22/2004
California	Santa Clara	San Jose	935 Foxchase Dr 413	9/21/2004
California	Santa Clara	San Jose	2251 Lansford Ave	11/15/2004
California	Santa Clara	San Jose	1425 Stahl St	10/16/2005
California	Santa Clara	San Jose	1560 Darlene Ave	1/24/2006
California	Santa Clara	San Jose	1919 Fruitdale Avenue	5/11/2006
California	Santa Clara	San Jose	4075 Hobart Avenue	4/27/2007
California	Santa Clara	San Jose	2475 Glen Angus Way	2/21/2008
California	Santa Clara	San Jose	843 Spindrift Way	3/18/2008
California	Santa Clara	San Jose	1480 Douglas Street	3/20/2008
California	Santa Clara	San Jose	71 Avenida Espana	5/29/2008
California	Santa Clara	San Jose	973 Idlewood Drive	8/31/2008
California	Santa Clara	San Jose	800 Saratoga Avenue A308	6/10/2010

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California	Santa Clara	San Jose	5674 San Felipe Road	8/26/2010
California	Santa Clara	San Jose	315 N 21st Street	9/18/2015
California	Santa Clara	Santa Clara	1232 Warburton Ave	6/8/2004
California	Santa Clara	Santa Clara	2597 Borax Drive	2/22/2008
California	Santa Clara	Santa Clara	2147 Newhall Street	3/9/2011
California	Santa Clara	Santa Clara	930 El Camino Real	5/19/2016
California	Santa Cruz	Capitola	1066 41st Avenue	9/12/2010
California	Santa Cruz	Santa Cruz	911 Soquel Ave	3/18/2005
California	Santa Cruz	Santa Cruz	231 Felix Street	5/2/2006
California	Santa Cruz	Santa Cruz	870 17th Avenue	9/29/2006
California	Santa Cruz	Santa Cruz	15769 Comstock Mill Road	3/13/2008
California	Santa Cruz	Soquel	2600 41st St	8/12/2004
California	Santa Cruz	Watsonville	216 Silverleaf Drive	10/17/2007
California	Shasta	Anderson	6465 Saddle Trail Rd	7/29/2004
California	Shasta	Igo	14463 Windwalker Ln	3/27/2006
California	Shasta	Redding	1420 Arizona Street	2/2/2004
California	Shasta	Redding	781 S Street	3/21/2004
California	Shasta	Redding	12691 Williamson Rd	3/30/2004
California	Shasta	Redding	80 Churn Creek Rd	7/18/2005
California	Shasta	Redding	3115 Stratford Avenue	9/19/2006
California	Shasta	Redding	1571 College View Drive	8/29/2007
California	Shasta	Redding	13922a Sundust Road	3/11/2010
California	Shasta	Shingletown	7498 Hilda Rd	4/13/2006
California	Siskiyou	Dorris	2100 Sheepy Island Rd 437	3/3/2004
California	Siskiyou	Weed	208 Jackson St	2/21/2004
California	Solano	Dixon	805 N Adams St 110	3/23/2004
California	Solano	Dixon	9155 Olmo Rd	3/3/2006
California	Solano	Suisun City	515 Crested Dr	3/9/2005
California	Solano	Vacaville	7234 Shelton Ln	9/29/2005
California	Solano	Vacaville	148 Lomita Avenue	3/5/2008
California	Solano	Vallejo	1130 Monterey St	2/12/2004
California	Solano	Vallejo	1163 Lewis Ave	3/30/2004
California	Solano	Vallejo	618 Main St	4/20/2004
California	Solano	Vallejo	136 Hogan St	5/14/2004
California	Solano	Vallejo	318 Taper Avenue	1/31/2008
California	Solano	Vallejo	264 Flyingcloud Court	4/30/2010
California	Stanislaus	Ceres	4837 Faith Home Rd 119	1/1/2004
California	Stanislaus	Ceres	4022 Esmail Keyes	7/2/2004
California	Stanislaus	Ceres	2033 Hackett Rd	1/18/2005
California	Stanislaus	Ceres	527 Mitchell Rd	3/22/2006
California	Stanislaus	Ceres	3707 Monte Vista E Ave	3/24/2006
California	Stanislaus	Ceres	1743 Central	10/20/2006
California	Stanislaus	Ceres	112 Taylor Road	8/25/2008
California	Stanislaus	Ceres	1948 Evans Road	11/16/2008
California	Stanislaus	Ceres	1528 Evans Road	11/18/2008
California	Stanislaus	Ceres	3107 Taylor Road	5/19/2009

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California	Stanislaus	Ceres	3107 East Taylor Road	5/19/2009
California	Stanislaus	Ceres	2329 6th Street	2/5/2010
California	Stanislaus	Denair	5319 Berkeley Ave	9/19/2004
California	Stanislaus	Denair	4540 Arnold Rd	2/2/2005
California	Stanislaus	Denair	18000 Keyes Road	4/14/2009
California	Stanislaus	Grayson	1705 Hito Dr	4/7/2005
California	Stanislaus	Hickman	948 Hickman Rd	1/20/2004
California	Stanislaus	Hickman	861 Meier Road	6/19/2008
California	Stanislaus	Hughson	1828 White Birtch Drive	8/28/2011
California	Stanislaus	Modesto	3356 Maze W Blvd	1/17/2004
California	Stanislaus	Modesto	1520 Prospect Ln	1/24/2004
California	Stanislaus	Modesto	2009 Monticello Ave	7/13/2004
California	Stanislaus	Modesto	1312 Mchenry 111	7/13/2004
California	Stanislaus	Modesto	1516 Bollinger Ct	9/1/2004
California	Stanislaus	Modesto	1240 N 9th St 10	9/5/2004
California	Stanislaus	Modesto	8100 Yosemite Blvd	10/3/2004
California	Stanislaus	Modesto	3708 Almeria Dr	12/11/2004
California	Stanislaus	Modesto	400 Algen Ave	2/2/2005
California	Stanislaus	Modesto	1022 Calder Ct	3/26/2005
California	Stanislaus	Modesto	205 Glacier Ave	1/18/2006
California	Stanislaus	Modesto	3500 Plain View Road	3/7/2006
California	Stanislaus	Modesto	1411 Scenic Drive	4/24/2006
California	Stanislaus	Modesto	110 Wisenor	5/18/2006
California	Stanislaus	Modesto	2008 Stracker Way	6/8/2006
California	Stanislaus	Modesto	620 Paradise Road	9/13/2006
California	Stanislaus	Modesto	306 Locust Street	9/14/2006
California	Stanislaus	Modesto	665 7th Street	12/4/2006
California	Stanislaus	Modesto	1331 Paradise Road	6/3/2007
California	Stanislaus	Modesto	1016 East Marlow	6/19/2008
California	Stanislaus	Modesto	1016 Marlow	6/19/2008
California	Stanislaus	Modesto	1898 Skylane Way	5/21/2009
California	Stanislaus	Modesto	1600 French	8/11/2011
California	Stanislaus	Modesto	1749 Poland	2/9/2012
California	Stanislaus	Newman	531 Lady Slipper	1/15/2008
California	Stanislaus	Newman	1200 Main Street	7/26/2010
California	Stanislaus	Oakdale	143 N 6th St	1/5/2004
California	Stanislaus	Oakdale	13537 Orange Blossom Rd	10/22/2004
California	Stanislaus	Oakdale	410 Arboles Way	10/26/2004
California	Stanislaus	Oakdale	755 River Ave	11/29/2004
California	Stanislaus	Oakdale	445 N Fifth	12/6/2004
California	Stanislaus	Oakdale	20601 Warnerville Road	5/28/2009
California	Stanislaus	Oakdale	10742 Pioneer Avenue	6/30/2009
California	Stanislaus	Patterson	1830 Orange Avenue	5/3/2009
California	Stanislaus	Riverbank	3939 Minniear Ave	1/31/2006
California	Stanislaus	Riverbank	2924 Stanislaus Street	6/18/2009
California	Stanislaus	Riverbank	3238 Pocket Avenue	5/22/2010

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California	Stanislaus	Stanislaus	13660 Carpenter Rd	2/7/2004
California	Stanislaus	Turlock	6407 Mitchell Rd	4/12/2004
California	Stanislaus	Turlock	1625 Larkspur St	6/29/2004
California	Stanislaus	Turlock	265 Ironwood	10/30/2004
California	Stanislaus	Turlock	357 E Olive Ave	11/4/2004
California	Stanislaus	Turlock	201 G Street	6/26/2007
California	Stanislaus	Turlock	1105 Berea	9/15/2007
California	Stanislaus	Turlock	1090 Denair Avenue	1/6/2008
California	Stanislaus	Turlock	1125 South Tegner Road A	2/16/2008
California	Stanislaus	Turlock	3800 Crowell Road	4/18/2008
California	Stanislaus	Turlock	590 Minaret Avenue	8/5/2008
California	Stanislaus	Turlock	677 North Soderquist Road	12/15/2008
California	Stanislaus	Turlock	4519 Moffett Road	4/22/2009
California	Stanislaus	Turlock	6107 Mountain View Road	5/19/2009
California	Stanislaus	Turlock	460 Moffet Road	5/29/2009
California	Stanislaus	Turlock	1180 West Linwood Avenue	2/9/2010
California	Stanislaus	Waterford	575 E St	3/5/2004
California	Sutter	Live Oak	2691 Stafford Dr	11/10/2004
California	Sutter	Live Oak	9755 O St	4/7/2005
California	Sutter	Sutter	2235 Madrone St	5/17/2004
California	Sutter	Yuba City	2898 Mckenly Rd	1/11/2004
California	Sutter	Yuba City	1400 Lytle Rd	2/17/2004
California	Sutter	Yuba City	1718 Elmer Rd	3/10/2004
California	Sutter	Yuba City	1292 Harter Rd	5/11/2004
California	Sutter	Yuba City	1619 Franklin Rd K	6/7/2004
California	Sutter	Yuba City	1081 Northridge Dr	9/1/2004
California	Sutter	Yuba City	400 Walton N Ave 3	9/2/2004
California	Sutter	Yuba City	761 Chestnut St	10/18/2004
California	Sutter	Yuba City	413 Pine St	10/30/2004
California	Sutter	Yuba City	1368 Hutchinson A	11/5/2004
California	Sutter	Yuba City	24 Central Ave	12/11/2004
California	Sutter	Yuba City	132 S Walton Ave A	12/22/2004
California	Sutter	Yuba City	1587 Gray Ave	2/15/2005
California	Sutter	Yuba City	1341 Dustin Dr 39	9/1/2005
California	Sutter	Yuba City	4098 Marlette Rd	1/23/2006
California	Sutter	Yuba City	1115 Marcia Avenue	2/18/2006
California	Sutter	Yuba City	1250 Kenny Drive	5/19/2006
California	Sutter	Yuba City	617 Forbes Avenue	1/2/2007
California	Tehama	Corning	6330 Piedmont Rd	9/27/2004
California	Tehama	Corning	323 Rio Del Rey Court	7/31/2006
California	Tehama	Los Molinos	24881 68th	4/28/2010
California	Tehama	Red Bluff	19932 Sawtooth Drive	8/1/2006
California	Trinity	Trinity Center	360 Maude Avenue	3/11/2007
California	Tulare	Cutler	39500 Road 136	4/28/2006
California	Tulare	Dinuba	39780 Road 56	3/31/2004
California	Tulare	Dinuba	38929 Road 84	8/17/2006

state	county	city	address1	date
California	Tulare	Lindsay	1445 E Honolulu	3/24/2004
California	Tulare	Porterville	27003 Avenue 120	2/7/2004
California	Tulare	Porterville	670 E Poplar	1/7/2006
California	Tulare	Porterville	1611 E Success Drive	1/7/2006
California	Tulare	Tipton	14144 Road 152	8/9/2006
California	Tulare	Tulare	26442 99 Hwy 210	5/26/2004
California	Tulare	Woodville	16477 Hudson Ave	1/29/2004
California	Ventura	Fillmore	2989 West W Telegraph Road Highway	6/14/2006
California	Ventura	N/a	5892 Santa Clara Rd	2/22/2006
California	Ventura	Oxnard	765 Kohala Street	11/9/2006
California	Ventura	Thousand Oaks	982 East Janas Road	3/20/2007
California	Ventura	Ventura	1300 Saratoga Street	5/4/2006
California	Yolo	West Sacramento	1155 Linden Rd	1/13/2004
California	Yolo	West Sacramento	1900 Evergreen Avenue	3/30/2007
California	Yolo	Woodland	1730 Donner Way	3/10/2004
California	Yuba	Arboga	13814 Charlies Ln	5/27/2004
California	Yuba	Loma Rica	5124 Wolf Trail	1/25/2006
California	Yuba	Marysville	1118 I St	4/6/2004
California	Yuba	Marysville	1205 E 22nd St	4/12/2004
California	Yuba	Marysville	222 H St	4/14/2004
California	Yuba	Marysville	1804 Hile Ave C	5/12/2004
California	Yuba	Marysville	1505 Ramirez Rd	5/20/2004
California	Yuba	Marysville	5956 Park Ave O	7/18/2004
California	Yuba	Marysville	5818 Park Ave	8/3/2004
California	Yuba	Marysville	5931 Redburn Ave	8/8/2004
California	Yuba	Marysville	1735 N Beale Rd	9/10/2004
California	Yuba	Marysville	2209 Boulton Way	10/18/2004
California	Yuba	Marysville	976 Kay St	10/25/2004
California	Yuba	Marysville	5395 Feather River Blvd	12/21/2004
California	Yuba	Marysville	5528 Alicia Ave	2/22/2005
California	Yuba	Marysville	5696 Arboga Rd	3/9/2005
California	Yuba	Marysville	1100 E 17th St 36	5/18/2005
California	Yuba	Marysville	885 Grand Ave	5/24/2005
California	Yuba	Marysville	209 E St	12/13/2005
California	Yuba	Marysville	1097 Vine Ave	1/12/2006
California	Yuba	Marysville	647 Ramirez Rd B	2/16/2006
California	Yuba	Marysville	714 Boyer Road	3/30/2006
California	Yuba	Marysville	5514 Feather River Boulevard	7/13/2006
California	Yuba	Marysville	8369 Hwy 70	10/3/2006
California	Yuba	Marysville	7340 Doc Adams Road	10/9/2006
California	Yuba	Marysville	1164 Redwood Avenue	6/11/2007
California	Yuba	Marysville	4499 East Erle Road	7/7/2007
California	Yuba	Olivehurst	3735 Arboga Rd	9/27/2004
California	Yuba	Olivehurst	4456 College	9/28/2004
California	Yuba	Olivehurst	1941 14th St	11/3/2004
California	Yuba	Olivehurst	4461 College Way	11/17/2004

state	county	city	address1	date
California	Yuba	Olivehurst	1696 10th Ave	1/27/2005
California	Yuba	Olivehurst	1440 Broadway Rd	1/17/2006
California	Yuba	Olivehurst	3948 Shimer Rd	1/31/2006
California	Yuba	Olivehurst	4605 Summers Ln	1/31/2006

USER QUESTIONNAIRE

INTRODUCTION

In order to qualify for one of the *Landowner Liability Protections* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2002, the *user* must provide the following information (if available) to the *environmental professional.* Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete.

(1) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

CIRCLE YES *or* NO

If yes, please explain in detail.

(2) Are you aware of any Act Use Limitations (AUL), such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

YES *or* NO

If yes, please explain.

(3) As the *user* of this Environmental Site Assessment (ESA) do you have any specialized knowledge or familiarity related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or its neighboring *property,* so that you may have specific knowledge of the chemicals and processes used by this type of business?

YES *or* NO

If yes, please explain.

(4) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*?

YES *or* NO

If you believe that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

YES *or* NO

If yes, please explain.

(5) Are you aware of commonly known or *reasonably* ascertainable information that would help the *environment professional* to identify conditions pinpointing releases or threaten releases of hazardous materials and/ or chemicals? For example, as user,

(a.) Do you know of any past uses of the *property*? YES or NO
Ranch, movie-theatre drive in

(b.) Do you know of specific chemicals that are present or once were present at the *property*? YES or NO

(c.) Do you know of any chemical spills or any other chemical releases that have taken place at the *property*? YES or NO

(d.) Do you know of any environmental cleanups that have taken place at the *property*? YES *or* NO

If any yes, please explain.

(6) As the user of this Environmental Site Assessment (ESA), based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of a contamination at the *property*?

YES *or* NO

If yes, please explain.

Completed By Tim Nguyen
Print Name

COUNTY OF RIVERSIDE

BUILDING AND SAFETY DEPARTMENT

ARCHIVED RECORDS REQUEST

A FEE WILL BE CHARGED FOR REQUESTS REQUIRING COPIES OR RESEARCH OF ARCHIVED RECORDS.

***REQUESTOR'S NAME:** Anna M. Scott			
COMPANY: GeoTek, Inc.			
Current Mailing address: 1548 North Maple Street, Corona, CA 92880			
***REQUESTOR'S PHONE NO.:** 951-205-1653			
EMAIL ADDRESS: ascott@geotekusa.com			
City: Corona	**State:** CA	**ZIP Code:** 92880	**YEAR BUILT:**

* REQUESTING ALL PERMITS: ☐ YES ☐ NO

If not, specify type of Permit(s):

****ADDRESS TO BE RESEARCHED:** 2350 Hamner Avenue, Norco, CA

****ASSESSOR'S PARCEL NO.: (APN)**

**MUST COMPLETE AT LEAST ONE OF THESE FIELDS

ADDITIONAL COMMENTS:

Looking for any building permits or soils reports for this site. Thanks!!!

YOU WILL BE CONTACTED AT THE ABOVE-GIVEN PHONE NUMBER WHEN RESEARCH HAS BEEN COMPLETED

DEPARTMENT OF BUILDING AND SAFETY
RECORDS DIVISION
4080 LEMON ST., 9th FLOOR
P.O. BOX 1629
RIVERSIDE, CALIFORNIA 92502-1629
OUR TELEPHONE NO.: (951) 955-2018 or (951) 955-2017 FAX: (951) 955-2022

records@rctlma.org

Permits issued after July 1997 are available on our web site.
Permits issued before July 1997 are archived records and can be obtained only through a request for records.
Our oldest records date back to approximately 1963.

Reset Form **Submit Form**

Anna Scott

From: Records <records@RIVCO.ORG>
Sent: Tuesday, October 8, 2019 2:52 PM
To: Anna Scott
Subject: 2350 HAMNER AVE, NORCO

Hello Anna,

After a thorough search of our records, we are unable to locate any building records for this address or APN. Our records date back to 1963. All building permit records prior to 1963 have been destroyed.

Also, this address is now located in the City of Norco's jurisdiction. You may want to contact their Building Department at (951)735-3900 to check for any permits they may have issued.

Thank you

Sara

Records & Information Mgmt.
TLMA, County of Riverside
Desk: 951.955.2017

Tell Us How We Are Doing!
Click on the link below to fill out our Customer Satisfaction Survey

http://www.rctlma.org/online/content/forms/TLMA_cust_svc_survey2.pdf

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From: Anna Scott [mailto:ascott@geotekusa.com]
Sent: Tuesday, October 8, 2019 2:22 PM
To: Records <records@RIVCO.ORG>
Subject: Records Request

CAUTION: This email originated externally from the **Riverside County** email system.
DO NOT click links or open attachments unless you recognize the sender and know the content is safe.

Hi! See attached request. Thank you!

Anna M. Scott
Project Geologist

GeoTek, Inc.
1548 North Maple Street
Corona, California 92880

Office: 951-710-1160
Direct Line: 951-407-0609
Fax: 951-710-1167
Mobile: 951-205-1653

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County of Riverside California

APPENDIX C

PHOTOGRAPHS

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

1. View south near northwestern corner of Site.

2. View southeast near northwestern portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

3. View east near northwestern corner of Site.

4. View north near central portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

5. View east near central portion of Site.

6. View west near central portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

7. View east near west portion of Site.

8. View south near west portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

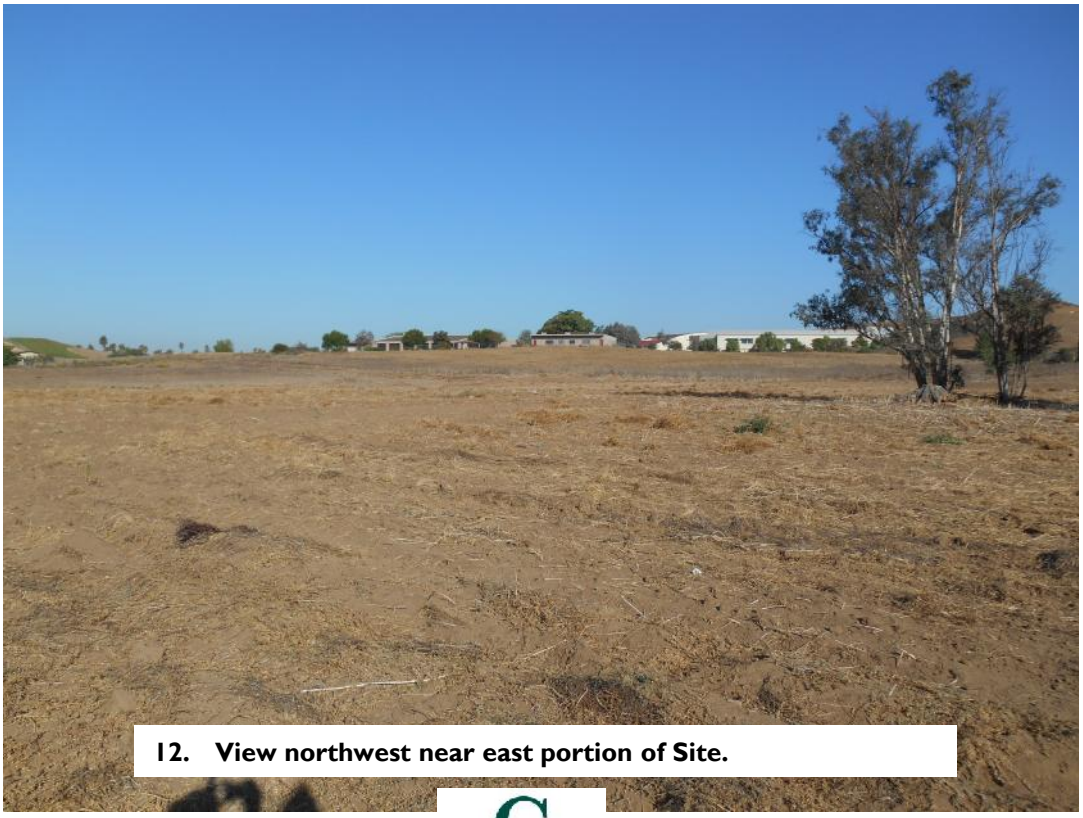
9. View north near west portion of Site.

10. View west near west portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

11. View west near east portion of Site.



12. View northwest near east portion of Site.

GEOTEK

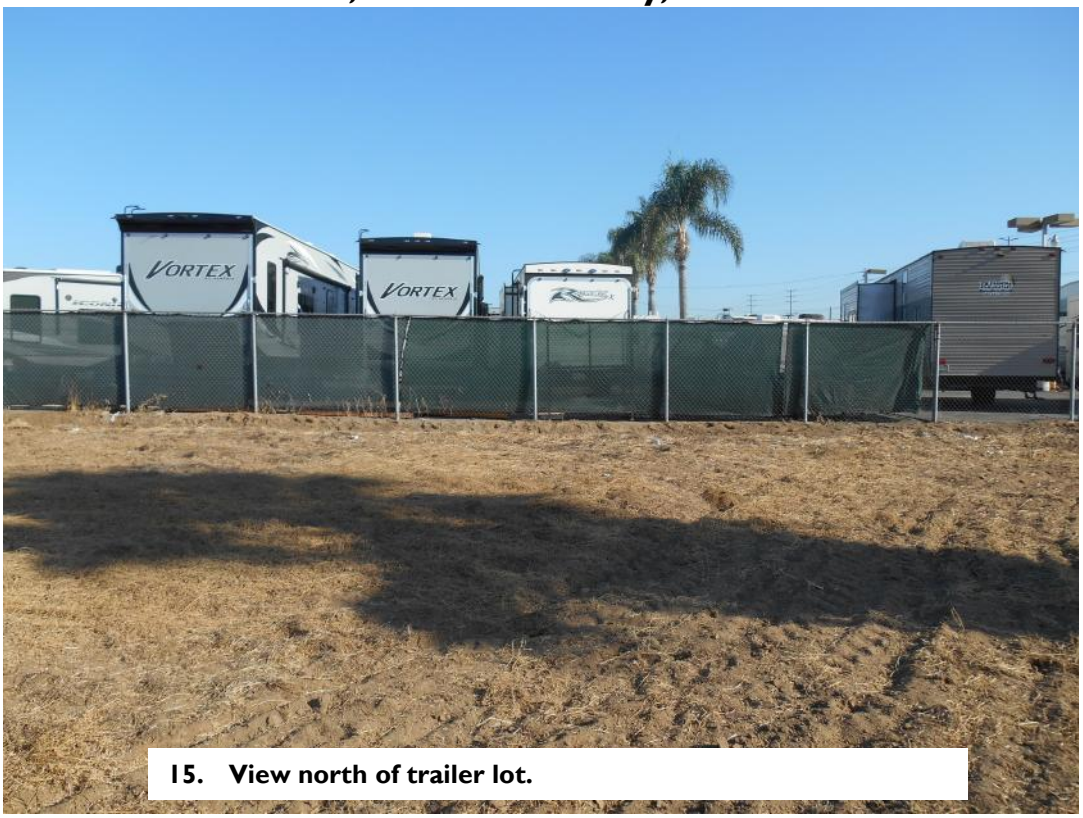
PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

13. View east near south central portion of Site.

14. View west near east portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

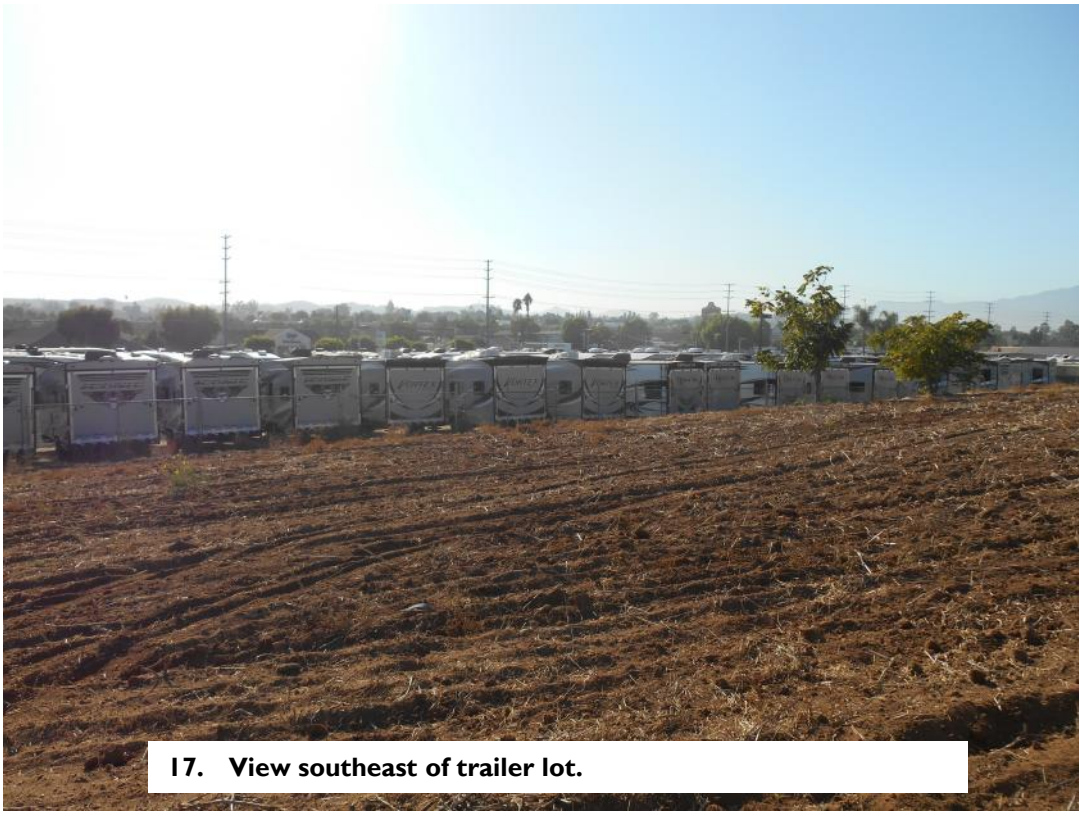


15. View north of trailer lot.

16. View northwest near east portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California



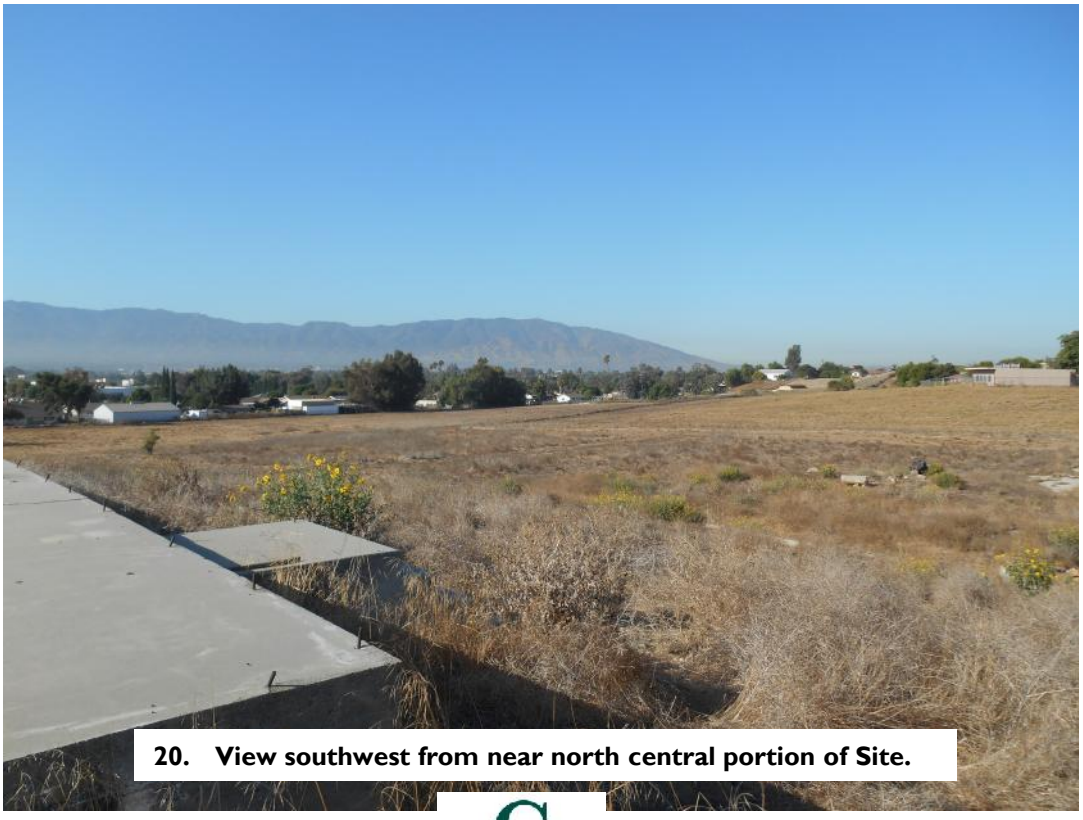
17. View southeast of trailer lot.

18. View west near northeast portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

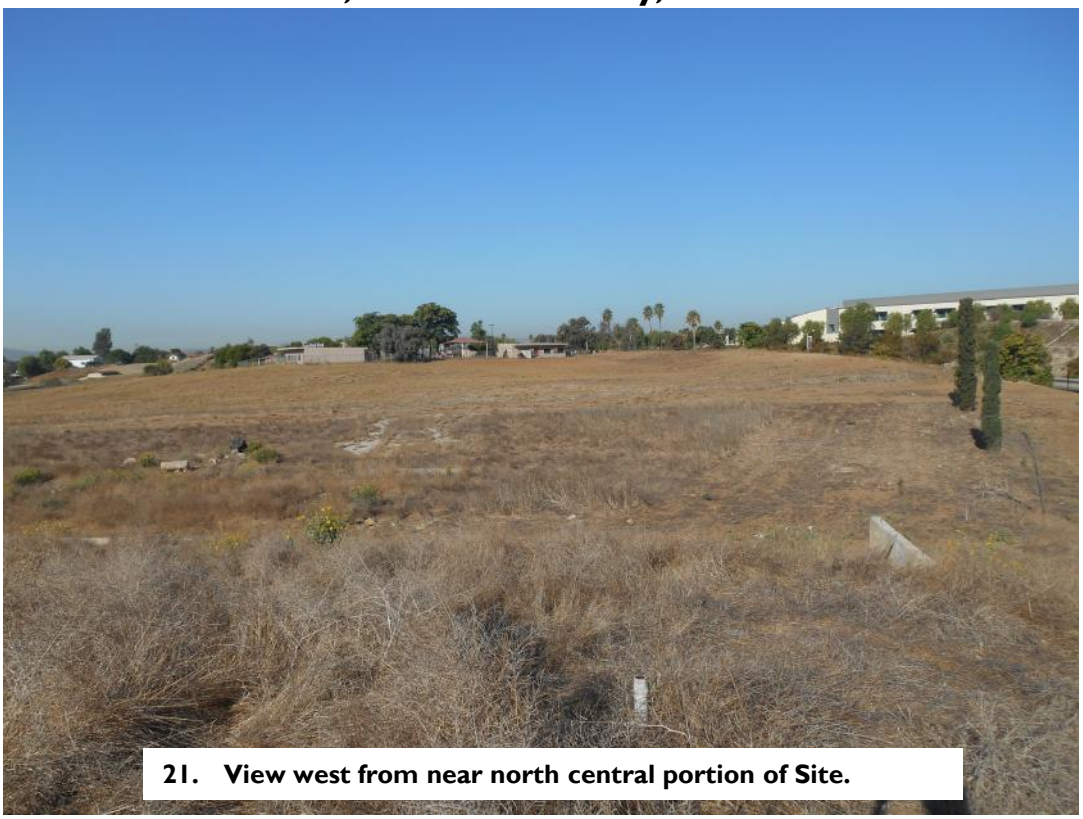
19. View of remnant concrete slab on Site.



20. View southwest from near north central portion of Site.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

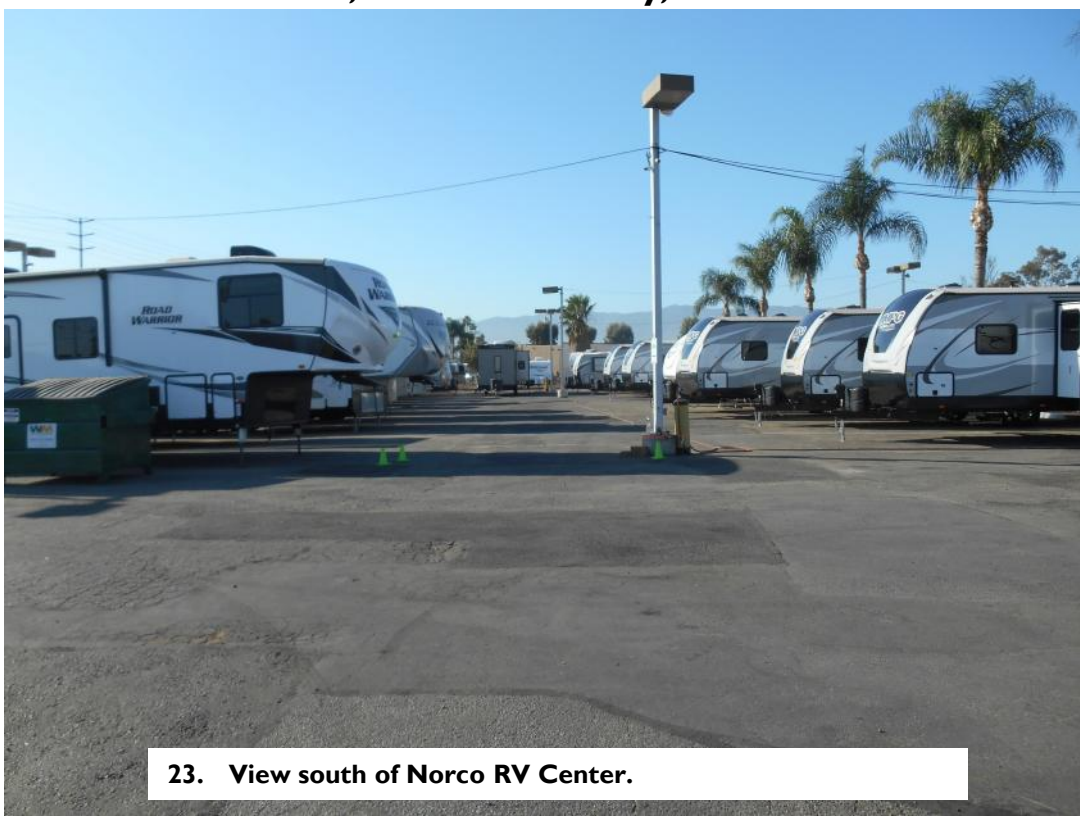


21. View west from near north central portion of Site.

22. View of dumpster at Norco RV Center.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California



23. View south of Norco RV Center.

24. View north of Norco RV Center.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

25. View north of Norco RV Center.

26. View of propane tank at Norco RV Center.

GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

27. View of sales trailer at Norco RV Center.

28. View of storage shed at Norco RV Center.

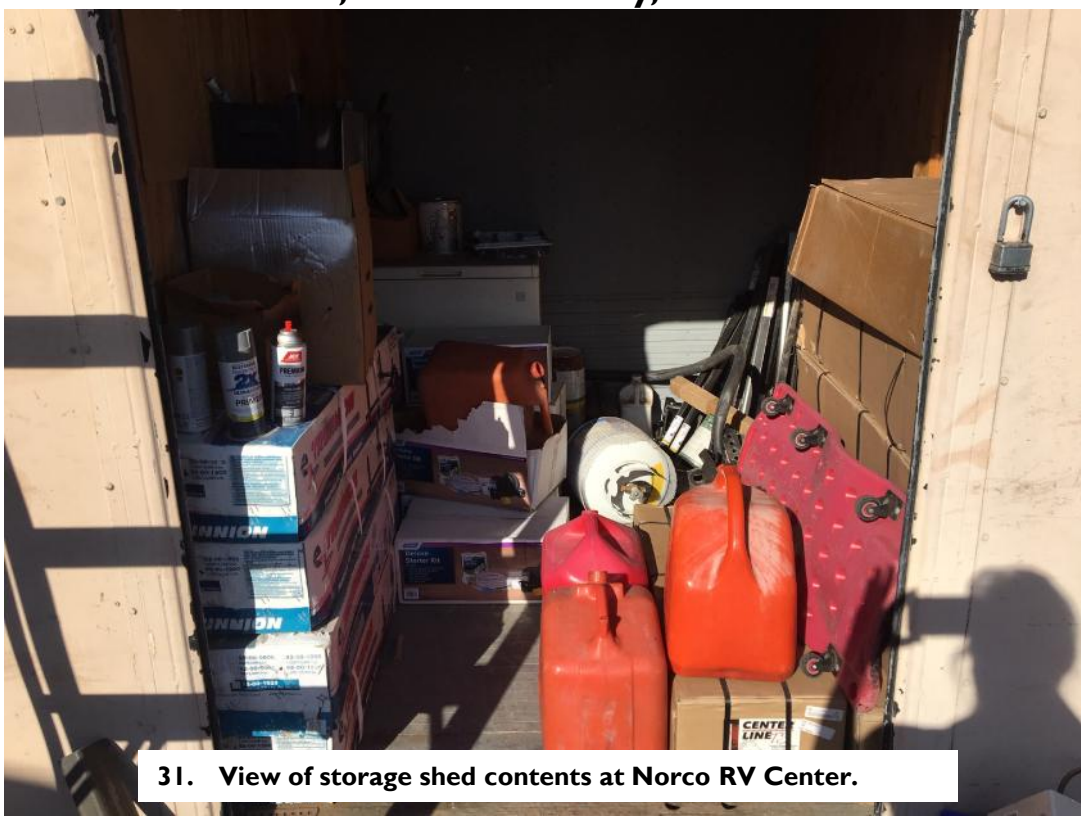
GEOTEK

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California

29. View of oil containers at Norco RV Center.

30. View of batteries at Norco RV Center.

PHOTOGRAPHS
APNs 126-050-002 and -004
Norco, Riverside County, California



31. View of storage shed contents at Norco RV Center.

32. View of tires at Norco RV Center.

GEOTEK

APPENDIX D

ENVIRONMENTAL DATABASE REPORT

Norco Project
2350 Hamner Avenue
Norco, CA 92860

Inquiry Number: 5813845.2s
October 02, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
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	275
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-13
Physical Setting Source Map Findings	A-15
Physical Setting Source Records Searched	PSGR-1

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), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

2350 HAMNER AVENUE
NORCO, CA 92860

COORDINATES

Latitude (North):	33.9151200 - 33° 54' 54.43''
Longitude (West):	117.5620330 - 117° 33' 43.31''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	448044.4
UTM Y (Meters):	3752692.8
Elevation:	619 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640930 CORONA NORTH, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
2350 HAMNER AVENUE
NORCO, CA 92860

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	LES SCHWAB TIRE CENT	1701 3RD ST	RCRA NonGen / NLR	Lower	76, 0.014, NE
A2	LES SCHWAB TIRE CENT	1701 3RD ST	CERS HAZ WASTE, HAZNET, CERS	Lower	76, 0.014, NE
B3	NORCO AUTO TECH	2248 HAMNER AVE	CERS HAZ WASTE	Lower	135, 0.026, ESE
B4	NORCO FOREIGN AND DO	2248 HAMNER AVE	RCRA-SQG, FINDS, ECHO	Lower	135, 0.026, ESE
B5	A & J MOBILE TRUCK R	2231 HAMNER AVE	RCRA NonGen / NLR	Lower	287, 0.054, SE
B6	A & J TRUCK REPAIR	2231 HAMNER AVE	CERS HAZ WASTE, HAZNET	Lower	287, 0.054, SE
7	RC MANNING	1650 3RD ST	HIST UST	Lower	385, 0.073, ENE
C8	POPE CONSTRUCTION	2466 HAMNER AVE	RCRA NonGen / NLR	Lower	406, 0.077, NNE
C9	POPE CONSTRUCTION CO	2466 HAMNER AVE	CERS HAZ WASTE, SWEEPS UST, CERS	Lower	406, 0.077, NNE
10	HAMMERCO TOOL & EQUI	2269 HAMNER AVE	RCRA NonGen / NLR	Lower	427, 0.081, East
D11	TRACTOR SUPPLY COMPA	2195 HAMNER AVE	CERS HAZ WASTE, CERS	Lower	439, 0.083, SE
C12	PREMIER DENTAL	2488 HAMNER AVE., SU	RCRA NonGen / NLR	Lower	516, 0.098, NNE
D13	TRACTOR SUPPLY COMPA	2185 HAMNER AVE	CERS HAZ WASTE, HAZNET	Lower	560, 0.106, SSE
D14	TRACTOR SUPPLY COMPA	2185 HAMNER AVE	RCRA NonGen / NLR	Lower	560, 0.106, SSE
15	O T S INC	2481 HAMNER AV	EDR Hist Auto	Lower	639, 0.121, NE
16	NORCO MITSUBISHI	2100 HAMNER	RCRA-SQG, FINDS, ECHO, HAZNET	Lower	662, 0.125, SSE
E17	NORCO TRANSMISSION	2521 HAMNER AVE	CERS HAZ WASTE, HAZNET	Lower	726, 0.138, NNE
F18	KENNEDY MIDDLE COLLE	THIRD STREET	ENVIROSTOR, SCH	Higher	739, 0.140, WNW
E19	NORCO BRAKE AND ALIG	2531 HAMNER AVE	RCRA NonGen / NLR	Lower	773, 0.146, NNE
E20	NORCO BRAKE AND ALIG	2531 HAMNER AVE	CERS HAZ WASTE, CERS	Lower	773, 0.146, NNE
E21	CECIL BRAKE AND WHEE	2531 HAMNER AVE	RCRA NonGen / NLR, FINDS, ECHO	Lower	773, 0.146, NNE
E22	R AND R AUTO	2533 HAMNER AVE	RCRA-SQG, FINDS, ECHO, EMI, HAZNET	Lower	784, 0.148, NNE
G23	NORCO TRUCK & AUTO P	2000 S FOUR WHEEL DR	CERS HAZ WASTE, HAZNET, NPDES, CIWQS, CERS	Lower	842, 0.159, SSW
G24	NORCO TRUCK AND AUTO	2000 S FOUR WHEEL DR	RCRA NonGen / NLR	Lower	842, 0.159, SSW
G25	CALIBER BODYWORKS IN	2000 S FOUR WHEEL DR	RCRA NonGen / NLR	Lower	842, 0.159, SSW
G26	CALIBER COLLISION CE	2000 S FOUR WHEEL DR	CERS HAZ WASTE, HAZNET, CERS	Lower	842, 0.159, SSW
G27	NORCO TRUCK & AUTO P	2000 SOUTH FOUR WHEE	RCRA NonGen / NLR	Lower	842, 0.159, SSW
H28	FRAHM CHRYSLER/PLYMO	2075 HAMNER AVE	SWEEPS UST	Lower	854, 0.162, SE
H29	NORCO CHRYSLER PLYMO	2075 HAMNER AVE	RCRA-SQG, FINDS, ECHO	Lower	854, 0.162, SE
E30	MCCARTHY AUTOMOTIVE	2551 HAMNER AVE	CERS HAZ WASTE, HAZNET	Lower	869, 0.165, NNE
I31	PAUL BLANCOS GOOD CA	2000 HAMNER AVE	RCRA NonGen / NLR	Lower	875, 0.166, South
I32	PAUL BLANCO'S GOOD C	2000 HAMNER AVE	CERS HAZ WASTE, CERS	Lower	875, 0.166, South
I33	NORCO MAZDA	2000 HAMNER AVE	RCRA-SQG, FINDS, ECHO	Lower	875, 0.166, South
E34	AL GARCIA'S TRUCK RE	2553 HAMNER AVE	CERS HAZ WASTE	Lower	878, 0.166, NNE
E35	GS FLEET SERVICE	2555 HAMNER AVE	CERS HAZ WASTE, HAZNET, CERS	Lower	889, 0.168, NNE
E36	NORCO FOREIGN CARS	2555 HAMNER	RCRA-SQG	Lower	889, 0.168, NNE
F37	NAVAL ORDNANCE LAB		ENVIROSTOR	Higher	985, 0.187, WNW
F38	NAVAL ORDNANCE LABOR		UXO	Higher	996, 0.189, WNW
J39	NO PORK MOTORSPORTS,	2585 HAMNER AVE STE.	CERS HAZ WASTE	Lower	1083, 0.205, NNE

MAPPED SITES SUMMARY

Target Property Address:
2350 HAMNER AVENUE
NORCO, CA 92860

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
K40	MOREY'S COLLISION RE	2057 HAMNER AVE	CERS HAZ WASTE, HAZNET, CERS	Lower	1100, 0.208, SSE
K41	MOREY'S COLLISION RE	2057 HAMNER AVE	RCRA NonGen / NLR	Lower	1100, 0.208, SSE
42	CNUSD DISTRICT OFFIC	2820 CLARK AVE	RCRA NonGen / NLR	Higher	1105, 0.209, North
J43	NORCOGAS CORP	2600 HAMNER AVE	RCRA NonGen / NLR	Lower	1150, 0.218, NNE
J44	THRIFTY OIL #338	2600 HAMNER AVE	LUST, CERS HAZ WASTE, CERS TANKS, HAZNET, HIST...	Lower	1150, 0.218, NNE
J45	THRIFTY OIL STN. #33	2600 HAMNER AVE	LUST, HIST UST, CERS	Lower	1150, 0.218, NNE
J46	ARCO #9708	2600 HAMNER AVE	UST	Lower	1150, 0.218, NNE
J47	THRIFTY OIL CO #338	2600 HAMNER AVE	HIST UST, HAZNET	Lower	1150, 0.218, NNE
J48	TESORO THRIFTY 42133	2600 HAMNER AVE	RCRA NonGen / NLR	Lower	1150, 0.218, NNE
J49	ARCO FACILITY NO 097	2600 HAMNER AVE	RCRA-SQG, FINDS, ECHO	Lower	1150, 0.218, NNE
L50	911 AUTOMOTIVE	1950 S FOUR WHEEL DR	RCRA NonGen / NLR	Lower	1175, 0.223, SSW
L51	TOTAL AUTO CARE INC	1950 S FOUR WHEEL DR	RCRA NonGen / NLR	Lower	1175, 0.223, SSW
L52	BUGGY WORLD	1950 S FOUR WHEEL DR	RCRA-SQG, CERS HAZ WASTE, FINDS, ECHO, HAZNET	Lower	1175, 0.223, SSW
L53	YOUNGS AUTOMOTIVE MO	1950 S FOUR WHEEL DR	RCRA NonGen / NLR	Lower	1175, 0.223, SSW
M54	NORCO FUEL SALES	2001 HAMNER AVE	LUST, SWEEPS UST, HIST CORTESE, CERS	Lower	1234, 0.234, SSE
N55	RIVERSIDE COMMUNITY	2001 3RD ST	ENVIROSTOR, VCP, HIST Cal-Sites, CERS HAZ WASTE,...	Lower	1299, 0.246, West
N56	NORCO COLLEGE	2001 3RD ST	RCRA NonGen / NLR	Lower	1299, 0.246, West
N57	NORCO COLLEGE	2001 3RD ST	AST, HAZNET	Lower	1299, 0.246, West
M58	SHELL SERVICE STATIO	1850 HAMNER AVENUE	LUST	Lower	1392, 0.264, South
M59	SHELL SERVICE STATIO	1850 HAMNER	RCRA-SQG, LUST, FINDS, ECHO, HAZNET, CERS	Lower	1392, 0.264, South
60	CHEVRON STATION NO 9	2740 HAMNER AVE	RCRA-SQG, LUST, FINDS, ECHO, HIST CORTESE, CERS	Higher	1943, 0.368, NNE
61	REPLANET LLC	2790 HAMNER AVE	SWRCY, CERS HAZ WASTE, CERS	Higher	2224, 0.421, NNE
O62	NORCO MAIN RANCH INC	1811 MOUNTAIN AVE	ENVIROSTOR, CERS HAZ WASTE, SWEEPS UST, HIST UST,.	Lower	2267, 0.429, SSW
O63	NORCO EGG FARM	1811 MOUNTAIN AVE	SEMS-ARCHIVE	Lower	2267, 0.429, SSW
P64	ST. ANTHONY MOBIL	2807 HAMNER AVE	LUST, SWEEPS UST, HIST CORTESE	Higher	2323, 0.440, NNE
P65	NORCO SHELL	2807 HAMNER	LUST, HIST UST, CERS	Higher	2323, 0.440, NNE
66	CORONA ANNEX		UXO	Higher	2393, 0.453, WNW
67	CORONA NAVAL WEAPONS	IN THE CITY OF NORCO	ENVIROSTOR	Higher	2639, 0.500, NW
68	NORCO RANCH	1661 MOUNTAIN AVENUE	ENVIROSTOR, VCP	Lower	2990, 0.566, SSW
Q69	NORCO USARC		FUDS	Higher	3105, 0.588, North
Q70	NORCO		ENVIROSTOR	Higher	3105, 0.588, North
71	CORONA ANNEX		FUDS	Higher	3189, 0.604, North
R72	NORCO HIGH SCHOOL AD	2065 TEMESCULA AVENU	ENVIROSTOR, SCH, CERS	Higher	3838, 0.727, ESE
R73	NORCO HIGH SCHOOL MO	2065 TEMESCAL AVENUE	ENVIROSTOR, SCH	Higher	3849, 0.729, ESE
74	NORCO INTERMEDIATE S	2711 TEMESCAL AVE	ENVIROSTOR, SCH, HAZNET	Higher	5180, 0.981, ENE

EXECUTIVE SUMMARY

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
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

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

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-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
US CDL ---------- National Clandestine Laboratory Register
PFAS ---------- PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

CA FID UST ---------- Facility Inventory Database

Local Land Records

LIENS ---------- Environmental Liens Listing

LIENS 2	CERCLA Lien Information

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

DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data

ICE	ICE
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Cleaner	EDR Exclusive Historical 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.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS 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 the 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. The 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 potential NPL site.

A review of the SEMS-ARCHIVE list, as provided by EDR, and dated 07/19/2019 has revealed that there is 1 SEMS-ARCHIVE site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NORCO EGG FARM Site ID: 0901244 EPA Id: CAD009868480	1811 MOUNTAIN AVE	SSW 1/4 - 1/2 (0.429 mi.)	O63	236

Federal RCRA generators list

RCRA-SQG: 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.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/25/2019 has revealed that there are 8 RCRA-SQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NORCO FOREIGN AND DO EPA ID:: CA0000773978	***2248 HAMNER AVE***	***ESE 0 - 1/8 (0.026 mi.)***	***B4***	***17***
NORCO MITSUBISHI EPA ID:: CAD983658139	***2100 HAMNER***	***SSE 1/8 - 1/4 (0.125 mi.)***	***16***	***41***
R AND R AUTO EPA ID:: CAD030584718	***2533 HAMNER AVE***	***NNE 1/8 - 1/4 (0.148 mi.)***	***E22***	***65***
NORCO CHRYSLER PLYMO EPA ID:: CAR000006569	***2075 HAMNER AVE***	***SE 1/8 - 1/4 (0.162 mi.)***	***H29***	***90***
NORCO MAZDA EPA ID:: CAD983607318	***2000 HAMNER AVE***	***S 1/8 - 1/4 (0.166 mi.)***	***I33***	***102***
NORCO FOREIGN CARS EPA ID:: CAD982321507	2555 HAMNER	NNE 1/8 - 1/4 (0.168 mi.)	E36	115
ARCO FACILITY NO 097	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J49***	***152***

EPA ID:: CAR000102400

BUGGY WORLD	***1950 S FOUR WHEEL DR***	***SSW 1/8 - 1/4 (0.223 mi.)***	***L52***	***156***

EPA ID:: CAR000071969

State- and tribal - equivalent CERCLIS

ENVIROSTOR: 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.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/29/2019 has revealed that there are 10 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KENNEDY MIDDLE COLLE	***THIRD STREET***	***WNW 1/8 - 1/4 (0.140 mi.)***	***F18***	***47***
Facility Id: 33970012				
Status: Certified				
NAVAL ORDNANCE LAB		WNW 1/8 - 1/4 (0.187 mi.)	F37	116
Facility Id: 80000674				
Status: Inactive - Needs Evaluation				
CORONA NAVAL WEAPONS	IN THE CITY OF NORCO	NW 1/4 - 1/2 (0.500 mi.)	67	258
Facility Id: 80001224				
Status: Active				
NORCO		N 1/2 - 1 (0.588 mi.)	Q70	262
Facility Id: 80000098				
Status: Inactive - Needs Evaluation				
NORCO HIGH SCHOOL AD	***2065 TEMESCULA AVENU***	***ESE 1/2 - 1 (0.727 mi.)***	***R72***	***264***
Facility Id: 33010017				
Status: No Further Action				
NORCO HIGH SCHOOL MO	***2065 TEMESCAL AVENUE***	***ESE 1/2 - 1 (0.729 mi.)***	***R73***	***267***
Facility Id: 60000681				
Status: No Further Action				
NORCO INTERMEDIATE S	***2711 TEMESCAL AVE***	***ENE 1/2 - 1 (0.981 mi.)***	***74***	***270***
Facility Id: 60002744				
Status: Active				

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***
Facility Id: 33820001				
Status: Certified O&M - Land Use Restrictions Only				
NORCO MAIN RANCH INC	***1811 MOUNTAIN AVE***	***SSW 1/4 - 1/2 (0.429 mi.)***	***O62***	***218***

Facility Id: 33020001
Status: Refer: RWQCB

NORCO RANCH	***1661 MOUNTAIN AVENUE***	***SSW 1/2 - 1 (0.566 mi.)***	***68***	***259***

Facility Id: 60001466
Status: No Further Action

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 8 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON STATION NO 9	***2740 HAMNER AVE***	***NNE 1/4 - 1/2 (0.368 mi.)***	***60***	***207***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: LUST, Date of Government Version: 06/10/2019
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2019
Status: Completed - Case Closed
Facility Status: Case Closed
Facility Id: 94945
Global Id: T0606500404
Facility Status: 9
Global ID: T0606500404

ST. ANTHONY MOBIL	***2807 HAMNER AVE***	***NNE 1/4 - 1/2 (0.440 mi.)***	***P64***	***237***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Facility Status: Leak being confirmed
Global ID: T0606500393

NORCO SHELL	***2807 HAMNER***	***NNE 1/4 - 1/2 (0.440 mi.)***	***P65***	***240***

Database: LUST, Date of Government Version: 06/10/2019
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2019
Status: Completed - Case Closed
Facility Id: 94799
Global Id: T0606500393
Facility Status: 0

Lower Elevation	Address	Direction / Distance	Map ID	Page
THRIFTY OIL #338	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J44***	***128***

Database: LUST REG 8, Date of Government Version: 02/14/2005
Facility Status: Remediation Plan
Global ID: T0606500206

THRIFTY OIL STN. #33	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J45***	***141***

Database: LUST, Date of Government Version: 06/10/2019
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2019
Status: Completed - Case Closed
Facility Id: 90776
Global Id: T0606500206

Facility Status: 9

NORCO FUEL SALES ***2001 HAMNER AVE*** ***SSE 1/8 - 1/4 (0.234 mi.)*** ***M54*** ***164***
Database: LUST REG 8, Date of Government Version: 02/14/2005
Database: LUST, Date of Government Version: 06/10/2019
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2019
Status: Completed - Case Closed
Facility Status: Case Closed
Facility Id: 94212
Global Id: T0606500377
Facility Status: 9
Global ID: T0606500377

SHELL SERVICE STATIO 1850 HAMNER AVENUE S 1/4 - 1/2 (0.264 mi.) M58 193
Database: LUST REG 8, Date of Government Version: 02/14/2005
Facility Status: Preliminary site assessment workplan submitted
Global ID: T0606520856

SHELL SERVICE STATIO ***1850 HAMNER*** ***S 1/4 - 1/2 (0.264 mi.)*** ***M59*** ***194***
Database: LUST, Date of Government Version: 06/10/2019
Database: RIVERSIDE CO. LUST, Date of Government Version: 07/10/2019
Status: Completed - Case Closed
Facility Id: 200319666
Global Id: T0606520856
Facility Status: 9

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARCO #9708	2600 HAMNER AVE	NNE 1/8 - 1/4 (0.218 mi.)	J46	148

Database: RIVERSIDE CO. UST, Date of Government Version: 07/10/2019
Database: UST, Date of Government Version: 06/10/2019
Facility Id: FA0040386
Facility Id: 61

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NORCO COLLEGE	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N57***	***191***

Database: AST, Date of Government Version: 07/06/2016

State and tribal voluntary cleanup sites

VCP: 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.

A review of the VCP list, as provided by EDR, and dated 04/29/2019 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***
Status: Certified O&M - Land Use Restrictions Only				
Facility Id: 33820001				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 06/11/2019 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
REPLANET LLC	***2790 HAMNER AVE***	***NNE 1/4 - 1/2 (0.421 mi.)***	***61***	***213***
Cert Id: RC177718.001				

Local Lists of Hazardous waste / Contaminated Sites

HIST Cal-Sites: Formerly known as ASPIS, this database contains both known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

A review of the HIST Cal-Sites list, as provided by EDR, and dated 08/08/2005 has revealed that there is 1 HIST Cal-Sites site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***

SCH: 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.

A review of the SCH list, as provided by EDR, and dated 04/29/2019 has revealed that there is 1 SCH site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
KENNEDY MIDDLE COLLE	***THIRD STREET***	***WNW 1/8 - 1/4 (0.140 mi.)***	***F18***	***47***
Facility Id: 33970012				
Status: Certified				

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 08/14/2019 has revealed that there are 19 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LES SCHWAB TIRE CENT	***1701 3RD ST***	***NE 0 - 1/8 (0.014 mi.)***	***A2***	***9***
NORCO AUTO TECH	2248 HAMNER AVE	ESE 0 - 1/8 (0.026 mi.)	B3	15
A & J TRUCK REPAIR	***2231 HAMNER AVE***	***SE 0 - 1/8 (0.054 mi.)***	***B6***	***19***
POPE CONSTRUCTION CO	***2466 HAMNER AVE***	***NNE 0 - 1/8 (0.077 mi.)***	***C9***	***24***
TRACTOR SUPPLY COMPA	***2195 HAMNER AVE***	***SE 0 - 1/8 (0.083 mi.)***	***D11***	***28***
TRACTOR SUPPLY COMPA	***2185 HAMNER AVE***	***SSE 0 - 1/8 (0.106 mi.)***	***D13***	***37***
NORCO TRANSMISSION	***2521 HAMNER AVE***	***NNE 1/8 - 1/4 (0.138 mi.)***	***E17***	***44***
NORCO BRAKE AND ALIG	***2531 HAMNER AVE***	***NNE 1/8 - 1/4 (0.146 mi.)***	***E20***	***55***
NORCO TRUCK & AUTO P	***2000 S FOUR WHEEL DR***	***SSW 1/8 - 1/4 (0.159 mi.)***	***G23***	***69***
CALIBER COLLISION CE	***2000 S FOUR WHEEL DR***	***SSW 1/8 - 1/4 (0.159 mi.)***	***G26***	***85***
MCCARTHY AUTOMOTIVE	***2551 HAMNER AVE***	***NNE 1/8 - 1/4 (0.165 mi.)***	***E30***	***92***
PAUL BLANCO'S GOOD C	***2000 HAMNER AVE***	***S 1/8 - 1/4 (0.166 mi.)***	***I32***	***95***
AL GARCIA'S TRUCK RE	2553 HAMNER AVE	NNE 1/8 - 1/4 (0.166 mi.)	E34	104
GS FLEET SERVICE	***2555 HAMNER AVE***	***NNE 1/8 - 1/4 (0.168 mi.)***	***E35***	***105***
NO PORK MOTORSPORTS,	2585 HAMNER AVE STE.	NNE 1/8 - 1/4 (0.205 mi.)	J39	117
MOREY'S COLLISION RE	***2057 HAMNER AVE***	***SSE 1/8 - 1/4 (0.208 mi.)***	***K40***	***119***
THRIFTY OIL #338	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J44***	***128***
BUGGY WORLD	***1950 S FOUR WHEEL DR***	***SSW 1/8 - 1/4 (0.223 mi.)***	***L52***	***156***
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***

Local Lists of Registered Storage Tanks

SWEEPS UST: 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.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 3 SWEEPS UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
POPE CONSTRUCTION CO	***2466 HAMNER AVE***	***NNE 0 - 1/8 (0.077 mi.)***	***C9***	***24***
Status: A				
Tank Status: A				
Comp Number: 50067				
FRAHM CHRYSLER/PLYMO	2075 HAMNER AVE	SE 1/8 - 1/4 (0.162 mi.)	H28	90

Status: A
Tank Status: A
Comp Number: 18906

NORCO FUEL SALES ***2001 HAMNER AVE*** ***SSE 1/8 - 1/4 (0.234 mi.)*** ***M54*** ***164***
Status: A
Tank Status: A
Comp Number: 1783

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 3 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RC MANNING Facility Id: 00000007178	1650 3RD ST	ENE 0 - 1/8 (0.073 mi.)	7	22
THRIFTY OIL STN. #33 Facility Id: 00000004302	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J45***	***141***
THRIFTY OIL CO #338	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J47***	***149***

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 08/14/2019 has revealed that there are 2 CERS TANKS sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
THRIFTY OIL #338	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J44***	***128***
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***

Local Land Records

DEED: The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes .

A review of the DEED list, as provided by EDR, and dated 06/04/2019 has revealed that there is 1 DEED site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE COMMUNITY	***2001 3RD ST***	***W 1/8 - 1/4 (0.246 mi.)***	***N55***	***169***
Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY Envirostor ID: 33820001				

Other Ascertainable Records

RCRA NonGen / NLR: 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.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/25/2019 has revealed that there are 20 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CNUSD DISTRICT OFFIC EPA ID:: CAL000416253	2820 CLARK AVE	N 1/8 - 1/4 (0.209 mi.)	42	126

Lower Elevation	Address	Direction / Distance	Map ID	Page
LES SCHWAB TIRE CENT EPA ID:: CAL000414940	1701 3RD ST	NE 0 - 1/8 (0.014 mi.)	A1	8
A & J MOBILE TRUCK R EPA ID:: CAL000265381	2231 HAMNER AVE	SE 0 - 1/8 (0.054 mi.)	B5	18
POPE CONSTRUCTION EPA ID:: CAL000089826	2466 HAMNER AVE	NNE 0 - 1/8 (0.077 mi.)	C8	23
HAMMERCO TOOL & EQUI EPA ID:: CAL000378975	2269 HAMNER AVE	E 0 - 1/8 (0.081 mi.)	10	27
PREMIER DENTAL EPA ID:: CAC002992022	2488 HAMNER AVE., SU	NNE 0 - 1/8 (0.098 mi.)	C12	36
TRACTOR SUPPLY COMPA EPA ID:: CAL000391781	2185 HAMNER AVE	SSE 0 - 1/8 (0.106 mi.)	D14	40
NORCO BRAKE AND ALIG EPA ID:: CAL000437069	2531 HAMNER AVE	NNE 1/8 - 1/4 (0.146 mi.)	E19	54
CECIL BRAKE AND WHEE EPA ID:: CAD982323404	***2531 HAMNER AVE***	***NNE 1/8 - 1/4 (0.146 mi.)***	***E21***	***64***
NORCO TRUCK AND AUTO EPA ID:: CAL000437261	2000 S FOUR WHEEL DR	SSW 1/8 - 1/4 (0.159 mi.)	G24	83
CALIBER BODYWORKS IN EPA ID:: CAL000265309	2000 S FOUR WHEEL DR	SSW 1/8 - 1/4 (0.159 mi.)	G25	84
NORCO TRUCK & AUTO P EPA ID:: CAL000437220	2000 SOUTH FOUR WHEE	SSW 1/8 - 1/4 (0.159 mi.)	G27	89
PAUL BLANCOS GOOD CA EPA ID:: CAL000414809	2000 HAMNER AVE	S 1/8 - 1/4 (0.166 mi.)	I31	94
MOREY'S COLLISION RE EPA ID:: CAL000157062	2057 HAMNER AVE	SSE 1/8 - 1/4 (0.208 mi.)	K41	125
NORCOGAS CORP EPA ID:: CAL000436326	2600 HAMNER AVE	NNE 1/8 - 1/4 (0.218 mi.)	J43	127
TESORO THRIFTY 42133 EPA ID:: CAL000385753	2600 HAMNER AVE	NNE 1/8 - 1/4 (0.218 mi.)	J48	151
911 AUTOMOTIVE	1950 S FOUR WHEEL DR	SSW 1/8 - 1/4 (0.223 mi.)	L50	154

EPA ID:: CAL000414629				
TOTAL AUTO CARE INC EPA ID:: CAL000329656	1950 S FOUR WHEEL DR	SSW 1/8 - 1/4 (0.223 mi.)	L51	155
YOUNGS AUTOMOTIVE MO EPA ID:: CAL000432898	1950 S FOUR WHEEL DR	SSW 1/8 - 1/4 (0.223 mi.)	L53	163
NORCO COLLEGE EPA ID:: CAL000113053	2001 3RD ST	W 1/8 - 1/4 (0.246 mi.)	N56	190

FUDS: 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.

A review of the FUDS list, as provided by EDR, and dated 05/15/2019 has revealed that there are 2 FUDS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NORCO USARC		N 1/2 - 1 (0.588 mi.)	Q69	261
CORONA ANNEX		N 1/2 - 1 (0.604 mi.)	71	263

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 12/31/2017 has revealed that there are 2 UXO sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NAVAL ORDNANCE LABOR		WNW 1/8 - 1/4 (0.189 mi.)	F38	117
CORONA ANNEX		WNW 1/4 - 1/2 (0.453 mi.)	66	258

HIST CORTESE: 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.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 4 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON STATION NO 9 Reg Id: 083302562T	***2740 HAMNER AVE***	***NNE 1/4 - 1/2 (0.368 mi.)***	***60***	***207***
ST. ANTHONY MOBIL Reg Id: 083302530T	***2807 HAMNER AVE***	***NNE 1/4 - 1/2 (0.440 mi.)***	***P64***	***237***

Lower Elevation	Address	Direction / Distance	Map ID	Page
THRIFTY OIL #338 Reg Id: 083301646T	***2600 HAMNER AVE***	***NNE 1/8 - 1/4 (0.218 mi.)***	***J44***	***128***
NORCO FUEL SALES Reg Id: 083302486T	***2001 HAMNER AVE***	***SSE 1/8 - 1/4 (0.234 mi.)***	***M54***	***164***

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: 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.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

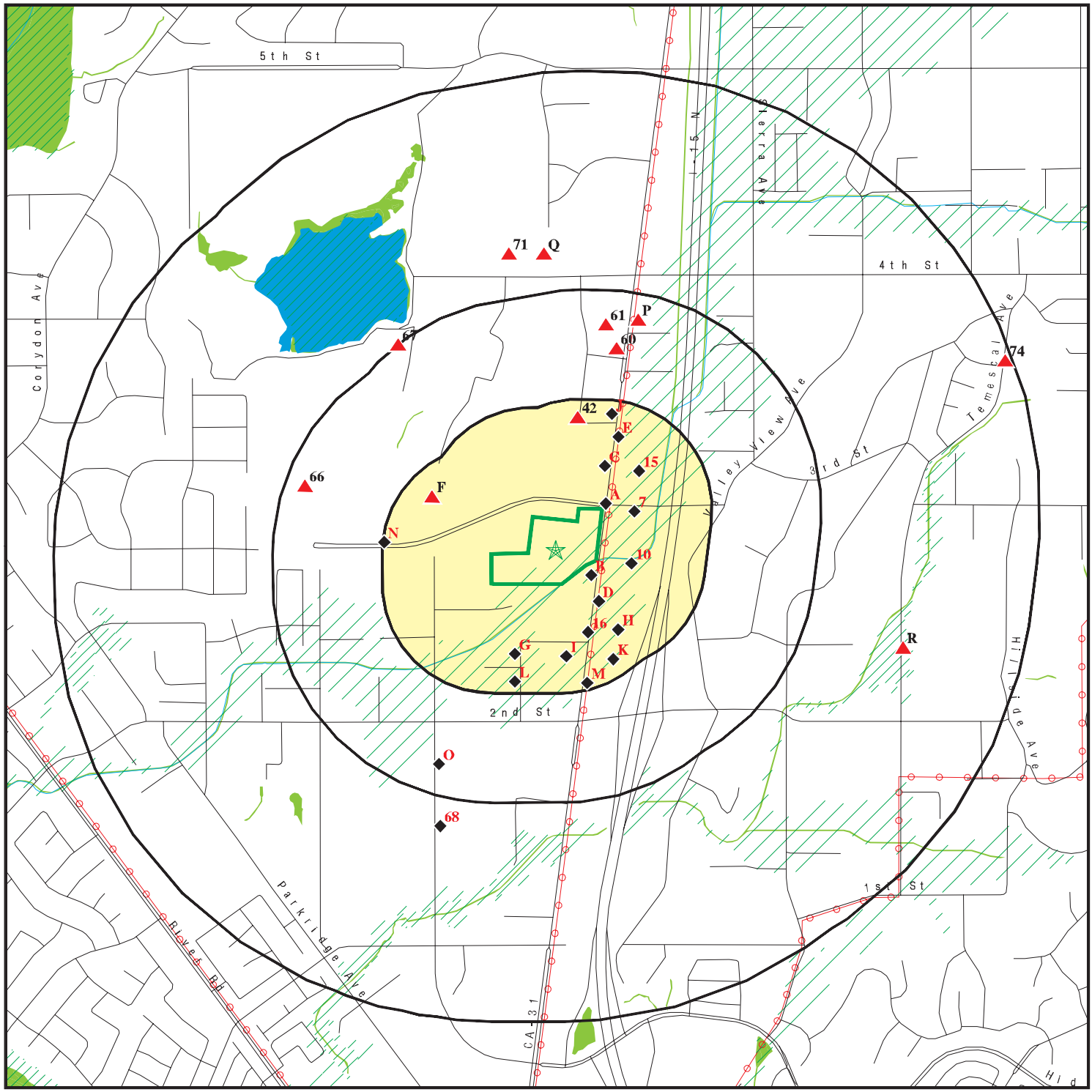
Lower Elevation	Address	Direction / Distance	Map ID	Page
O T S INC	2481 HAMNER AV	NE 0 - 1/8 (0.121 mi.)	15	41

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 6 records.

Site Name	Database(s)
NORCO TOWN CENTER	CIWQS
POLLYS NORCO 217	CIWQS
NORCO RETAIL CENTER	CIWQS
NORCO TOWN & COUNTRY	CIWQS
	CDL
HAMNER WIDENING PROJECT	FINDS

OVERVIEW MAP - 5813845.2S



0 1/4 1/2 1 Miles

- 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
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- 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:	Norco Project	CLIENT:	Geotek
ADDRESS:	2350 Hamner Avenue Norco CA 92860	CONTACT:	Anna M. Scott
LAT/LONG:	33.91512 / 117.562033	INQUIRY #:	5813845.2s
		DATE:	October 02, 2019 8:49 pm

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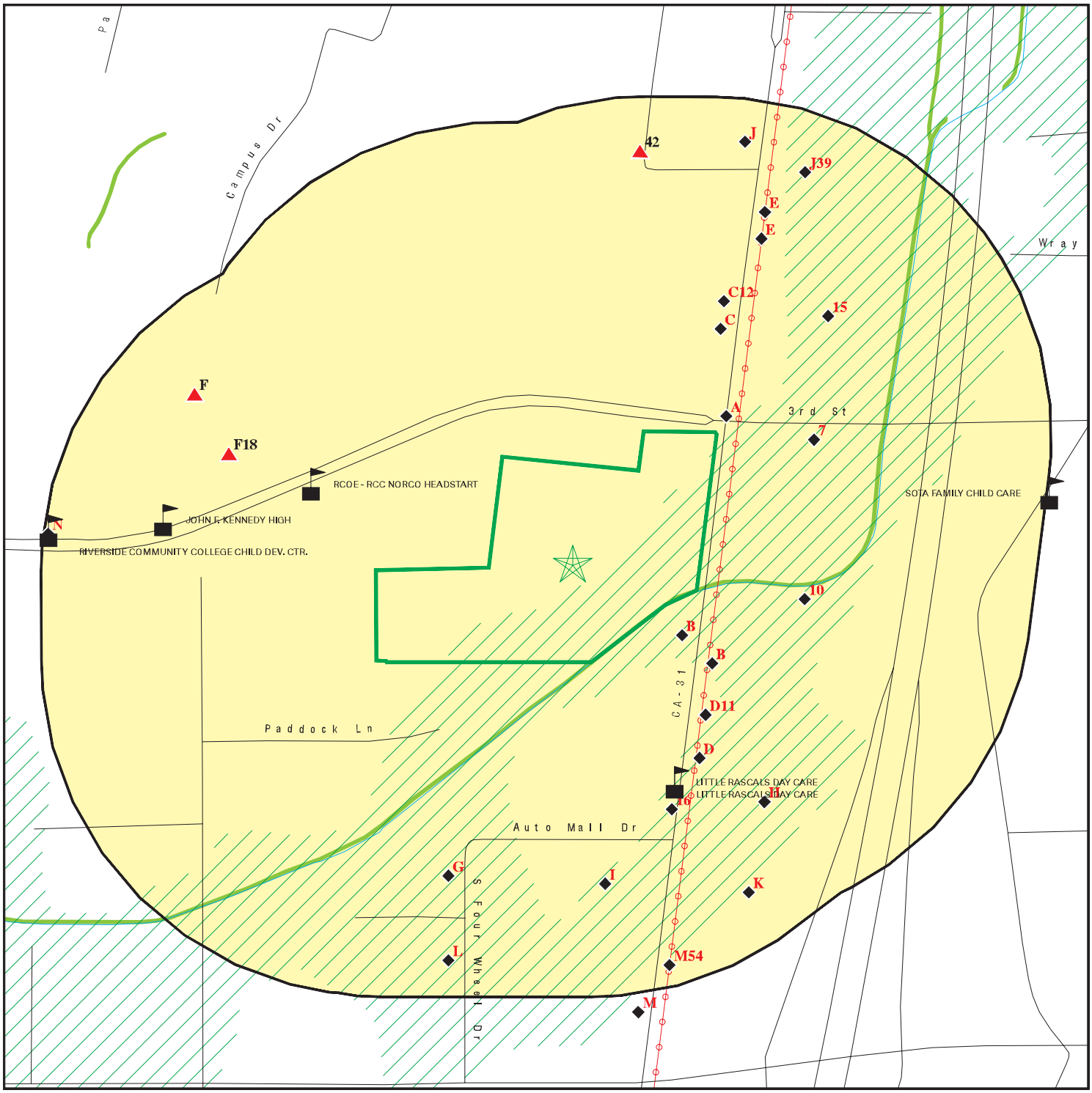
DETAIL MAP - 5813845.2S



0 1/16 1/8 1/4 Miles

- 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
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- 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: Norco Project	CLIENT: Geotek
ADDRESS: 2350 Hamner Avenue Norco CA 92860	CONTACT: Anna M. Scott
LAT/LONG: 33.91512 / 117.562033	INQUIRY #: 5813845.2s DATE: October 02, 2019 8:54 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	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	1	NR	NR	1
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		1	7	NR	NR	NR	8
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	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	3	2	5	NR	10
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	3	5	NR	NR	8

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
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	1	NR	NR	NR	1
AST	0.250		0	1	NR	NR	NR	1
INDIAN 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	1	0	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS	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								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	1	NR	NR	1
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	1	0	0	NR	1
SCH	0.250		0	1	NR	NR	NR	1
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		6	13	NR	NR	NR	19
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		1	2	NR	NR	NR	3
HIST UST	0.250		1	2	NR	NR	NR	3
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	2	NR	NR	NR	2
Local Land Records								
LIENS	0.001		0	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
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	1	0	NR	NR	1
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		6	14	NR	NR	NR	20
FUDS	1.000		0	0	0	2	NR	2
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	1	1	0	NR	2
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	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
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	2	2	NR	NR	4
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	16	55	12	7	0	90

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NE
< 1/8
0.014 mi.
76 ft.

LES SCHWAB TIRE CENTER #569
1701 3RD ST
NORCO, CA 92860

Site 1 of 2 in cluster A

RCRA NonGen / NLR | **1024854244** / **CAL000414940**

Relative:
Lower

Actual:
610 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/08/2016
Facility name:	LES SCHWAB TIRE CENTER #569
Facility address:	1701 3RD ST NORCO, CA 92860-2670
EPA ID:	CAL000414940
Mailing address:	PO BOX 5350 BEND, OR 97708
Contact:	SCOTT KNUTZ
Contact address:	PO BOX 5350 BEND, OR 97708-5350
Contact country:	Not reported
Contact telephone:	541-416-5514
Contact email:	SCOTT.W.KNUTZ@LESSCHWAB.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	SCOTT KNUTZ
Owner/operator address:	PO BOX 5350 BEND, OR 97708
Owner/operator country:	Not reported
Owner/operator telephone:	541-416-5514
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	LES SCHWAB TIRE CENTERS OF CENTRAL
Owner/operator address:	PO BOX 5350 BEND, OR 97708
Owner/operator country:	Not reported
Owner/operator telephone:	541-416-5514
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No

LES SCHWAB TIRE CENTER #569 (Continued) **1024854244**

On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

A2 **LES SCHWAB TIRE CENTER #569** **CERS HAZ WASTE** **S121020272**
NE **1701 3RD ST** **HAZNET** **N/A**
< 1/8 **NORCO, CA 92860** **CERS**
0.014 mi.
76 ft. **Site 2 of 2 in cluster A**

Relative:
Lower

Actual:
610 ft.

CERS HAZ WASTE:

Name:	LES SCHWAB TIRE CENTER #569
Address:	1701 3RD ST
City,State,Zip:	NORCO, CA 92860
Site ID:	396444
CERS ID:	10673464
CERS Description:	Hazardous Waste Generator

HAZNET:

Name:	LES SCHWAB TIRE CENTER #569
Address:	1701 3RD ST
City,State,Zip:	NORCO, CA 928602670
Year:	2017
GEPAID:	CAL000414940
Contact:	SCOTT KNUTZ
Telephone:	5414165514
Mailing Name:	Not reported
Mailing Address:	PO BOX 5350
Mailing City,St,Zip:	BEND, OR 97708
Gen County:	Riverside
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Tons:	0.0575
CA Waste Code:	181-Other inorganic solid waste
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Name:	LES SCHWAB TIRE CENTER #569
Address:	1701 3RD ST
City,State,Zip:	NORCO, CA 928602670
Year:	2017
GEPAID:	CAL000414940
Contact:	SCOTT KNUTZ
Telephone:	5414165514
Mailing Name:	Not reported
Mailing Address:	PO BOX 5350
Mailing City,St,Zip:	BEND, OR 97708
Gen County:	Riverside
TSD EPA ID:	CAD980675276

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

TSD County: Kern
Tons: 0.0525
CA Waste Code: 181-Other inorganic solid waste
Method: H132-Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County: Riverside

Name: LES SCHWAB TIRE CENTER #569
Address: 1701 3RD ST
City,State,Zip: NORCO, CA 928602670
Year: 2017
GEPAID: CAL000414940
Contact: SCOTT KNUTZ
Telephone: 5414165514
Mailing Name: Not reported
Mailing Address: PO BOX 5350
Mailing City,St,Zip: BEND, OR 97708
Gen County: Riverside
TSD EPA ID: CAD044429835
TSD County: Los Angeles
Tons: 0.18
CA Waste Code: 343-Unspecified organic liquid mixture
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: LES SCHWAB TIRE CENTER #569
Address: 1701 3RD ST
City,State,Zip: NORCO, CA 928602670
Year: 2016
GEPAID: CAL000414940
Contact: CHRIS BAKER
Telephone: 9092735861
Mailing Name: Not reported
Mailing Address: PO BOX 5350
Mailing City,St,Zip: BEND, OR 977085350
Gen County: Riverside
TSD EPA ID: CAD044429835
TSD County: Los Angeles
Tons: 0.2375
CA Waste Code: 343-Unspecified organic liquid mixture
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

CERS:
Name: LES SCHWAB TIRE CENTER #569
Address: 1701 3RD ST
City,State,Zip: NORCO, CA 92860
Site ID: 396444
CERS ID: 10673464
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 396444
Site Name: Les Schwab Tire Center #569
Violation Date: 08-10-2016

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 11/21/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	396444
Site Name:	Les Schwab Tire Center #569
Violation Date:	08-10-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes:	Returned to compliance on 11/21/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	396444
Site Name:	Les Schwab Tire Center #569
Violation Date:	08-10-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 11/21/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	396444
Site Name:	Les Schwab Tire Center #569
Violation Date:	08-10-2016
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 11/21/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	396444
Site Name:	Les Schwab Tire Center #569
Violation Date:	08-10-2016
Citation:	19 CCR 6.95 25508(a)(1) - California Code of Regulations, Title 19, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit the Business Activities Page and/or Business Owner Operator Identification Page.
Violation Notes:	Returned to compliance on 11/21/2016.

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 396444
Site Name: Les Schwab Tire Center #569
Violation Date: 08-10-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 11/21/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 396444
Site Name: Les Schwab Tire Center #569
Violation Date: 08-10-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 11/21/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 396444
Site Name: Les Schwab Tire Center #569
Violation Date: 08-10-2016
Citation: HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description: Failure to adequately establish and implement a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes: Returned to compliance on 11/21/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 396444
Site Name: Les Schwab Tire Center #569
Violation Date: 08-10-2016
Citation: Un-Specified
Violation Description: Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes: Returned to compliance on 09/14/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-10-2016

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Les Schwab Tire Center 1701 3rd St, Norco CA HWG Inspection.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-10-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Les Schwab Tire Center 1701 3rd St, Norco CA HMD Inspection.
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 09-14-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 11-14-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 11-14-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 396444
Facility Name: Les Schwab Tire Center #569
Env Int Type Code: HMBP
Program ID: 10673464
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.916680
Longitude: -117.560190

Affiliation:
Affiliation Type Desc: Legal Owner
Entity Name: Les Schwab Tire Centers of Central CA, Inc.

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

Entity Title:	Not reported
Affiliation Address:	PO Box 5350
Affiliation City:	Bend
Affiliation State:	OR
Affiliation Country:	United States
Affiliation Zip:	97708
Affiliation Phone:	(541) 447-4136
Affiliation Type Desc:	Operator
Entity Name:	Cody Lyczewski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 205-6360
Affiliation Type Desc:	Parent Corporation
Entity Name:	Les Schwab Tire Center #569
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Document Preparer
Entity Name:	Darren McClain
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Environmental Contact
Entity Name:	Darren McClain
Entity Title:	Not reported
Affiliation Address:	9095 Fairway Drive
Affiliation City:	Roseville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	95678
Affiliation Phone:	Not reported

LES SCHWAB TIRE CENTER #569 (Continued) **S121020272**

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	PO Box 5350
Affiliation City:	Bend
Affiliation State:	OR
Affiliation Country:	Not reported
Affiliation Zip:	97708
Affiliation Phone:	Not reported

Affiliation Type Desc:	Identification Signer
Entity Name:	Darren McClain
Entity Title:	CA Field Safety Coordinator
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Property Owner
Entity Name:	SFP-E, LLC
Entity Title:	Not reported
Affiliation Address:	PO Box 5350
Affiliation City:	Bend
Affiliation State:	OR
Affiliation Country:	United States
Affiliation Zip:	97708
Affiliation Phone:	(541) 416-5514

B3 **NORCO AUTO TECH** **CERS HAZ WASTE** **S123536953**
ESE **2248 HAMNER AVE** **N/A**
< 1/8 **NORCO, CA 92860**
0.026 mi.
135 ft. **Site 1 of 4 in cluster B**

Relative:
Lower

Actual:
601 ft.

CERS HAZ WASTE:

Name:	NORCO AUTO TECH
Address:	2248 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	138538
CERS ID:	10326850
CERS Description:	Hazardous Waste Generator

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	10-27-2016
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	10-31-2013
Violations Found:	No

NORCO AUTO TECH (Continued) **S123536953**

Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Coordinates:

Site ID:	138538
Facility Name:	Norco Auto Tech
Env Int Type Code:	HWG
Program ID:	10326850
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.914300
Longitude:	-117.560770

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2248 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Parent Corporation
Entity Name:	Norco Auto Tech
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

B4 **NORCO FOREIGN AND DOMESTIC** **RCRA-SQG** **1000905499**
ESE **2248 HAMNER AVE** **FINDS** **CA0000773978**
< 1/8 **NORCO, CA 92860** **ECHO**
0.026 mi.
135 ft. **Site 2 of 4 in cluster B**

Relative:
Lower

Actual:
601 ft.

RCRA-SQG:

Date form received by agency:	04/11/2002
Facility name:	NORCO FOREIGN AND DOMESTIC
Facility address:	2248 HAMNER AVE NORCO, CA 92860
EPA ID:	CA0000773978
Contact:	ANTONIO BARRETO
Contact address:	2248 HAMNER AVE NORCO, CA 92860
Contact country:	US
Contact telephone:	909-735-8040
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	BARRETO INC
Owner/operator address:	2248 HAMNER AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	909-735-8040
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

NORCO FOREIGN AND DOMESTIC (Continued) **1000905499**

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

Violation Status: No violations found

FINDS:

Registry ID: 110006466190

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000905499
Registry ID: 110006466190
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110006466190

B5 **A & J MOBILE TRUCK REPAIR** **RCRA NonGen / NLR** **1024805750**
SE **2231 HAMNER AVE** **CAL000265381**
< 1/8 **NORCO, CA 92860**
0.054 mi.
287 ft. **Site 3 of 4 in cluster B**

Relative: **Lower**
Actual: **602 ft.**

RCRA NonGen / NLR:
Date form received by agency: 01/24/2003
Facility name: A & J MOBILE TRUCK REPAIR
Facility address: 2231 HAMNER AVE
NORCO, CA 92860
EPA ID: CAL000265381
Contact: JAMES HELFRICH
Contact address: 5532 GRANDVIEW AVE
YORBA LINDA, CA 92886
Contact country: Not reported
Contact telephone: 714-400-7579
Contact email: AJMOBILE@SBCGLOBAL.NET
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

A & J MOBILE TRUCK REPAIR (Continued) **1024805750**

Owner/Operator Summary:

Owner/operator name:	JAMES & ANN HELFRICH
Owner/operator address:	5532 GRANDVIEW AVE YORBA LINDA, CA 92886
Owner/operator country:	Not reported
Owner/operator telephone:	714-400-7579
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	JAMES HELFRICH
Owner/operator address:	5532 GRANDVIEW AVE YORBA LINDA, CA 92886
Owner/operator country:	Not reported
Owner/operator telephone:	714-400-7579
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

B6 **A & J TRUCK REPAIR** **CERS HAZ WASTE S113124533**
SE **2231 HAMNER AVE** **HAZNET N/A**
< 1/8 **NORCO, CA 92860**
0.054 mi.
287 ft. **Site 4 of 4 in cluster B**

Relative:
Lower

Actual:
602 ft.

CERS HAZ WASTE:

Name:	A & J TRUCK REPAIR
Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	88671
CERS ID:	10322359

A & J TRUCK REPAIR (Continued) **S113124533**

CERS Description: Hazardous Waste Generator

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-15-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 88671
Facility Name: A & J Truck Repair
Env Int Type Code: HWG
Program ID: 10322359
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.914020
Longitude: -117.559300

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 2231 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: A & J Truck Repair
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

HAZNET:
Name: A & J MOBILE TRUCK REPAIR

A & J TRUCK REPAIR (Continued) **S113124533**

Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2017
GEPAID:	CAL000265381
Contact:	JAMES HELFRICH
Telephone:	7144007579
Mailing Name:	Not reported
Mailing Address:	2231 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602608
Gen County:	Riverside
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Tons:	0.0952
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Riverside

Name:	A & J MOBILE TRUCK REPAIR
Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2017
GEPAID:	CAL000265381
Contact:	JAMES HELFRICH
Telephone:	7144007579
Mailing Name:	Not reported
Mailing Address:	2231 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602608
Gen County:	Riverside
TSD EPA ID:	CAD097030993
TSD County:	Los Angeles
Tons:	0.275
CA Waste Code:	352-Other organic solids
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Name:	A & J MOBILE TRUCK REPAIR
Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2016
GEPAID:	CAL000265381
Contact:	JAMES HELFRICH
Telephone:	7144007579
Mailing Name:	Not reported
Mailing Address:	2231 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602608
Gen County:	Riverside
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Tons:	0.425
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Riverside

Name:	A & J MOBILE TRUCK REPAIR

A & J TRUCK REPAIR (Continued) **S113124533**

Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2012
GEPAID:	CAL000265381
Contact:	JAMES HELFRICH
Telephone:	7144007579
Mailing Name:	Not reported
Mailing Address:	2231 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602608
Gen County:	Riverside
TSD EPA ID:	ARD981057870
TSD County:	99
Tons:	0.374
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County:	Riverside

Name:	A & J MOBILE TRUCK REPAIR
Address:	2231 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2007
GEPAID:	CAL000265381
Contact:	JAMES HELFRICH
Telephone:	7144007579
Mailing Name:	Not reported
Mailing Address:	2231 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602608
Gen County:	Riverside
TSD EPA ID:	CAD981696420
TSD County:	Los Angeles
Tons:	4.2
CA Waste Code:	135-Unspecified aqueous solution
Method:	-
Facility County:	Riverside

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

---

7 **RC MANNING** **HIST UST** **U001569923**
ENE **1650 3RD ST** **N/A**
< 1/8 **NORCO, CA 91760**
0.073 mi.
385 ft.

Relative: HIST UST:
Lower

Actual:
605 ft.

Name:	RC MANNING
Address:	1650 3RD ST
City,State,Zip:	NORCO, CA 91760
File Number:	0001F8B9
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F8B9.pdf
Region:	STATE
Facility ID:	00000007178
Facility Type:	Other
Other Type:	HOME
Contact Name:	OWNER
Telephone:	7143714559
Owner Name:	RC MANNING
Owner Address:	1650 3RD ST

RC MANNING (Continued) **U001569923**

Owner City,St,Zip:	NORCO, CA 91760
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Click here for Geo Tracker PDF:

C8 **POPE CONSTRUCTION** **RCRA NonGen / NLR** **1024790631**
NNE **2466 HAMNER AVE** **CAL000089826**
< 1/8 **NORCO, CA 92860**
0.077 mi.
406 ft. **Site 1 of 3 in cluster C**

Relative: **Lower**

Actual: **615 ft.**

RCRA NonGen / NLR:

Date form received by agency:	06/03/1993
Facility name:	POPE CONSTRUCTION
Facility address:	2466 HAMNER AVE NORCO, CA 92860-0000
EPA ID:	CAL000089826
Mailing address:	PO BOX 5470 NORCO, CA 92860-0000
Contact:	FRANK POPE
Contact address:	23080 HAMPTON CT GRAND TERRACE, CA 92313
Contact country:	Not reported
Contact telephone:	951-734-5320
Contact email:	POPECST@SBCGLOBAL.NET
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	EMMETT FRANKLIN POPE III
Owner/operator address:	23080 HAMPTON CT GRAND TERRACE, CA 92313
Owner/operator country:	Not reported
Owner/operator telephone:	909-370-2275
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other

POPE CONSTRUCTION (Continued) **1024790631**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: FRANK POPE
Owner/operator address: 23080 HAMPTON CT
GRAND TERRACE, CA 92313
Owner/operator country: Not reported
Owner/operator telephone: 951-734-5320
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

C9 **POPE CONSTRUCTION COMPANY** **CERS HAZ WASTE** **S106930820**
NNE **2466 HAMNER AVE** **SWEEPS UST** **N/A**
< 1/8 **NORCO, CA 91760** **CERS**
0.077 mi.
406 ft. **Site 2 of 3 in cluster C**

Relative: **Lower**
Actual: **615 ft.**

CERS HAZ WASTE:
Name: POPE CONSTRUCTION CO
Address: 2466 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 58180
CERS ID: 10316626
CERS Description: Hazardous Waste Generator

SWEEPS UST:
Name: POPE CONSTRUCTION COMPANY
Address: 2466 HAMNER AVE
City: NORCO
Status: Active
Comp Number: 50067
Number: 1
Board Of Equalization: 44-018310

POPE CONSTRUCTION COMPANY (Continued) **S106930820**

Referral Date:	11-17-92
Action Date:	11-17-92
Created Date:	04-13-89
Owner Tank Id:	000834
SWRCB Tank Id:	33-000-050067-000001
Tank Status:	A
Capacity:	4000
Active Date:	11-17-92
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	1

CERS:

Name:	POPE CONSTRUCTION CO
Address:	2466 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	58180
CERS ID:	10316626
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-05-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	02-05-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Eval General Type:	Other/Unknown
Eval Date:	07-25-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Reviewing delivered typed inspection reprot
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Other/Unknown
Eval Date:	07-25-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Reviewing delivered typed inspection reprot.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

POPE CONSTRUCTION COMPANY (Continued) **S106930820**

Coordinates:

Site ID:	58180
Facility Name:	Pope Construction Co
Env Int Type Code:	HWG
Program ID:	10316626
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.917680
Longitude:	-117.560490

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	PO Box 5470
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Affiliation Type Desc:	Document Preparer
Entity Name:	Emmett F. Pope III
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Operator
Entity Name:	Frank Pope
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 264-4315

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Environmental Contact
Entity Name:	Emmett F. Pope III
Entity Title:	Not reported
Affiliation Address:	PO Box 5470
Affiliation City:	Norco

POPE CONSTRUCTION COMPANY (Continued) **S106930820**

Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Identification Signer
Entity Name:	Emmett F. Pope III
Entity Title:	President
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Emmett Franklin Pope III
Entity Title:	Not reported
Affiliation Address:	PO Box 5470
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 264-4315
Affiliation Type Desc:	Parent Corporation
Entity Name:	Pope Construction Co
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

10
East
< 1/8
0.081 mi.
427 ft.

HAMMERCO TOOL & EQUIPMENT REPAIR **RCRA NonGen / NLR** **1024836112**
2269 HAMNER AVE **CAL000378975**
NORCO, CA 92860

Relative:
Lower

Actual:
602 ft.

RCRA NonGen / NLR:

Date form received by agency:	10/15/2012
Facility name:	HAMMERCO TOOL & EQUIPMENT REPAIR
Facility address:	2269 HAMNER AVE NORCO, CA 92860
EPA ID:	CAL000378975
Contact:	SCOTT HUKILL
Contact address:	2269 HAMNER AVE NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-737-9810
Contact email:	ACCOUNTS@HAMMERCO.US
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

HAMMERCO TOOL & EQUIPMENT REPAIR (Continued) **1024836112**

Owner/Operator Summary:

Owner/operator name:	SCOTT HUKILL
Owner/operator address:	2269 HAMNER AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-737-9810
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	SCOTT HUKILL
Owner/operator address:	2269 HAMNER AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-737-9810
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

D11 **TRACTOR SUPPLY COMPANY STORE #1750-NORCO** **CERS HAZ WASTE** **S123516484**
SE **2195 HAMNER AVE** **CERS** **N/A**
< 1/8 **NORCO, CA 92860**
0.083 mi.
439 ft. **Site 1 of 3 in cluster D**

Relative:
Lower

Actual:
603 ft.

CERS HAZ WASTE:

Name:	TRACTOR SUPPLY COMPANY STORE #1750-NORCO
Address:	2195 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	404230
CERS ID:	10505290

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

CERS Description: Hazardous Waste Generator

CERS:
Name: TRACTOR SUPPLY COMPANY STORE #1750-NORCO
Address: 2195 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 404230
CERS ID: 10505290
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 06/27/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes: Returned to compliance on 06/27/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description: Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes: Returned to compliance on 06/27/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 06-26-2019
Citation: Un-Specified
Violation Description: Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes: OBSERVATION: Required NFPA-704 signs were not posted at the facility's

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

entrance. CORRECTIVE ACTION: Owner/operator shall research chemical safety data sheets and post proper NFPA-704 signs. Signs shall be posted at the entrance of the facility (gate or door). Submit photos to this department.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 06/27/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 06-27-2016
Citation: 40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description: Failure to post the following information next to the telephone: (A) The name and telephone number of the emergency coordinator; (B) Location of fire extinguishers and spill control material, and, if present, fire alarm; and (C) The telephone number of the fire department, unless the facility has a direct alarm.
Violation Notes: Returned to compliance on 10/20/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description: Failure to adequately establish and implement a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes: Returned to compliance on 06/27/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 404230
Site Name: Tractor Supply Company Store #1750-Norco
Violation Date: 08-05-2014
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Violation Notes:	Returned to compliance on 06/27/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	06-27-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	Returned to compliance on 10/20/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	08-05-2014
Citation:	HSC 6.11 25404.1 - California Health and Safety Code, Chapter 6.11, Section(s) 25404.1
Violation Description:	Failure to obtain and/or maintain an active hazardous waste generator permit.
Violation Notes:	Returned to compliance on 06/27/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	08-05-2014
Citation:	22 CCR 12 66262.20 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.20
Violation Description:	Failure to prepare a hazardous waste manifest for the transport of a hazardous waste for off-site transfer, treatment, storage, or disposal.
Violation Notes:	Returned to compliance on 06/27/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	08-05-2014
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 06/27/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Violation Date:	08-05-2014
Citation:	40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description:	Failure to post, next to the telephone, Emergency Information (SQG) containing the location of emergency equipment, contact names and numbers.
Violation Notes:	Returned to compliance on 08/28/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	08-05-2014
Citation:	HSC 6.95 25508(d) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(d)
Violation Description:	Failure to complete and/or electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/27/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Violation Date:	08-05-2014
Citation:	40 CFR 1 262.34(d)(5)(i) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(i)
Violation Description:	Failure to have an emergency coordinator or a designee onsite during operating hours.
Violation Notes:	Returned to compliance on 08/28/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	08-05-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Tractor Supply Co 2195 Hamner Ave, Norco CA 92860
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	10-20-2016
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	10-20-2016

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-26-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. The facility is a retail store and possibly generates the following waste streams: incidental retail waste (acid, base, flammable, toxic), contaminated absorbent, universal waste, and spent batteries - Facility's waste hauler is Stericycle. Manager stated that facility has waste pickups every 6 months - Manager stated that facility's weekly inspections are done visually.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-26-2019
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. - Facility's hazardous materials training is conducted online. Manager was able to show that she had taken the hazardous materials training. Manager stated that they are unable to view other employees training.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-27-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-27-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	08-05-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Eval Notes:	Tractor Supply Co 2195 Hamner Ave, Norco CA 92860
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Enforcement Action:

Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Site Address:	2195 HAMNER AVE
Site City:	NORCO
Site Zip:	92860
Enf Action Date:	08-05-2014
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HMRRP
Enf Action Source:	CERS

Site ID:	404230
Site Name:	Tractor Supply Company Store #1750-Norco
Site Address:	2195 HAMNER AVE
Site City:	NORCO
Site Zip:	92860
Enf Action Date:	08-05-2014
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS

Coordinates:

Site ID:	404230
Facility Name:	Tractor Supply Company Store #1750-Norco
Env Int Type Code:	HMBP
Program ID:	10505290
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.913470
Longitude:	-117.559430

Affiliation:

Affiliation Type Desc:	Parent Corporation
Entity Name:	TRACTOR SUPPLY COMPANY
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Affiliation Address:	5401 Virginia Way
Affiliation City:	Brentwood
Affiliation State:	TN
Affiliation Country:	Not reported
Affiliation Zip:	37027
Affiliation Phone:	Not reported
Affiliation Type Desc:	Identification Signer
Entity Name:	Joe Scholl
Entity Title:	Manager, Safety & Environmental Compliance
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	TRACTOR SUPPLY COMPANY
Entity Title:	Not reported
Affiliation Address:	5401 Virginia Way
Affiliation City:	Brentwood
Affiliation State:	TN
Affiliation Country:	United States
Affiliation Zip:	37027
Affiliation Phone:	(615) 440-4000
Affiliation Type Desc:	Operator
Entity Name:	TRACTOR SUPPLY COMPANY
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(615) 440-4000
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Document Preparer
Entity Name:	Joe Scholl
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

TRACTOR SUPPLY COMPANY STORE #1750-NORCO (Continued) **S123516484**

Affiliation Type Desc:	Environmental Contact
Entity Name:	Joe Scholl
Entity Title:	Not reported
Affiliation Address:	5401 Virginia Way
Affiliation City:	Brentwood
Affiliation State:	TN
Affiliation Country:	Not reported
Affiliation Zip:	37027
Affiliation Phone:	Not reported

C12 **PREMIER DENTAL** **RCRA NonGen / NLR** **1024772109**
NNE **2488 HAMNER AVE., SUITE 100** **CAC002992022**
< 1/8 **NORCO, CA 92860**
0.098 mi.
516 ft. **Site 3 of 3 in cluster C**

Relative:
Lower

Actual:
616 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/06/2018
Facility name:	PREMIER DENTAL
Facility address:	2488 HAMNER AVE., SUITE 100 NORCO, CA 92860
EPA ID:	CAC002992022
Contact:	STEVE NGUYEN
Contact address:	2488 HAMNER AVE., SUITE 100 NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	714-609-6172
Contact email:	SN1028@YAHOO.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	STEVE NGUYEN
Owner/operator address:	2488 HAMNER AVE., SUITE 100 NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	714-609-6172
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	STEVE NGUYEN
Owner/operator address:	2488 HAMNER AVE., SUITE 100 NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	714-609-6172
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner

PREMIER DENTAL (Continued) **1024772109**

Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

D13 **TRACTOR SUPPLY COMPANY #1750** **CERS HAZ WASTE** **S118234631**
SSE **2185 HAMNER AVE** **HAZNET** **N/A**
< 1/8 **NORCO, CA 92860**
0.106 mi.
560 ft. **Site 2 of 3 in cluster D**

Relative: CERS HAZ WASTE:
Lower Name: ROBINSON AUTO WORKS
Actual: Address: 2185 HAMNER AVE UNIT A
603 ft. City,State,Zip: NORCO, CA 92860
Site ID: 148622
CERS ID: 10328689
CERS Description: Hazardous Waste Generator

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: Jerry Robinson
Entity Title: Not reported
Affiliation Address: 20310 State St
Affiliation City: Corona
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92881
Affiliation Phone: Not reported

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 2185 Hamner Ave Unit A
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: Robinson Auto Works

TRACTOR SUPPLY COMPANY #1750 (Continued) **S118234631**

Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

HAZNET:

Name:	TRACTOR SUPPLY COMPANY #1750
Address:	2185 HAMNER AVE
City,State,Zip:	NORCO, CA 928602606
Year:	2017
GEPAID:	CAL000391781
Contact:	BRIAN SPEARS
Telephone:	6154404115
Mailing Name:	Not reported
Mailing Address:	5401 VIRGINIA WAY
Mailing City,St,Zip:	BRENTWOOD, TN 370270000
Gen County:	Riverside
TSD EPA ID:	CAD059494310
TSD County:	Santa Clara
Tons:	0.105
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside
Name:	TRACTOR SUPPLY COMPANY #1750
Address:	2185 HAMNER AVE
City,State,Zip:	NORCO, CA 928602606
Year:	2017
GEPAID:	CAL000391781
Contact:	BRIAN SPEARS
Telephone:	6154404115
Mailing Name:	Not reported
Mailing Address:	5401 VIRGINIA WAY
Mailing City,St,Zip:	BRENTWOOD, TN 370270000
Gen County:	Riverside
TSD EPA ID:	UTD981552177
TSD County:	99
Tons:	0.0025
CA Waste Code:	612-Household waste
Method:	H040-Incineration--Thermal Destruction Other Than Use As A Fuel
Facility County:	Riverside

TRACTOR SUPPLY COMPANY #1750 (Continued) **S118234631**

Name:	TRACTOR SUPPLY COMPANY #1750
Address:	2185 HAMNER AVE
City,State,Zip:	NORCO, CA 928602606
Year:	2017
GEPAID:	CAL000391781
Contact:	BRIAN SPEARS
Telephone:	6154404115
Mailing Name:	Not reported
Mailing Address:	5401 VIRGINIA WAY
Mailing City,St,Zip:	BRENTWOOD, TN 370270000
Gen County:	Riverside
TSD EPA ID:	TXD982290140
TSD County:	99
Tons:	0.001
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Name:	TRACTOR SUPPLY COMPANY #1750
Address:	2185 HAMNER AVE
City,State,Zip:	NORCO, CA 928602606
Year:	2016
GEPAID:	CAL000391781
Contact:	BRIAN SPEARS
Telephone:	6154404115
Mailing Name:	Not reported
Mailing Address:	5401 VIRGINIA WAY
Mailing City,St,Zip:	BRENTWOOD, TN 370270000
Gen County:	Riverside
TSD EPA ID:	ARD069748192
TSD County:	99
Tons:	0.0115
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H040-Incineration--Thermal Destruction Other Than Use As A Fuel
Facility County:	Riverside

Name:	TRACTOR SUPPLY COMPANY #1750
Address:	2185 HAMNER AVE
City,State,Zip:	NORCO, CA 928602606
Year:	2015
GEPAID:	CAL000391781
Contact:	BRIAN SPEARS
Telephone:	6154404115
Mailing Name:	Not reported
Mailing Address:	5401 VIRGINIA WAY
Mailing City,St,Zip:	BRENTWOOD, TN 370270000
Gen County:	Riverside
TSD EPA ID:	NED981723513
TSD County:	99
Tons:	0.005
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H040-Incineration--Thermal Destruction Other Than Use As A Fuel
Facility County:	Riverside

TRACTOR SUPPLY COMPANY #1750 (Continued) **S118234631**

Click this hyperlink while viewing on your computer to access
9 additional CA_HAZNET: record(s) in the EDR Site Report.

D14 **TRACTOR SUPPLY COMPANY #1750** **RCRA NonGen / NLR** **1024841815**
SSE **2185 HAMNER AVE** **CAL000391781**
< 1/8 **NORCO, CA 92860**
0.106 mi.
560 ft. **Site 3 of 3 in cluster D**

Relative:
Lower

Actual:
603 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/05/2013
Facility name:	TRACTOR SUPPLY COMPANY #1750
Facility address:	2185 HAMNER AVE NORCO, CA 92860-2606
EPA ID:	CAL000391781
Mailing address:	5401 VIRGINIA WAY BRENTWOOD, TN 37027-0000
Contact:	BRIAN SPEARS
Contact address:	5401 VIRGINIA WAY BRENTWOOD, TN 37027-0000
Contact country:	Not reported
Contact telephone:	615-440-4115
Contact email:	HAZMAT@TRACTORSUPPLY.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TRACTOR SUPPLY COMPANY
Owner/operator address:	5401 VIRGINIA WAY BRENTWOOD, TN 37027
Owner/operator country:	Not reported
Owner/operator telephone:	615-440-4000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	BRIAN SPEARS
Owner/operator address:	5401 VIRGINIA WAY BRENTWOOD, TN 37027
Owner/operator country:	Not reported
Owner/operator telephone:	615-440-4115
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No

TRACTOR SUPPLY COMPANY #1750 (Continued) **1024841815**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

15
NE
< 1/8
0.121 mi.
639 ft.

O T S INC **EDR Hist Auto** **1020420914**
2481 HAMNER AV **N/A**
NORCO, CA 91760

Relative:
Lower

Actual:
610 ft.

EDR Hist Auto

Year:	Name:	Type:
1986	O T S INC	Gasoline Service Stations
1987	O T S INC	Gasoline Service Stations

16
SSE
1/8-1/4
0.125 mi.
662 ft.

NORCO MITSUBISHI **RCRA-SQG** **1000819812**
2100 HAMNER **FINDS** **CAD983658139**
NORCO, CA 92860 **ECHO**
HAZNET

Relative:
Lower

Actual:
603 ft.

RCRA-SQG:

Date form received by agency:	01/22/1993
Facility name:	NORCO MITSUBISHI
Facility address:	2100 HAMNER NORCO, CA 92860
EPA ID:	CAD983658139
Contact:	ART FOULK
Contact address:	2100 HAMNER NORCO, CA 91760
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	TIM PUTNEY
Owner/operator address:	2100 HAMNER

NORCO MITSUBISHI (Continued) **1000819812**

NORCO, CA 91760
Owner/operator country: Not reported
Owner/operator telephone: 909-735-7100
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110006484269

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000819812
Registry ID: 110006484269
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110006484269

NORCO MITSUBISHI (Continued) **1000819812**

HAZNET:

Name:	NORCO MITSUBISHI
Address:	2100 HAMNER
City,State,Zip:	NORCO, CA 917600000
Year:	2005
GEPAID:	CAD983658139
Contact:	MATT CLARK / SVC MGR.
Telephone:	9097357100
Mailing Name:	Not reported
Mailing Address:	2100 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602605
Gen County:	Riverside
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Tons:	1.0425
CA Waste Code:	222-Oil/water separation sludge
Method:	R01-Recycler
Facility County:	Riverside

Name:	NORCO MITSUBISHI
Address:	2100 HAMNER
City,State,Zip:	NORCO, CA 917600000
Year:	2004
GEPAID:	CAD983658139
Contact:	MATT CLARK / SVC MGR.
Telephone:	9097357100
Mailing Name:	Not reported
Mailing Address:	2100 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602605
Gen County:	Riverside
TSD EPA ID:	CAD981696420
TSD County:	Los Angeles
Tons:	0.273
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	R01-Recycler
Facility County:	Riverside

Name:	NORCO MITSUBISHI
Address:	2100 HAMNER
City,State,Zip:	NORCO, CA 917600000
Year:	2004
GEPAID:	CAD983658139
Contact:	MATT CLARK / SVC MGR.
Telephone:	9097357100
Mailing Name:	Not reported
Mailing Address:	2100 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602605
Gen County:	Riverside
TSD EPA ID:	CAD981696420
TSD County:	Los Angeles
Tons:	Not reported
CA Waste Code:	221-Waste oil and mixed oil
Method:	R01-Recycler
Facility County:	Riverside

Name:	NORCO MITSUBISHI
Address:	2100 HAMNER

NORCO MITSUBISHI (Continued) **1000819812**

City,State,Zip:	NORCO, CA 917600000
Year:	2004
GEPAID:	CAD983658139
Contact:	MATT CLARK / SVC MGR.
Telephone:	9097357100
Mailing Name:	Not reported
Mailing Address:	2100 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602605
Gen County:	Riverside
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Tons:	0.1728
CA Waste Code:	214-Unspecified solvent mixture
Method:	R01-Recycler
Facility County:	Riverside

Name:	NORCO MITSUBISHI
Address:	2100 HAMNER
City,State,Zip:	NORCO, CA 917600000
Year:	2003
GEPAID:	CAD983658139
Contact:	MATT CLARK / SVC MGR.
Telephone:	9097357100
Mailing Name:	Not reported
Mailing Address:	2100 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602605
Gen County:	Riverside
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Tons:	0.1152
CA Waste Code:	214-Unspecified solvent mixture
Method:	R01-Recycler
Facility County:	Riverside

Click this hyperlink while viewing on your computer to access
19 additional CA_HAZNET: record(s) in the EDR Site Report.

E17 **NORCO TRANSMISSION** **CERS HAZ WASTE** **S113127886**
NNE **2521 HAMNER AVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.138 mi.
726 ft. **Site 1 of 9 in cluster E**

Relative: **Lower**

Actual: **615 ft.**

CERS HAZ WASTE:

Name:	NORCO TRANSMISSION
Address:	2521 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	52375
CERS ID:	10316605
CERS Description:	Hazardous Waste Generator

Evaluation:

Eval General Type:	Other/Unknown
Eval Date:	09-16-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Rejected Check violation notice issued for delinquent permit fees.
Eval Division:	Riverside County Department of Env Health

NORCO TRANSMISSION (Continued) **S113127886**

Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-25-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 52375
Facility Name: Norco Transmission
Env Int Type Code: HWG
Program ID: 10316605
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.918350
Longitude: -117.559730

Affiliation:
Affiliation Type Desc: Parent Corporation
Entity Name: Norco Transmission
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 2521 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: Joseph Rossi
Entity Title: Not reported

NORCO TRANSMISSION (Continued) **S113127886**

Affiliation Address: 2521 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 92860
Affiliation Phone: (951) 371-1133

HAZNET:

Name: NORCO TRANSMISSION CENTER INC
Address: 2521 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Year: 2013
GEPAID: CAL000273665
Contact: JOSEPH ROSSI/PRES
Telephone: 9513711133
Mailing Name: Not reported
Mailing Address: 2521 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928600000
Gen County: Riverside
TSD EPA ID: AZR000501510
TSD County: 99
Tons: 0.43785
CA Waste Code: 222-Oil/water separation sludge
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: NORCO TRANSMISSION CENTER INC
Address: 2521 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Year: 2008
GEPAID: CAL000273665
Contact: JOSEPH ROSSI/PRES
Telephone: 9513711133
Mailing Name: Not reported
Mailing Address: 2521 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928600000
Gen County: Riverside
TSD EPA ID: CAD981696420
TSD County: Los Angeles
Tons: 0.21
CA Waste Code: 134-Aqueous solution with total organic residues less than 10 percent
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: NORCO TRANSMISSION CENTER INC
Address: 2521 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Year: 2007
GEPAID: CAL000273665
Contact: JOSEPH ROSSI/PRES
Telephone: 9513711133
Mailing Name: Not reported
Mailing Address: 2521 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928600000

NORCO TRANSMISSION (Continued) **S113127886**

Gen County:	Riverside
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Tons:	0.0165
CA Waste Code:	331-Off-specification, aged or surplus organics
Method:	H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County:	Riverside
Name:	NORCO TRANSMISSION CENTER INC
Address:	2521 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2007
GEPAID:	CAL000273665
Contact:	JOSEPH ROSSI/PRES
Telephone:	9513711133
Mailing Name:	Not reported
Mailing Address:	2521 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928600000
Gen County:	Riverside
TSD EPA ID:	CAD982444481
TSD County:	San Bernardino
Tons:	0.125
CA Waste Code:	352-Other organic solids
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

F18 **KENNEDY MIDDLE COLLEGE HIGH SCHOOL** **ENVIROSTOR** **S105754264**
WNW **THIRD STREET** **SCH** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.140 mi.
739 ft. **Site 1 of 3 in cluster F**

Relative: **Higher**

Actual: **641 ft.**

ENVIROSTOR:

Name:	KENNEDY MIDDLE COLLEGE HIGH SCHOOL
Address:	THIRD STREET
City,State,Zip:	NORCO, CA 92860
Facility ID:	33970012
Status:	Certified
Status Date:	06/14/2005
Site Code:	404413
Site Type:	School Cleanup
Site Type Detailed:	School
Acres:	6.45
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.9163
Longitude:	-117.5665

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

APN: NONE SPECIFIED
Past Use: * NATIONAL SECURITY/INTERNATIONAL AFFAIRS
Potential COC: Lead Mercury (elemental Methane TPH-diesel Chloroform Hydrogen sulfide Toluene Zinc
Confirmed COC: 30550-NO 30024-NO 30136-NO 30330-NO 30013-NO 30014-NO 30015-NO 30594-NO
Potential Description: SED, SOIL, SV, SURFW
Alias Name: CORONA-NORCO UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: CORONA-NORCO USD-PROPOSED KENNEDY HS
Alias Type: Alternate Name
Alias Name: KENNEDY HIGH SCHOOL
Alias Type: Alternate Name
Alias Name: 110033607274
Alias Type: EPA (FRS #)
Alias Name: 404413
Alias Type: Project Code (Site Code)
Alias Name: 33970012
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 01/15/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 01/02/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 04/22/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 05/19/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 01/12/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 06/18/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 08/11/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 01/27/2004
Comments: DTSC approved SSI workplan with minor comments.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 4.15 Request
Completed Date: 01/21/2005
Comments: Approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 12/26/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/03/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Public Participation
Completed Date: 12/08/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/07/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/09/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 08/27/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/11/2005

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 06/14/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/02/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 01/15/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/16/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/10/2005
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: KENNEDY MIDDLE COLLEGE HIGH SCHOOL
Address: THIRD STREET
City,State,Zip: NORCO, CA 92860
Facility ID: 33970012
Site Type: School Cleanup
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 6.45
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404413
Assembly:	60
Senate:	31
Special Program Status:	Not reported
Status:	Certified
Status Date:	06/14/2005
Restricted Use:	NO
Funding:	School District
Latitude:	33.9163
Longitude:	-117.5665
APN:	NONE SPECIFIED
Past Use:	* NATIONAL SECURITY/INTERNATIONAL AFFAIRS
Potential COC:	Lead, Mercury (elemental, Methane, TPH-diesel, Chloroform, Hydrogen sulfide, Toluene, Zinc
Confirmed COC:	30550-NO, 30024-NO, 30136-NO, 30330-NO, 30013-NO, 30014-NO, 30015-NO, 30594-NO
Potential Description:	SED, SOIL, SV, SURFW
Alias Name:	CORONA-NORCO UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	CORONA-NORCO USD-PROPOSED KENNEDY HS
Alias Type:	Alternate Name
Alias Name:	KENNEDY HIGH SCHOOL
Alias Type:	Alternate Name
Alias Name:	110033607274
Alias Type:	EPA (FRS #)
Alias Name:	404413
Alias Type:	Project Code (Site Code)
Alias Name:	33970012
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	01/15/2004
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Other Report
Completed Date:	01/02/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Completion Report
Completed Date:	04/22/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Removal Action Completion Report
Completed Date:	05/19/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 01/12/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Report
Completed Date: 06/18/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 08/11/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Supplemental Site Investigation Workplan
Completed Date: 01/27/2004
Comments: DTSC approved SSI workplan with minor comments.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: 4.15 Request
Completed Date: 01/21/2005
Comments: Approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 12/26/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/03/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Public Participation
Completed Date: 12/08/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/07/2005
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 03/09/2005

KENNEDY MIDDLE COLLEGE HIGH SCHOOL (Continued) **S105754264**

Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	08/27/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	03/11/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Certification
Completed Date:	06/14/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	03/02/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	01/15/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	06/16/2005
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	03/10/2005
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

E19
NNE
1/8-1/4
0.146 mi.
773 ft.

NORCO BRAKE AND ALIGNMENT
2531 HAMNER AVE
NORCO, CA 92860

Site 2 of 9 in cluster E

RCRA NonGen / NLR | **1024868464** / **CAL000437069**

Relative:
Lower

Actual:
615 ft.

RCRA NonGen / NLR:

Date form received by agency:	06/20/2018
Facility name:	NORCO BRAKE AND ALIGNMENT
Facility address:	2531 HAMNER AVE NORCO, CA 92860
EPA ID:	CAL000437069
Mailing address:	1619 HILLSIDE AVE NORCO, CA 92860
Contact:	ALLISON HELSLEY OR ROGER HELSLEY
Contact address:	2531 HAMNER AVE NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-229-5003
Contact email:	ALLICROG@YAHOO.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ALLISON HELSLEY
Owner/operator address:	1619 HILLSIDE AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-229-5003
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	ALLISON HELSLEY OR ROGER HELSLEY
Owner/operator address:	2531 HAMNER AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-229-5003
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No

NORCO BRAKE AND ALIGNMENT (Continued) **1024868464**

On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

E20 **NORCO BRAKE AND ALIGNMENT** **CERS HAZ WASTE** **S123521555**
NNE **2531 HAMNER AVE** **CERS** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.146 mi.
773 ft. **Site 3 of 9 in cluster E**

Relative: **Lower**
Actual: **615 ft.**

CERS HAZ WASTE:

Name:	NORCO BRAKE AND ALIGNMENT
Address:	2531 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	439137
CERS ID:	10765450
CERS Description:	Hazardous Waste Generator

CERS:

Name:	NORCO BRAKE AND ALIGNMENT
Address:	2531 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	439137
CERS ID:	10765450
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	04-11-2018
Citation:	22 CCR 12 66262.40(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.40(a)
Violation Description:	Failure to keep a copy of each properly signed manifest for at least three years from the date the waste was accepted by the initial transporter. The manifest signed at the time the waste was accepted for transport shall be kept until receiving a signed copy from the

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

	designated facility which received the waste.
Violation Notes:	Returned to compliance on 06/01/2018. OBSERVATION: No manifests available during inspection. CORRECTIVE ACTION: Owner/operator shall obtain all manifests for hazardous waste shipments which occurred in the past 3 years. Manifests shall be made available for inspection.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25505(c) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(c)
Violation Description:	Failure to have a business plan readily available to personnel of the business or the unified program facility with responsibilities for emergency response or training.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	HSC 6.5 25201(a) - California Health and Safety Code, Chapter 6.5, Section(s) 25201(a)
Violation Description:	Failure to dispose of hazardous waste at a facility which has a permit from DTSC or disposing of hazardous waste at any point which is not authorized according to this chapter.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	HSC 6.5 25250.22 - California Health and Safety Code, Chapter 6.5, Section(s) 25250.22
Violation Description:	Failure to properly manage used oil and/or fuel filters in accordance with the requirements.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	04-18-2019
Citation:	40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description:	Failure to post the following information next to the telephone: (A) The name and telephone number of the emergency coordinator; (B) Location of fire extinguishers and spill control material, and, if present, fire alarm; and (C) The telephone number of the fire department, unless the facility has a direct alarm.
Violation Notes:	Returned to compliance on 05/15/2019.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description:	Failure to post the following information next to the telephone: (A) The name and telephone number of the emergency coordinator; (B) Location of fire extinguishers and spill control material, and, if present, fire alarm; and (C) The telephone number of the fire department, unless the facility has a direct alarm.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	04-18-2019
Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes:	Returned to compliance on 05/15/2019.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	HSC 6.5 25250.19(c) - California Health and Safety Code, Chapter 6.5, Section(s) 25250.19(c)
Violation Description:	Failure to record in an operating log and retain for three years the following information for each shipment of recycled or exempted oil: 1) The name and address of the used oil recycling facility or generator claiming the oil meets the requirements of HSC 6.5 25250.1. 2) The name and address of the facility receiving the shipment. 3) The quantity of oil delivered. 4) The date of shipment or delivery. 5) A cross-reference to the records and documentation required under HSC 6.5 25250.1.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	HSC 6.5 25163(a) - California Health and Safety Code, Chapter 6.5, Section(s) 25163(a)
Violation Description:	Failure to use a DTSC registered hazardous waste transporter to transport hazardous waste or transporting hazardous waste without being a DTSC registered hazardous waste transporter.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description:	Failure to adequately establish and implement a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes:	Returned to compliance on 02/22/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

	6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	04-18-2019
Citation:	40 CFR 1 265.32 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.32
Violation Description:	Failure of the facility to maintain the following emergency equipment or equivalents: 1) An internal communications or alarm system; 2) A device, such as a telephone (immediately available at the scene of Operations/ Maintenance) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams; 3) Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment; and 4) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.
Violation Notes:	Returned to compliance on 05/15/2019.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	06-01-2018
Citation:	Un-Specified
Violation Description:	Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes:	Returned to compliance on 06/27/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment
Violation Date:	10-25-2016
Citation:	22 CCR 12 66262.40(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.40(a)
Violation Description:	Failure to keep a copy of each properly signed manifest for at least three years from the date the waste was accepted by the initial transporter. The manifest signed at the time the waste was accepted for transport shall be kept until receiving a signed copy from the designated facility which received the waste.
Violation Notes:	Returned to compliance on 04/11/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	439137
Site Name:	Norco Brake and Alignment

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Violation Date: 04-11-2018
Citation: 40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description: Failure to post the following information next to the telephone: (A) The name and telephone number of the emergency coordinator; (B) Location of fire extinguishers and spill control material, and, if present, fire alarm; and (C) The telephone number of the fire department, unless the facility has a direct alarm.
Violation Notes: Returned to compliance on 06/01/2018. OBSERVATION: Observed no emergency response procedures posted. CORRECTIVE ACTION: Owner/operator shall post required emergency response procedures near the phone.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-11-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: - Emergency response plan template was left on site - Hazardous waste labels were left on site
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-18-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 06-01-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-01-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 06-05-2018
Violations Found: No

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Eval Type:	Other, not routine, done by local agency
Eval Notes:	help facility with CERS submittal ONSITE
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	10-25-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Norco Brake and Alignment 2531 Hamner Ave, Norco CA 92860 HWG inspection.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Coordinates:

Site ID:	439137
Facility Name:	Norco Brake and Alignment
Env Int Type Code:	HMBP
Program ID:	10765450
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.917850
Longitude:	-117.559660

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2531 Hamner Ave.
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Allison Helsley
Entity Title:	Not reported
Affiliation Address:	2531 Hamner Ave.
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 808-1200
Affiliation Type Desc:	Parent Corporation
Entity Name:	Norco Brake and Alignment
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

NORCO BRAKE AND ALIGNMENT (Continued) **S123521555**

Affiliation Type Desc:	Operator
Entity Name:	Roger Helsley
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 808-1200

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Document Preparer
Entity Name:	Allison Helsley
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Environmental Contact
Entity Name:	Allison Helsley
Entity Title:	Not reported
Affiliation Address:	2531 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Affiliation Type Desc:	Identification Signer
Entity Name:	Allison Helsley
Entity Title:	owner
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

E21
NNE
1/8-1/4
0.146 mi.
773 ft.

CECIL BRAKE AND WHEEL
2531 HAMNER AVE
NORCO, CA 92860

Site 4 of 9 in cluster E

RCRA NonGen / NLR
FINDS
ECHO

1000253050
CAD982323404

Relative:
Lower

Actual:
615 ft.

RCRA NonGen / NLR:

Date form received by agency:	02/02/1995
Facility name:	CECIL BRAKE AND WHEEL
Facility address:	2531 HAMNER AVE NORCO, CA 92860
EPA ID:	CAD982323404
Contact:	CECIL STANKA
Contact address:	2531 HAMNER AVE NORCO, CA 91760
Contact country:	US
Contact telephone:	909-272-4158
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CECIL STANKA
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

CECIL BRAKE AND WHEEL (Continued) **1000253050**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110006477384

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000253050
Registry ID: 110006477384
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110006477384

E22
NNE
1/8-1/4
0.148 mi.
784 ft.

R AND R AUTO
2533 HAMNER AVE
NORCO, CA 92860

Site 5 of 9 in cluster E

RCRA-SQG **1000309845**
FINDS **CAD030584718**
ECHO
EMI
HAZNET

Relative:
Lower

Actual:
615 ft.

RCRA-SQG:
Date form received by agency: 05/20/1986
Facility name: R AND R AUTO
Facility address: 2533 HAMNER AVE
NORCO, CA 92860
EPA ID: CAD030584718
Contact: ENVIRONMENTAL MANAGER
Contact address: 2533 HAMNER AVE
NORCO, CA 91760
Contact country: US
Contact telephone: 714-735-2081
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

R AND R AUTO (Continued) **1000309845**

Owner/Operator Summary:

Owner/operator name:	MARVIN AND DORIS RUMME
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED
	NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110006467028

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource

R AND R AUTO (Continued) **1000309845**

Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000309845
Registry ID:	110006467028
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110006467028

EMI:

Name:	R & R AUTO,M&D RUMME ETAL
Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	1990
County Code:	33
Air Basin:	SC
Facility ID:	61897
Air District Name:	SC
SIC Code:	7538
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

HAZNET:

Name:	R AND R AUTO
Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	2007
GEPAID:	CAD030584718
Contact:	MARVIN RUMME
Telephone:	9097352081
Mailing Name:	Not reported
Mailing Address:	2533 HAMNER
Mailing City,St,Zip:	NORCO, CA 928601923
Gen County:	Riverside
TSD EPA ID:	CAL000113451
TSD County:	Los Angeles
Tons:	0.34
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	01-
Facility County:	Riverside

Name:	R AND R AUTO

R AND R AUTO (Continued) **1000309845**

Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	2006
GEPAID:	CAD030584718
Contact:	MARVIN RUMME
Telephone:	9097352081
Mailing Name:	Not reported
Mailing Address:	2533 HAMNER
Mailing City,St,Zip:	NORCO, CA 928601923
Gen County:	Riverside
TSD EPA ID:	CAL000113451
TSD County:	Los Angeles
Tons:	0.272
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	-
Facility County:	Riverside

Name:	R AND R AUTO
Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	2006
GEPAID:	CAD030584718
Contact:	MARVIN RUMME
Telephone:	9097352081
Mailing Name:	Not reported
Mailing Address:	2533 HAMNER
Mailing City,St,Zip:	NORCO, CA 928601923
Gen County:	Riverside
TSD EPA ID:	CAL000113451
TSD County:	Los Angeles
Tons:	0.34
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	R01-Recycler
Facility County:	Riverside

Name:	R AND R AUTO
Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	2006
GEPAID:	CAD030584718
Contact:	MARVIN RUMME
Telephone:	9097352081
Mailing Name:	Not reported
Mailing Address:	2533 HAMNER
Mailing City,St,Zip:	NORCO, CA 928601923
Gen County:	Riverside
TSD EPA ID:	CAD009452657
TSD County:	San Mateo
Tons:	0.221
CA Waste Code:	343-Unspecified organic liquid mixture
Method:	R01-Recycler
Facility County:	Riverside

Name:	R AND R AUTO
Address:	2533 HAMNER AVE
City,State,Zip:	NORCO, CA 917600000
Year:	2005

R AND R AUTO (Continued) **1000309845**

GEPAID: CAD030584718
Contact: MARVIN RUMME
Telephone: 9097352081
Mailing Name: Not reported
Mailing Address: 2533 HAMNER
Mailing City,St,Zip: NORCO, CA 928601923
Gen County: Riverside
TSD EPA ID: CAL000113451
TSD County: Los Angeles
Tons: 0.85
CA Waste Code: 343-Unspecified organic liquid mixture
Method: R01-Recycler
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
27 additional CA_HAZNET: record(s) in the EDR Site Report.

G23 **NORCO TRUCK & AUTO PARTS TOWING INC** **CERS HAZ WASTE** **S113124511**
SSW **2000 S FOUR WHEEL DRIVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860** **NPDES**
0.159 mi. **CIWQS**
842 ft. **Site 1 of 5 in cluster G** **CERS**

Relative:
Lower

Actual:
598 ft.

CERS HAZ WASTE:
Name: NORCO TRUCK & AUTO PARTS TOWING INC
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Site ID: 138550
CERS ID: 10316608
CERS Description: Hazardous Waste Generator

HAZNET:
Name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Year: 2017
GEPAID: CAL000265309
Contact: SHARON LAWRENCE
Telephone: 4699489630
Mailing Name: Not reported
Mailing Address: 401 E CORPORATE DR STE 150
Mailing City,St,Zip: LEWISVILLE, TX 750576449
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.234
CA Waste Code: 214-Unspecified solvent mixture
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Year: 2017
GEPAID: CAL000265309
Contact: SHARON LAWRENCE
Telephone: 4699489630

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Mailing Name: Not reported
Mailing Address: 401 E CORPORATE DR STE 150
Mailing City,St,Zip: LEWISVILLE, TX 750576449
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.45036
CA Waste Code: 133-Aqueous solution with total organic residues 10 percent or more
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Year: 2016
GEPAID: CAL000265309
Contact: SHARON LAWRENCE
Telephone: 4699489630
Mailing Name: Not reported
Mailing Address: 401 E CORPORATE DR STE 150
Mailing City,St,Zip: LEWISVILLE, TX 750576449
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.324
CA Waste Code: 214-Unspecified solvent mixture
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Year: 2016
GEPAID: CAL000265309
Contact: SHARON LAWRENCE
Telephone: 4699489630
Mailing Name: Not reported
Mailing Address: 401 E CORPORATE DR STE 150
Mailing City,St,Zip: LEWISVILLE, TX 750576449
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.1596
CA Waste Code: 221-Waste oil and mixed oil
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 92860
Year: 2016
GEPAID: CAL000265309
Contact: SHARON LAWRENCE
Telephone: 4699489630
Mailing Name: Not reported
Mailing Address: 401 E CORPORATE DR STE 150
Mailing City,St,Zip: LEWISVILLE, TX 750576449

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.40032
CA Waste Code: 133-Aqueous solution with total organic residues 10 percent or more
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
31 additional CA_HAZNET: record(s) in the EDR Site Report.

NPDES:

Name:	NORCO TRUCK & AUTO PARTS TOWING INC
Address:	2000 S FOUR WHEEL DRIVE
City,State,Zip:	NORCO, CA 92860
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	8 33I000029
Regulatory Measure Type:	Industrial
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	02/07/1992
Operator Name:	Norco Truck & Auto Parts Towing Inc
Operator Address:	2000 S FOUR WHEEL DR
Operator City:	NORCO
Operator State:	California
Operator Zip:	92860

NPDES as of 03/2018:

NPDES Number:	CAS000001
Status:	Active
Agency Number:	0
Region:	8
Regulatory Measure ID:	210654
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	8 33I000029
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/07/1992
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Discharge Name:	NORCO TRUCK AUTO PARTS TOW
Discharge Address:	2000 S FOUR WHEEL DR
Discharge City:	NORCO
Discharge State:	California
Discharge Zip:	92860
Received Date:	Not reported
Processed Date:	Not reported
Status:	Not reported
Status Date:	Not reported
Place Size:	Not reported
Place Size Unit:	Not reported
Contact:	Not reported
Contact Title:	Not reported
Contact Phone:	Not reported
Contact Phone Ext:	Not reported
Contact Email:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported
Operator Contact:	Not reported
Operator Contact Title:	Not reported
Operator Contact Phone:	Not reported
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Not reported
Operator Type:	Not reported
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	Not reported
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	8
Regulatory Measure ID:	210654
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	8 33I000029
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	05/09/2008
Processed Date:	02/07/1992
Status:	Active
Status Date:	02/07/1992
Place Size:	60000
Place Size Unit:	SqFt
Contact:	JOE FERNANDES
Contact Title:	PAST PRESIDENT
Contact Phone:	951-735-3353
Contact Phone Ext:	Not reported
Contact Email:	norcotrk@aol.com
Operator Name:	NORCO TRUCK AUTO PARTS TOW
Operator Address:	2000 S FOUR WHEEL DR
Operator City:	NORCO
Operator State:	California
Operator Zip:	92860
Operator Contact:	JOE FERNANDES
Operator Contact Title:	Not reported
Operator Contact Phone:	951-735-3353
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	norcotrk@aol.com
Operator Type:	Private Business
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	California
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	951-735-3351
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	N
Receiving Water Name:	storm drain
Certifier:	Margaret Fernandes
Certifier Title:	CFO
Certification Date:	12-JUN-15
Primary Sic:	5015-Motor Vehicle Parts, Used
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Name:	NORCO TRUCK & AUTO PARTS TOWING INC
Address:	2000 S FOUR WHEEL DRIVE
City,State,Zip:	NORCO, CA 92860
Facility Status:	Active
NPDES Number:	CAS000001
Region:	8
Agency Number:	0
Regulatory Measure ID:	210654
Place ID:	Not reported
Order Number:	97-03-DWQ
WDID:	8 33I000029
Regulatory Measure Type:	Enrollee
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/07/1992
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	2000 S FOUR WHEEL DR
Discharge Name:	Norco Truck & Auto Parts Towing Inc
Discharge City:	NORCO
Discharge State:	California
Discharge Zip:	92860
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

NPDES as of 03/2018:

NPDES Number:	CAS000001
Status:	Active

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Agency Number:	0
Region:	8
Regulatory Measure ID:	210654
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	8 33I000029
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/07/1992
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	NORCO TRUCK AUTO PARTS TOW
Discharge Address:	2000 S FOUR WHEEL DR
Discharge City:	NORCO
Discharge State:	California
Discharge Zip:	92860
Received Date:	Not reported
Processed Date:	Not reported
Status:	Not reported
Status Date:	Not reported
Place Size:	Not reported
Place Size Unit:	Not reported
Contact:	Not reported
Contact Title:	Not reported
Contact Phone:	Not reported
Contact Phone Ext:	Not reported
Contact Email:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported
Operator Contact:	Not reported
Operator Contact Title:	Not reported
Operator Contact Phone:	Not reported
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	Not reported
Operator Type:	Not reported
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	Not reported
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	Not reported
Receiving Water Name:	Not reported
Certifier:	Not reported
Certifier Title:	Not reported
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	8
Regulatory Measure ID:	210654
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	8 33I000029
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	05/09/2008
Processed Date:	02/07/1992
Status:	Active
Status Date:	02/07/1992
Place Size:	60000
Place Size Unit:	SqFt
Contact:	JOE FERNANDES
Contact Title:	PAST PRESIDENT
Contact Phone:	951-735-3353
Contact Phone Ext:	Not reported
Contact Email:	norcotrk@aol.com
Operator Name:	NORCO TRUCK AUTO PARTS TOW
Operator Address:	2000 S FOUR WHEEL DR
Operator City:	NORCO
Operator State:	California
Operator Zip:	92860
Operator Contact:	JOE FERNANDES
Operator Contact Title:	Not reported
Operator Contact Phone:	951-735-3353
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	norcotrk@aol.com

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Operator Type:	Private Business
Developer:	Not reported
Developer Address:	Not reported
Developer City:	Not reported
Developer State:	California
Developer Zip:	Not reported
Developer Contact:	Not reported
Developer Contact Title:	Not reported
Constype Linear Utility Ind:	Not reported
Emergency Phone:	951-735-3351
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported
Constype Cable Line Ind:	Not reported
Constype Comm Line Ind:	Not reported
Constype Commertial Ind:	Not reported
Constype Electrical Line Ind:	Not reported
Constype Gas Line Ind:	Not reported
Constype Industrial Ind:	Not reported
Constype Other Description:	Not reported
Constype Other Ind:	Not reported
Constype Recons Ind:	Not reported
Constype Residential Ind:	Not reported
Constype Transport Ind:	Not reported
Constype Utility Description:	Not reported
Constype Utility Ind:	Not reported
Constype Water Sewer Ind:	Not reported
Dir Discharge Uswater Ind:	N
Receiving Water Name:	storm drain
Certifier:	Margaret Fernandes
Certifier Title:	CFO
Certification Date:	12-JUN-15
Primary Sic:	5015-Motor Vehicle Parts, Used
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

CIWQS:

Name:	NORCO TRUCK & AUTO PARTS TOWING INC
Address:	2000 S FOUR WHEEL DRIVE
City,State,Zip:	NORCO, CA 92860
Agency:	Norco Truck & Auto Parts Towing Inc
Agency Address:	2000 S FOUR WHEEL DR, Norco, CA 92860
Place/Project Type:	Industrial - Motor Vehicle Parts, Used
SIC/NAICS:	5015
Region:	8
Program:	INDSTW
Regulatory Measure Status:	Active
Regulatory Measure Type:	Storm water industrial
Order Number:	2014-0057-DWQ
WDID:	8 33I000029
NPDES Number:	CAS000001
Adoption Date:	Not reported
Effective Date:	02/07/1992
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	33.91176
Longitude:	-117.56406

CERS:

Name:	NORCO TRUCK & AUTO PARTS TOWING INC
Address:	2000 S FOUR WHEEL DRIVE
City,State,Zip:	NORCO, CA 92860
Site ID:	537980
CERS ID:	244448
CERS Description:	Industrial Facility Storm Water

Violations:

Site ID:	537980
Site Name:	Norco Truck & Auto Parts Towing Inc
Violation Date:	09-13-2000
Citation:	2014-0057-DWQ - Industrial General Permit
Violation Description:	SW - Deficient BMP Implementation
Violation Notes:	Company is an auto dismantler. No BMPs implemented, strong potential for pollutants entering storm drain inlet. Need to update SWPPP
Violation Division:	Water Boards
Violation Program:	INDSTW
Violation Source:	SMARTS

Enforcement Action:

Site ID:	537980
Site Name:	Norco Truck & Auto Parts Towing Inc
Site Address:	2000 S FOUR WHEEL DRIVE
Site City:	NORCO
Site Zip:	92860
Enf Action Date:	09-26-2000
Enf Action Type:	Staff Enforcement Letter
Enf Action Description:	Staff Enforcement Letter
Enf Action Notes:	SEL issued and sent
Enf Action Division:	Water Boards
Enf Action Program:	INDSTW
Enf Action Source:	SMARTS

Affiliation:

Affiliation Type Desc:	Owner/Operator
Entity Name:	Norco Truck & Auto Parts Towing Inc
Entity Title:	Operator
Affiliation Address:	2000 S FOUR WHEEL DR
Affiliation City:	NORCO
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Name:	NORCO TRUCK & AUTO PARTS TOWING INC
Address:	2000 S FOUR WHEEL DR

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

City,State,Zip: NORCO, CA 92860
Site ID: 138550
CERS ID: 10316608
CERS Description: Chemical Storage Facilities

Violations:

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 07-18-2013
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes: Returned to compliance on 09/07/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 07-18-2013
Citation: 22 CCR 15 66265.31 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.31
Violation Description: Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment.
Violation Notes: Returned to compliance on 09/07/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 09-07-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 10/20/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 07-18-2013
Citation: 22 CCR 15 66265.173 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.173
Violation Description: Failure to properly close hazardous waste containers when not in active use.
Violation Notes: Returned to compliance on 09/07/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Violation Source: CERS

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 09-07-2016
Citation: 40 CFR 1 265.33 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.33
Violation Description: Failure to test and maintain as necessary all facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment to assure its proper operation in time of emergency.
Violation Notes: Returned to compliance on 10/20/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Violation Date: 09-07-2016
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description: Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes: Returned to compliance on 10/20/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-18-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-18-2013
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-07-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-07-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-20-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Enforcement Action:
Site ID: 138550
Site Name: Norco Truck & Auto Parts Towing Inc
Site Address: 2000 S FOUR WHEEL DR
Site City: NORCO
Site Zip: 92860
Enf Action Date: 07-18-2013
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HW
Enf Action Source: CERS

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: Margaret Fernandes
Entity Title: Not reported
Affiliation Address: 2000 S Four Wheel Drive
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Operator
Entity Name: Margaret Fernandes
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (951) 735-3353

Affiliation Type Desc: Parent Corporation
Entity Name: Norco Truck & Auto Parts/Towing
Entity Title: Not reported

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Document Preparer
Entity Name:	Margaret Fernandes
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2000 S Four Wheel Drive
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Norco Truck & Auto Parts/ Towing, Inc
Entity Title:	Not reported
Affiliation Address:	2000 S Four Wheel Drive
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 735-3353
Affiliation Type Desc:	Property Owner
Entity Name:	Jose Fernandes
Entity Title:	Not reported
Affiliation Address:	2000 S Four Wheel Drive
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 735-3353
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

NORCO TRUCK & AUTO PARTS TOWING INC (Continued) **S113124511**

Affiliation Type Desc:	Identification Signer
Entity Name:	Margaret Fernandes
Entity Title:	CFO
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

G24 **NORCO TRUCK AND AUTO PARTS TOWING INC** **RCRA NonGen / NLR** **1024868656**
SSW **2000 S FOUR WHEEL DR** **CAL000437261**
1/8-1/4 **NORCO, CA 92860**
0.159 mi.
842 ft. **Site 2 of 5 in cluster G**

Relative: **Lower**
Actual: **598 ft.**

RCRA NonGen / NLR:

Date form received by agency:	06/27/2018
Facility name:	NORCO TRUCK AND AUTO PARTS TOWING INC
Facility address:	2000 S FOUR WHEEL DR NORCO, CA 92860
EPA ID:	CAL000437261
Contact:	MARGARET A FERNANDES
Contact address:	2000 S FOUR WHEEL DR NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-735-3353
Contact email:	NORCOTRK@AOL.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MARGARET A FERNANDES
Owner/operator address:	2000 S FOUR WHEEL DR NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-735-3353
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NORCO TRUCK AND AUTO PARTS TOW INC
Owner/operator address:	2000 S FOUR WHEEL DR NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-735-3353
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner

NORCO TRUCK AND AUTO PARTS TOWING INC (Continued) **1024868656**

Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

G25 **CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTER** **RCRA NonGen / NLR** **1024805733**
SSW **2000 S FOUR WHEEL DR** **CAL000265309**
1/8-1/4 **NORCO, CA 92860**
0.159 mi.
842 ft. **Site 3 of 5 in cluster G**

Relative:
Lower

Actual:
598 ft.

RCRA NonGen / NLR:
Date form received by agency: 01/24/2003
Facility name: CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS
Facility address: 2000 S FOUR WHEEL DR
NORCO, CA 92860
EPA ID: CAL000265309
Mailing address: 401 E CORPORATE DR STE 150
LEWISVILLE, TX 75057-6449
Contact: SHARON LAWRENCE
Contact address: 401 E CORPORATE DR STE 150
LEWISVILLE, TX 75057
Contact country: Not reported
Contact telephone: 469-948-9630
Contact email: SHARON.LAWRENCE@CALIBERCOLLISION.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: CALIBER COLIISION BODYWORKS INC
Owner/operator address: 401 E CORPORATE DR STE 150
LEWISVILLE, TX 75057
Owner/operator country: Not reported
Owner/operator telephone: 713-444-8606
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: Not reported

CALIBER BODYWORKS INC DBA CALIBER COLLISION CENTERS (Continued) **1024805733**

Owner/Op end date: Not reported

Owner/operator name: SHARON LAWRENCE
Owner/operator address: 401 E CORPORATE DR STE 150
LEWISVILLE, TX 75057
Owner/operator country: Not reported
Owner/operator telephone: 469-948-9630
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

G26 **CALIBER COLLISION CENTERS - NORCO** **CERS HAZ WASTE** **S113457545**
SSW **2000 S FOUR WHEEL DR STE.B** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860** **CERS**
0.159 mi.
842 ft. **Site 4 of 5 in cluster G**

Relative:
Lower

Actual:
598 ft.

CERS HAZ WASTE:
Name: CALIBER COLLISION CENTERS - NORCO
Address: 2000 S FOUR WHEEL DR STE.B
City,State,Zip: NORCO, CA 92860
Site ID: 15111
CERS ID: 10320817
CERS Description: Hazardous Waste Generator

HAZNET:
Name: COONES INC
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 928602676
Year: 2010
GEPAID: CAC002188223
Contact: RICK COONES
Telephone: 7855432759
Mailing Name: Not reported
Mailing Address: 1697 E 250 LN

CALIBER COLLISION CENTERS - NORCO (Continued) **S113457545**

Mailing City,St,Zip: PHILLIPSBURG, KS 67661
Gen County: Riverside
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Tons: 0.6
CA Waste Code: 223-Unspecified oil-containing waste
Method: H101-Sludge Treatment And/Or Dewatering
Facility County: Riverside

Name: COONES INC
Address: 2000 S FOUR WHEEL DR
City,State,Zip: NORCO, CA 928602676
Year: 2010
GEPAID: CAC002188223
Contact: RICK COONES
Telephone: 7855432759
Mailing Name: Not reported
Mailing Address: 1697 E 250 LN
Mailing City,St,Zip: PHILLIPSBURG, KS 67661
Gen County: Riverside
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Tons: 0.4587
CA Waste Code: 223-Unspecified oil-containing waste
Method: H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Riverside

CERS:
Name: CALIBER COLLISION CENTERS - NORCO
Address: 2000 S FOUR WHEEL DR STE.B
City,State,Zip: NORCO, CA 92860
Site ID: 15111
CERS ID: 10320817
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-05-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-05-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-08-2018

CALIBER COLLISION CENTERS - NORCO (Continued) **S113457545**

Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: - Copy of Hazardous Materials Business Plan was left on site - Manager was instructed to update Hazardous Materials Inventory (on CERS) with 24 federal hazards.
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-20-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Affiliation:
Affiliation Type Desc: Document Preparer
Entity Name: Ali Kahl
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: GMG Envirosafe
Entity Title: Not reported
Affiliation Address: 1658 N Milwaukee Avenue - Suite 287
Affiliation City: Chicago
Affiliation State: IL
Affiliation Country: Not reported
Affiliation Zip: 60647
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Joseph Sanchez
Entity Title: Center Manager
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: Caliber Bodyworks, Inc. dba Caliber Collision Centers
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported

CALIBER COLLISION CENTERS - NORCO (Continued) **S113457545**

Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	CALIBER COLLISION CENTERS
Entity Title:	Not reported
Affiliation Address:	2941 Lake Vista
Affiliation City:	Lewisville
Affiliation State:	TX
Affiliation Country:	United States
Affiliation Zip:	75067
Affiliation Phone:	(469) 948-9500
Affiliation Type Desc:	Property Owner
Entity Name:	Jose (Joe) Fernandes
Entity Title:	Not reported
Affiliation Address:	2000 S. Four Wheel Drive
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 735-3351
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2000 S Four Wheel Dr Ste.B
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Operator
Entity Name:	CALIBER COLLISION CENTER
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 736-1398
Name:	JOE FERNANDES PAINT & BODY J
Address:	2000 SOUTH FOUR WHEEL DRIVE
City,State,Zip:	NORCO, CA 92860-2676
Site ID:	474801

CALIBER COLLISION CENTERS - NORCO (Continued) **S113457545**

CERS ID: 110013827163
CERS Description: US EPA Air Emission Inventory System (EIS)

G27 **NORCO TRUCK & AUTO PARTS/TOW** **RCRA NonGen / NLR** **1024868615**
SSW **2000 SOUTH FOUR WHEEL DRIVE** **CAL000437220**
1/8-1/4 **NORCO, CA 92860**
0.159 mi.
842 ft. **Site 5 of 5 in cluster G**

Relative:
Lower

Actual:
598 ft.

RCRA NonGen / NLR:
Date form received by agency: 06/27/2018
Facility name: NORCO TRUCK & AUTO PARTS/TOW
Facility address: 2000 SOUTH FOUR WHEEL DRIVE
NORCO, CA 92860
EPA ID: CAL000437220
Mailing address: 2000 S FOUR WHEEL DR
NORCO, CA 92860
Contact: JOSE FERNANDES
Contact address: 2000 S FOUR WHEEL DR
NORCO, CA 92860
Contact country: Not reported
Contact telephone: 951-735-3353
Contact email: NORCOTRK@AOL.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: JOSE FERNANDES
Owner/operator address: 2000 S FOUR WHEEL DR
NORCO, CA 92860
Owner/operator country: Not reported
Owner/operator telephone: 951-735-3353
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: JOSE FERNANDES/NORCO TRUCK & AUTO
Owner/operator address: 2000 S FOUR WHEEL DR
NORCO, CA 92860
Owner/operator country: Not reported
Owner/operator telephone: 951-735-3353
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No

NORCO TRUCK & AUTO PARTS/TOW (Continued) **1024868615**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

H28 **FRAHM CHRYSLER/PLYMOUTH** **SWEEPS UST** **S104583844**
SE **2075 HAMNER AVE** **N/A**
1/8-1/4 **NORCO, CA 91760**
0.162 mi.
854 ft. **Site 1 of 2 in cluster H**

Relative: SWEEPS UST:
Lower

Name:	FRAHM CHRYSLER/PLYMOUTH
Address:	2075 HAMNER AVE
City:	NORCO
Status:	Active
Comp Number:	18906
Number:	1
Board Of Equalization:	44-008830
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	01-30-89
Owner Tank Id:	001574
SWRCB Tank Id:	33-000-018906-000001
Tank Status:	A
Capacity:	5000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	1

Actual:
603 ft.

H29 **NORCO CHRYSLER PLYMOUTH JEEP** **RCRA-SQG** **1001075568**
SE **2075 HAMNER AVE** **FINDS** **CAR000006569**
1/8-1/4 **NORCO, CA 92860** **ECHO**
0.162 mi.
854 ft. **Site 2 of 2 in cluster H**

Relative: RCRA-SQG:
Lower

Date form received by agency:	01/18/1999
Facility name:	NORCO CHRYSLER PLYMOUTH JEEP
Facility address:	2075 HAMNER AVE NORCO, CA 92860
EPA ID:	CAR000006569
Mailing address:	P O BOX 100 NORCO, CA 91760

Actual:
603 ft.

NORCO CHRYSLER PLYMOUTH JEEP (Continued) **1001075568**

Contact:	JIM SHELDON
Contact address:	P O BOX 100 NORCO, CA 91760
Contact country:	US
Contact telephone:	909-549-1280
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NORCO AUTOMOTIVE GROUP
Owner/operator address:	P O BOX 100 NORCO, CA 91760
Owner/operator country:	Not reported
Owner/operator telephone:	909-549-1280
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Hazardous Waste Summary:

. Waste code:	D001
. Waste name:	IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110006485507

NORCO CHRYSLER PLYMOUTH JEEP (Continued) **1001075568**

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001075568
Registry ID:	110006485507
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110006485507

E30 **MCCARTHY AUTOMOTIVE REPAIR** **CERS HAZ WASTE** **S113109818**
NNE **2551 HAMNER AVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.165 mi.
869 ft. **Site 6 of 9 in cluster E**

Relative: **Lower**

Actual: **615 ft.**

CERS HAZ WASTE:

Name:	MCCARTHY AUTOMOTIVE REPAIR
Address:	2551 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	133672
CERS ID:	10328884
CERS Description:	Hazardous Waste Generator

Violations:

Site ID:	133672
Site Name:	McCarthy Automotive Repair
Violation Date:	10-27-2016
Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes:	Returned to compliance on 02/22/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	10-27-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health

MCCARTHY AUTOMOTIVE REPAIR (Continued) **S113109818**

Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 133672
Facility Name: McCarthy Automotive Repair
Env Int Type Code: HWG
Program ID: 10328884
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.918760
Longitude: -117.559670

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 2551 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Operator
Entity Name: Larry Whitcomb
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (951) 258-6817

Affiliation Type Desc: Environmental Contact
Entity Name: Larry Whitcomb
Entity Title: Not reported
Affiliation Address: 2551 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: McCarthy Automotive Repair

MCCARTHY AUTOMOTIVE REPAIR (Continued) **S113109818**

Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

HAZNET:

Name:	TONY NICHOLAS CAR CARE CENTER
Address:	2551 HAMNER AVE
City,State,Zip:	NORCO, CA 928600000
Year:	2002
GEPAID:	CAL000217172
Contact:	TONY NICHOLAS - OWNER
Telephone:	9097342652
Mailing Name:	Not reported
Mailing Address:	2551 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928600000
Gen County:	Riverside
TSD EPA ID:	CAD981696420
TSD County:	Los Angeles
Tons:	0.3486
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	R01-Recycler
Facility County:	Riverside

I31 **PAUL BLANCOS GOOD CAR INLAND EMPIRE** **RCRA NonGen / NLR** **1024854182**
South **2000 HAMNER AVE** **CAL000414809**
1/8-1/4 **NORCO, CA 92860**
0.166 mi.
875 ft. **Site 1 of 3 in cluster I**

Relative:
Lower

Actual:
604 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/03/2016
Facility name:	PAUL BLANCOS GOOD CAR INLAND EMPIRE
Facility address:	2000 HAMNER AVE NORCO, CA 92860-2603
EPA ID:	CAL000414809
Mailing address:	3800 FLORIN RD SACRAMENTO, CA 95823
Contact:	MATTHEW SHARP
Contact address:	2000 HAMNER AVE NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-373-5333
Contact email:	MATTHEWSHARP50@GMAIL.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	PUTU BALNCO
Owner/operator address:	30532 MARBELLA VIS SAN JUAN CAPISTRANO, CA 92675
Owner/operator country:	Not reported

PAUL BLANCOS GOOD CAR INLAND EMPIRE (Continued) **1024854182**

Owner/operator telephone: 916-600-4534
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: MATTHEW SHARP
Owner/operator address: 2000 HAMNER AVE
NORCO, CA 92860
Owner/operator country: Not reported
Owner/operator telephone: 951-373-5333
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

I32 **PAUL BLANCO'S GOOD CAR COMPANY - NORCO** **CERS HAZ WASTE** **S113113190**
South **2000 HAMNER AVE** **CERS** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.166 mi.
875 ft. **Site 2 of 3 in cluster I**

Relative:
Lower

Actual:
604 ft.

CERS HAZ WASTE:
Name: PAUL BLANCO'S GOOD CAR COMPANY - NORCO
Address: 2000 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 28973
CERS ID: 10328149
CERS Description: Hazardous Waste Generator

CERS:
Name: PAUL BLANCO'S GOOD CAR COMPANY - NORCO
Address: 2000 HAMNER AVE

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

City,State,Zip: NORCO, CA 92860
Site ID: 28973
CERS ID: 10328149
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: Un-Specified
Violation Description: Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: HSC 6.95 25505(c) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(c)
Violation Description: Failure to have a business plan readily available to personnel of the business or the unified program facility with responsibilities for emergency response or training.
Violation Notes: Returned to compliance on 06/13/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 10/05/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 06/13/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

Violation Date:	09-29-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/13/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 06/13/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	40 CFR 1 265.31 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.31
Violation Description:	Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.
Violation Notes:	Returned to compliance on 10/05/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	Un-Specified
Violation Description:	Business Plan Program - Administration/Documentation - General Local Ordinance
Violation Notes:	Returned to compliance on 06/13/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	19 CCR 6.95 25508(a)(1) - California Code of Regulations, Title 19, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit the Business Activities

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

	Page and/or Business Owner Operator Identification Page.
Violation Notes:	Returned to compliance on 06/13/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	40 CFR 1 265.201(c)(3) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.201(c)(3)
Violation Description:	Failure to inspect hazardous waste tanks at least once each operating day for the following, when present: (1) Discharge control equipment (e.g., waste feed cutoff systems, by-pass systems, and drainage systems) to ensure that it is in good working order; (2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges) to ensure that the tank is being operated according to its design; (3) The level of waste in the tank.
Violation Notes:	Returned to compliance on 10/05/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes:	Returned to compliance on 09/14/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description:	Failure to adequately establish and implement a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 06/13/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	28973
Site Name:	Paul Blanco's Good Car Company - Norco
Violation Date:	09-29-2016
Citation:	Un-Specified
Violation Description:	Business Plan Program - Administration/Documentation - General Local Ordinance
Violation Notes:	Returned to compliance on 09/14/2017.
Violation Division:	Riverside County Department of Env Health

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Returned to compliance on 06/13/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 28973
Site Name: Paul Blanco's Good Car Company - Norco
Violation Date: 09-29-2016
Citation: HSC 6.95 25505.1 - California Health and Safety Code, Chapter 6.95, Section(s) 25505.1
Violation Description: Failure to notify property owner in writing that the business is subject to the business plan program and has complied with its provisions.
Violation Notes: Returned to compliance on 06/13/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-29-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HMD inspection Paul Blancos 2000 Hamner Ave, Norco CA
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-29-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: HWG inspection Paul Blancos 2000 Hamner Ave, Norco CA.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-05-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

Eval Date:	10-05-2017
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Coordinates:

Site ID:	28973
Facility Name:	Paul Blanco's Good Car Company - Norco
Env Int Type Code:	HWG
Program ID:	10328149
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.911640
Longitude:	-117.561610

Affiliation:

Affiliation Type Desc:	Document Preparer
Entity Name:	KPA, LLC
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Identification Signer
Entity Name:	Matt Sharp
Entity Title:	Service Manager
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	Legal Owner
Entity Name:	Paul Blanco's Good Car Company - Norco
Entity Title:	Not reported
Affiliation Address:	2000 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 373-5300

Affiliation Type Desc:	Operator
Entity Name:	Paul Blanco's Good Car Company - Norco
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported

PAUL BLANCO'S GOOD CAR COMPANY - NORCO (Continued) **S113113190**

Affiliation Zip:	Not reported
Affiliation Phone:	(951) 373-5300
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2000 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	Paul Blanco Auto Group
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Property Owner
Entity Name:	Paul Blanco's Good Car Company - Norco
Entity Title:	Not reported
Affiliation Address:	2000 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 373-5300
Affiliation Type Desc:	Environmental Contact
Entity Name:	Matt Sharp
Entity Title:	Not reported
Affiliation Address:	2000 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

I33 **NORCO MAZDA** **RCRA-SQG** **1000596751**
South **2000 HAMNER AVE** **FINDS** **CAD983607318**
1/8-1/4 **NORCO, CA 92861** **ECHO**
0.166 mi.
875 ft. **Site 3 of 3 in cluster I**

Relative:
Lower

Actual:
604 ft.

RCRA-SQG:

Date form received by agency:	10/09/2007
Facility name:	NORCO MAZDA
Facility address:	2000 HAMNER AVE NORCO, CA 92861
EPA ID:	CAD983607318
Contact:	TIM NORDBY
Contact address:	2000 HAMNER AVE NORCO, CA 92861
Contact country:	US
Contact telephone:	951-734-1555
Contact email:	TNORDBY@NORCOMAZDA.COM
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	WILHELM AND ASSOC INC DBA NORCO MAZDA
Owner/operator address:	2000 HAMNER AVE NORCO, CA 92861
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/30/2005
Owner/Op end date:	Not reported

Owner/operator name:	TIM NORDBY
Owner/operator address:	Not reported Not reported
Owner/operator country:	Not reported
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	03/30/2005
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

NORCO MAZDA (Continued) **1000596751**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 07/19/2005
Site name: NORCO MAZDA
Classification: Small Quantity Generator

Date form received by agency: 03/15/2004
Site name: CALIBER PONTIAC MAZDA
Classification: Small Quantity Generator

Date form received by agency: 04/02/1997
Site name: PHILLIPS PONTIAC MAZDA
Classification: Not a generator, verified

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110006482476

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000596751
Registry ID: 110006482476

NORCO MAZDA (Continued) **1000596751**

DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110006482476

E34 **AL GARCIA'S TRUCK REPAIR** **CERS HAZ WASTE** **S123538534**
NNE **2553 HAMNER AVE** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.166 mi.
878 ft. **Site 7 of 9 in cluster E**

Relative:
Lower

Actual:
615 ft.

CERS HAZ WASTE:

Name:	AL GARCIA'S TRUCK REPAIR
Address:	2553 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	90432
CERS ID:	10319548
CERS Description:	Hazardous Waste Generator

Coordinates:

Site ID:	90432
Facility Name:	Al Garcia's Truck Repair
Env Int Type Code:	HWG
Program ID:	10319548
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.918780
Longitude:	-117.559670

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2553 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Parent Corporation
Entity Name:	Al Garcia's Truck Repair
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

E35 **GS FLEET SERVICE** **CERS HAZ WASTE** **S113801293**
NNE **2555 HAMNER AVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860** **CERS**
0.168 mi.
889 ft. **Site 8 of 9 in cluster E**

Relative:
Lower

Actual:
615 ft.

CERS HAZ WASTE:
Name: ALL TRUCK AND RV SERVICE INC.
Address: 2555 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 178399
CERS ID: 10561117
CERS Description: Hazardous Waste Generator

HAZNET:
Name: GS FLEET SERVICE
Address: 2555 HAMNER AVE
City,State,Zip: NORCO, CA 928601923
Year: 2013
GEPAID: CAL000371853
Contact: GARY SPURLOCK
Telephone: 9515450648
Mailing Name: Not reported
Mailing Address: 2555 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928601923
Gen County: Riverside
TSD EPA ID: CAD044429835
TSD County: Los Angeles
Tons: 0.15
CA Waste Code: 352-Other organic solids
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: GS FLEET SERVICE
Address: 2555 HAMNER AVE
City,State,Zip: NORCO, CA 928601923
Year: 2012
GEPAID: CAL000371853
Contact: GARY SPURLOCK
Telephone: 9515450648
Mailing Name: Not reported
Mailing Address: 2555 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928601923
Gen County: Riverside
TSD EPA ID: CAD099452708
TSD County: Los Angeles
Tons: 2.85
CA Waste Code: 221-Waste oil and mixed oil
Method: H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Riverside

CERS:
Name: ALL TRUCK AND RV SERVICE INC.
Address: 2555 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 178399

GS FLEET SERVICE (Continued) **S113801293**

CERS ID: 10561117
CERS Description: Chemical Storage Facilities

Violations:

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description: Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399

GS FLEET SERVICE (Continued) **S113801293**

Site Name:	All Truck and RV Service Inc.
Violation Date:	10-25-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 03/07/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	178399
Site Name:	All Truck and RV Service Inc.
Violation Date:	10-25-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes:	Returned to compliance on 03/07/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	178399
Site Name:	All Truck and RV Service Inc.
Violation Date:	10-25-2016
Citation:	19 CCR 6.95 25508(a)(1) - California Code of Regulations, Title 19, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit the Business Activities Page and/or Business Owner Operator Identification Page.
Violation Notes:	Returned to compliance on 03/07/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	178399
Site Name:	All Truck and RV Service Inc.
Violation Date:	10-11-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 04/06/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	178399
Site Name:	All Truck and RV Service Inc.
Violation Date:	10-25-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site

GS FLEET SERVICE (Continued) **S113801293**

at or above reportable quantities.
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: 40 CFR 1 265.31 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.31
Violation Description: Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health

GS FLEET SERVICE (Continued) **S113801293**

Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: Un-Specified
Violation Description: Business Plan Program - Administration/Documentation - General Local Ordinance
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 07-05-2017
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 03-07-2018
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 08-09-2017
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes: Returned to compliance on 04/06/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)

GS FLEET SERVICE (Continued) **S113801293**

Violation Description: Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 178399
Site Name: All Truck and RV Service Inc.
Violation Date: 10-25-2016
Citation: Un-Specified
Violation Description: Hazardous Waste Generator Program - Administration/Documentation - General Local Ordinance
Violation Notes: Returned to compliance on 03/07/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 03-07-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-07-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 04-06-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: help facility in completing CERS
Eval Division: Riverside County Department of Env Health

GS FLEET SERVICE (Continued) **S113801293**

Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 07-05-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 07-17-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Facility re-inspection conducted, however facility owner was too busy and wanted to do re-inspection on 7/22/2013 at 7:30 am.
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 07-17-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Facility re-inspection conducted, however facility owner was too busy and wanted to do re-inspection on 7/22/2013 at 7:30 am.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-09-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-20-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-20-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW

GS FLEET SERVICE (Continued) **S113801293**

Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-11-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-25-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 10-25-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-25-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-25-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Enforcement Action:
Site ID: 178399
Site Name: All Truck and RV Service Inc.
Site Address: 2555 HAMNER AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 10-11-2017
Enf Action Type: AEO - Unified Program
Enf Action Description: Administrative Enforcement Order Based on the Unified Program Statute
Enf Action Notes: Fines/Penalties Assessed: $1,000.00.

GS FLEET SERVICE (Continued) **S113801293**

Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HMRRP
Enf Action Source: CERS

Coordinates:
Site ID: 178399
Facility Name: All Truck and RV Service Inc.
Env Int Type Code: HWG
Program ID: 10561117
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.918810
Longitude: -117.559660

Affiliation:
Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 2555 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Linda Quinn
Entity Title: Office Assistant
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Linda Quinn
Entity Title: Not reported
Affiliation Address: 2555 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: All Truck and RV Service Inc.
Entity Title: Not reported
Affiliation Address: 2555 Hamner Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 92860
Affiliation Phone: (951) 808-2696

Affiliation Type Desc: Operator

GS FLEET SERVICE (Continued) **S113801293**

Entity Name:	Robert Spurlock
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(951) 316-0886
Affiliation Type Desc:	Property Owner
Entity Name:	Norco Auto Center North
Entity Title:	Not reported
Affiliation Address:	590 Mondale Street
Affiliation City:	Corona
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92879
Affiliation Phone:	(951) 906-1788
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Document Preparer
Entity Name:	Linda Quinn
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	Gary’s Mobile Fleet Service
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

E36
NNE
1/8-1/4
0.168 mi.
889 ft.

NORCO FOREIGN CARS
2555 HAMNER
NORCO, CA 92860

Site 9 of 9 in cluster E

RCRA-SQG | **1000176282** / **CAD982321507**

Relative:
Lower

Actual:
615 ft.

RCRA-SQG:

Date form received by agency:	03/16/1988
Facility name:	NORCO FOREIGN CARS
Facility address:	2555 HAMNER NORCO, CA 92860
EPA ID:	CAD982321507
Contact:	ENVIRONMENTAL MANAGER
Contact address:	2555 HAMNER NORCO, CA 91760
Contact country:	US
Contact telephone:	714-735-8040
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	TONY BARRETO
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	415-555-1212
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

NORCO FOREIGN CARS (Continued) **1000176282**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

F37 **NAVAL ORDNANCE LAB** **ENVIROSTOR** **S107736845**
WNW **N/A**
1/8-1/4 **CORONA, CA**
0.187 mi.
985 ft. **Site 2 of 3 in cluster F**

Relative:
Higher

Actual:
647 ft.

ENVIROSTOR:

Name:	NAVAL ORDNANCE LAB
Address:	Not reported
City,State,Zip:	CORONA, CA
Facility ID:	80000674
Status:	Inactive - Needs Evaluation
Status Date:	07/01/2005
Site Code:	Not reported
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	0
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Douglas Bautista
Division Branch:	Cleanup Cypress
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.91694
Longitude:	-117.5669
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	Explosives (UXO, MEC
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CA99799F597800
Alias Type:	Federal Facility ID
Alias Name:	J09CA1084
Alias Type:	INPR
Alias Name:	80000674
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE

NAVAL ORDNANCE LAB (Continued) **S107736845**

Completed Sub Area Name: Not reported
Completed Document Type: Inventory Project Report (INPR)
Completed Date: 03/19/1992
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

F38 **NAVAL ORDNANCE LABORATORY** **UXO** **1024714147**
WNW **N/A**
1/8-1/4 **NORCO, CA**
0.189 mi.
996 ft. **Site 3 of 3 in cluster F**

Relative:
Higher

Actual:
646 ft.

UXO:
DoD Component: FUDS
Installation Name: NAVAL ORDNANCE LAB
Facility Address 2: Not reported
Site ID: 01OEW
Site Type: Unexploded Munitions and Ordnance Area
Latitude: 33.916944000000001
Longitude: -117.56694400000001

J39 **NO PORK MOTORSPORTS, INC** **CERS HAZ WASTE** **S123536952**
NNE **2585 HAMNER AVE STE.B** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.205 mi.
1083 ft. **Site 1 of 8 in cluster J**

Relative:
Lower

Actual:
613 ft.

CERS HAZ WASTE:
Name: NO PORK MOTORSPORTS, INC
Address: 2585 HAMNER AVE STE.B
City,State,Zip: NORCO, CA 92860
Site ID: 138443
CERS ID: 10325494
CERS Description: Hazardous Waste Generator

Violations:
Site ID: 138443
Site Name: No Pork Motorsports, Inc
Violation Date: 11-10-2016
Citation: 22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description: Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes: Returned to compliance on 02/22/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

NO PORK MOTORSPORTS, INC (Continued) **S123536952**

Site ID: 138443
Site Name: No Pork Motorsports, Inc
Violation Date: 11-10-2016
Citation: 40 CFR 1 265.31 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.31
Violation Description: Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.
Violation Notes: Returned to compliance on 03/28/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 03-28-2018
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-10-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Parent Corporation
Entity Name: No Pork Motorsports, Inc
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Facility Mailing Address

NO PORK MOTORSPORTS, INC (Continued) **S123536952**

Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	930 La Salle Circle
Affiliation City:	Corona
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92879
Affiliation Phone:	Not reported

K40 **MOREY'S COLLISION REPAIR** **CERS HAZ WASTE** **S113083867**
SSE **2057 HAMNER AVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 92860** **CERS**
0.208 mi.
1100 ft. **Site 1 of 2 in cluster K**

Relative:
Lower

Actual:
603 ft.

CERS HAZ WASTE:

Name:	MOREY'S COLLISION REPAIR
Address:	2057 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	50130
CERS ID:	10320016
CERS Description:	Hazardous Waste Generator

HAZNET:

Name:	MOREY'S COLLISION REPAIR
Address:	2057 HAMNER AVE
City,State,Zip:	NORCO, CA 928602604
Year:	2017
GEPAID:	CAL000157062
Contact:	ALAN TURNQUIST
Telephone:	9513711600
Mailing Name:	Not reported
Mailing Address:	2057 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602604
Gen County:	Riverside
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Tons:	0.1064
CA Waste Code:	221-Waste oil and mixed oil
Method:	H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County:	Riverside

Name:	MOREY'S COLLISION REPAIR
Address:	2057 HAMNER AVE
City,State,Zip:	NORCO, CA 928602604
Year:	2017
GEPAID:	CAL000157062
Contact:	ALAN TURNQUIST
Telephone:	9513711600
Mailing Name:	Not reported
Mailing Address:	2057 HAMNER AVE
Mailing City,St,Zip:	NORCO, CA 928602604
Gen County:	Riverside
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Tons:	0.33777

MOREY'S COLLISION REPAIR (Continued) **S113083867**

CA Waste Code: 133-Aqueous solution with total organic residues 10 percent or more
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

Name: MOREY'S COLLISION REPAIR
Address: 2057 HAMNER AVE
City,State,Zip: NORCO, CA 928602604
Year: 2016
GEPAID: CAL000157062
Contact: ALAN TURNQUIST
Telephone: 9513711600
Mailing Name: Not reported
Mailing Address: 2057 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928602604
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.114
CA Waste Code: 221-Waste oil and mixed oil
Method: -
Facility County: Riverside

Name: MOREY'S COLLISION REPAIR
Address: 2057 HAMNER AVE
City,State,Zip: NORCO, CA 928602604
Year: 2016
GEPAID: CAL000157062
Contact: ALAN TURNQUIST
Telephone: 9513711600
Mailing Name: Not reported
Mailing Address: 2057 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928602604
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.21267
CA Waste Code: 133-Aqueous solution with total organic residues 10 percent or more
Method: -
Facility County: Riverside

Name: MOREY'S COLLISION REPAIR
Address: 2057 HAMNER AVE
City,State,Zip: NORCO, CA 928602604
Year: 2016
GEPAID: CAL000157062
Contact: ALAN TURNQUIST
Telephone: 9513711600
Mailing Name: Not reported
Mailing Address: 2057 HAMNER AVE
Mailing City,St,Zip: NORCO, CA 928602604
Gen County: Riverside
TSD EPA ID: CAD008252405
TSD County: Los Angeles
Tons: 0.2502
CA Waste Code: 133-Aqueous solution with total organic residues 10 percent or more
Method: H061-Fuel Blending Prior To Energy Recovery At Another Site
Facility County: Riverside

MOREY'S COLLISION REPAIR (Continued) **S113083867**

Click this hyperlink while viewing on your computer to access
27 additional CA_HAZNET: record(s) in the EDR Site Report.

CERS:

Name:	MOREY'S COLLISION REPAIR
Address:	2057 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	50130
CERS ID:	10320016
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	50130
Site Name:	Morey's Collision Repair
Violation Date:	11-14-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 08/21/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	50130
Site Name:	Morey's Collision Repair
Violation Date:	11-14-2016
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 08/21/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	50130
Site Name:	Morey's Collision Repair
Violation Date:	08-09-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 08/19/2017. BEP submitted on CERS 8-19-17
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS

Site ID:	50130
Site Name:	Morey's Collision Repair
Violation Date:	07-05-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due

MOREY'S COLLISION REPAIR (Continued) **S113083867**

date.
Violation Notes: Returned to compliance on 11/09/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 50130
Site Name: Morey's Collision Repair
Violation Date: 11-14-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate emergency response plan and procedures for a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 08/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 50130
Site Name: Morey's Collision Repair
Violation Date: 11-14-2016
Citation: 19 CCR 6.95 25508(a)(1) - California Code of Regulations, Title 19, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit the Business Activities Page and/or Business Owner Operator Identification Page.
Violation Notes: Returned to compliance on 08/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 07-05-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-09-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-14-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW

MOREY'S COLLISION REPAIR (Continued) **S113083867**

Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 11-14-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Coordinates:
Site ID: 50130
Facility Name: Morey's Collision Repair
Env Int Type Code: HWG
Program ID: 10320016
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.911550
Longitude: -117.559750

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Parent Corporation
Entity Name: Morey's Collision Repair
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Alan Turnquist
Entity Title: Not reported
Affiliation Address: 2057 Hamner Ave.
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Alan Turnquist
Entity Title: CEO
Affiliation Address: Not reported

MOREY'S COLLISION REPAIR (Continued) **S113083867**

Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	Alan Turnquist
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(909) 772-1930
Affiliation Type Desc:	Property Owner
Entity Name:	Alan Turnquist
Entity Title:	Not reported
Affiliation Address:	2057 Hamner Ave.
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(909) 772-1930
Affiliation Type Desc:	Document Preparer
Entity Name:	Alan Turnquist
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2057 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Alan Turnquist
Entity Title:	Not reported
Affiliation Address:	2057 Hamner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(909) 772-1930

K41 **MOREY'S COLLISION REPAIR** **RCRA NonGen / NLR** **1024794901**
SSE **2057 HAMNER AVE** **CAL000157062**
1/8-1/4 **NORCO, CA 92860**
0.208 mi.
1100 ft. **Site 2 of 2 in cluster K**

Relative:
Lower

Actual:
603 ft.

RCRA NonGen / NLR:

Date form received by agency:	09/20/1995
Facility name:	MOREY'S COLLISION REPAIR
Facility address:	2057 HAMNER AVE NORCO, CA 92860-2604
EPA ID:	CAL000157062
Contact:	ALAN TURNQUIST
Contact address:	2057 HAMNER AVE NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-371-1600
Contact email:	ALANLT1@PACBELL.NET
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ALAN TURNQUIST
Owner/operator address:	2057 HAMNER AVE. NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	909-371-1600
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	ALAN TURNQUIST
Owner/operator address:	2057 HAMNER AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-371-1600
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

MOREY'S COLLISION REPAIR (Continued) **1024794901**

Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

42
North
1/8-1/4
0.209 mi.
1105 ft.

CNUSD DISTRICT OFFICE **RCRA NonGen / NLR** **1024854733**
2820 CLARK AVE **CAL000416253**
NORCO, CA 92860

Relative:
Higher

Actual:
634 ft.

RCRA NonGen / NLR:

Date form received by agency:	04/14/2016
Facility name:	CNUSD DISTRICT OFFICE
Facility address:	2820 CLARK AVE NORCO, CA 92860
EPA ID:	CAL000416253
Contact:	TERRY LONG
Contact address:	2820 CLARK AVE NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-736-3316
Contact email:	TMLONG@CNUSD.K12.CA.US
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TERRY LONG
Owner/operator address:	2820 CLARK AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-736-3316
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	CORONA NORCO UNIFIED SCH DIST
Owner/operator address:	2820 CLARK AVE NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-736-3316
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

CNUSD DISTRICT OFFICE (Continued) **1024854733**

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: Yes
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Violation Status: No violations found

J43 **NORCOGAS CORP** **RCRA NonGen / NLR** **1024867729**
NNE **2600 HAMNER AVE** **CAL000436326**
1/8-1/4 **NORCO, CA 92860**
0.218 mi.
1150 ft. **Site 2 of 8 in cluster J**

Relative: **Lower**
Actual: **617 ft.**

RCRA NonGen / NLR:
- Date form received by agency: 05/21/2018
- Facility name: NORCOGAS CORP
- Facility address: 2600 HAMNER AVE NORCO, CA 92860
- EPA ID: CAL000436326
- Contact: MAJID DAROUI
- Contact address: 2600 HAMNER AVE NORCO, CA 92860
- Contact country: Not reported
- Contact telephone: 408-488-7648
- Contact email: RRNORCO@YAHO.COM
- EPA Region: 09
- Classification: Non-Generator
- Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
- Owner/operator name: MAJID DAROUI
- Owner/operator address: 2600 HAMNER AVE NORCO, CA 92860
- Owner/operator country: Not reported
- Owner/operator telephone: 408-488-7648
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Other
- Owner/Operator Type: Operator
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

- Owner/operator name: NORCOGAS CORP
- Owner/operator address: 2600 HAMNER AVE NORCO, CA 92860

NORCOGAS CORP (Continued) **1024867729**

Owner/operator country:	Not reported
Owner/operator telephone:	404-488-7648
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

J44 **THRIFTY OIL #338** **LUST** **S104755098**
NNE **2600 HAMNER AVE** **CERS HAZ WASTE** **N/A**
1/8-1/4 **NORCO, CA 91760** **CERS TANKS**
0.218 mi. **HAZNET**
1150 ft. **Site 3 of 8 in cluster J** **HIST CORTESE**
CERS

Relative:
Lower

Actual:
617 ft.

LUST REG 8:

Name:	THRIFTY OIL #338
Address:	2600 HAMNER AVE
City:	NORCO
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Remediation Plan
Case Number:	083301646T
Local Case Num:	90776
Case Type:	Aquifer affected
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	LAMPTON
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	Corrosion
Leak Source:	Tank
Global ID:	T0606500206

THRIFTY OIL #338 (Continued) **S104755098**

How Stopped Date:	8/8/1990
Enter Date:	9/16/1990
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	8/8/1990
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	8/21/1990
Date Pollution Characterization Began:	3/18/1992
Date Remediation Plan Submitted:	9/1/1994
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	9/16/1990
GW Qualifies:	=
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.9193028
Longitude:	-117.5599784
MTBE Date:	6/1/1998
Max MTBE GW:	4000
MTBE Concentration:	1
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	C
Staff:	VJJ
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: RP WAS PLANNING TO USE VE TO REMEDIATE THE SOIL. THEY FIRST WANT TO CONDUCT A VE TEST TO DETERMINE IF VE IS STILL COST EFFECTIVE.

CERS HAZ WASTE:

Name:	TESORO (THRIFTY) 42133
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	6640
CERS ID:	10316692
CERS Description:	Hazardous Waste Generator

CERS TANKS:

Name:	TESORO (THRIFTY) 42133
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Site ID:	6640
CERS ID:	10316692
CERS Description:	Underground Storage Tank

THRIFTY OIL #338 (Continued) **S104755098**

HAZNET:

Name:	TESORO THRIFTY 42133
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2017
GEPAID:	CAL000385753
Contact:	BRENDA RAMIREZ
Telephone:	2106265153
Mailing Name:	Not reported
Mailing Address:	19100 RIDGEWOOD PKWY
Mailing City,St,Zip:	SAN ANTONIO, TX 782590000
Gen County:	Riverside
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Tons:	0.1302
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Riverside

Name:	TESORO THRIFTY 42133
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2017
GEPAID:	CAL000385753
Contact:	BRENDA RAMIREZ
Telephone:	2106265153
Mailing Name:	Not reported
Mailing Address:	19100 RIDGEWOOD PKWY
Mailing City,St,Zip:	SAN ANTONIO, TX 782590000
Gen County:	Riverside
TSD EPA ID:	NVT330010000
TSD County:	99
Tons:	0.025
CA Waste Code:	352-Other organic solids
Method:	H132-Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County:	Riverside

Name:	TESORO THRIFTY 42133
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 92860
Year:	2016
GEPAID:	CAL000385753
Contact:	JAMES BECK
Telephone:	5624956814
Mailing Name:	Not reported
Mailing Address:	19100 RIDGEWOOD PKWY
Mailing City,St,Zip:	SAN ANTONIO, TX 782590000
Gen County:	Riverside
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Tons:	0.1302
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County:	Riverside

THRIFTY OIL #338 (Continued) **S104755098**

Name: TESORO THRIFTY 42133
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Year: 2016
GEPAID: CAL000385753
Contact: JAMES BECK
Telephone: 5624956814
Mailing Name: Not reported
Mailing Address: 19100 RIDGEWOOD PKWY
Mailing City,St,Zip: SAN ANTONIO, TX 782590000
Gen County: Riverside
TSD EPA ID: NVT330010000
TSD County: 99
Tons: 0.045
CA Waste Code: 352-Other organic solids
Method: H132-Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County: Riverside

Name: TESORO THRIFTY 42133
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Year: 2015
GEPAID: CAL000385753
Contact: ROSIE RANGEL
Telephone: 2106266564
Mailing Name: Not reported
Mailing Address: 19100 RIDGEWOOD PKWY
Mailing City,St,Zip: SAN ANTONIO, TX 782590000
Gen County: Riverside
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Tons: 0.441
CA Waste Code: 134-Aqueous solution with total organic residues less than 10 percent
Method: H039-Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
4 additional CA_HAZNET: record(s) in the EDR Site Report.

HIST CORTESE:
edr_fname: THRIFTY OIL #338
edr_fadd1: 2600
City,State,Zip: NORCO, CA 91760
Region: CORTESE
Facility County Code: 33
Reg By: LTNKA
Reg Id: 083301646T

CERS:
Name: TESORO (THRIFTY) 42133
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 6640
CERS ID: 10316692

THRIFTY OIL #338 (Continued) **S104755098**

CERS Description: Chemical Storage Facilities

Violations:

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 11-05-2013
Citation: HSC 6.7 25299(a)(9) - California Health and Safety Code, Chapter 6.7, Section(s) 25299(a)(9)
Violation Description: Leak detection equipment disabled or tampered with in a manner that would prevent the monitoring system from detecting and/or alerting the owner/operator of a leak.
Violation Notes: Returned to compliance on 11/05/2013.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-07-2015
Citation: 23 CCR 16 2666 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2666
Violation Description: Failure to maintain entry fitting such that it properly seals to the containment.
Violation Notes: Returned to compliance on 11/19/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-15-2014
Citation: HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Description: Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes: Returned to compliance on 10/15/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 09-27-2016
Citation: 23 CCR 16 2631(g), 2632(c)(2)(A) & (B) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2631(g), 2632(c)(2)(A) & (B)
Violation Description: Failure of the double-walled interstitial space of the tank to be continuously monitored with an audible and visual alarm.
Violation Notes: Returned to compliance on 09/18/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 09-27-2016
Citation: HSC 6.7 25290.1(c)(3), 25290.2(c)(3) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(c)(3), 25290.2(c)(3)

THRIFTY OIL #338 (Continued) **S104755098**

Violation Description: Failure to keep water out of the secondary containment of UST systems installed on or after July 1, 2003 and before July 1, 2004, or on or after July 1, 2004.
Violation Notes: Returned to compliance on 09/28/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 11-05-2013
Citation: 23 CCR 16 2636(f) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)
Violation Description: Failure to continuously monitor the interstitial space of the tank, piping and/or sumps sump such that the leak detection activates an audible/visual alarm when a leak is detected.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-07-2015
Citation: HSC 6.7 25292(e) - California Health and Safety Code, Chapter 6.7, Section(s) 25292(e)
Violation Description: Failure to maintain secondary containment, as evidenced by failure of secondary containment testing.
Violation Notes: Returned to compliance on 11/19/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 07-23-2015
Citation: HSC 6.7 25291 - California Health and Safety Code, Chapter 6.7, Section(s) 25291
Violation Description: Failure to maintain under-dispenser containment, sumps, and/or other secondary containment in good condition and/or free of debris/liquid.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 11-05-2013
Citation: 19 CCR 4 2729.5 - California Code of Regulations, Title 19, Chapter 4, Section(s) 2729.5
Violation Description: Failure to submit inventory reports (Activities, Owner/Operator, Hazardous Materials Descriptions and Map pages, if required. Documentation must be resubmitted (for facilities which exceed EPCRA thresholds) or re-certified (for facilities which do not exceed EPCRA thresholds) by March 1.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health

THRIFTY OIL #338 (Continued) **S104755098**

Violation Program: HMRRP
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 11-05-2013
Citation: HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description: UST Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 07-23-2015
Citation: 23 CCR 16 2632, 2634, 2636, 2666 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632, 2634, 2636, 2666
Violation Description: Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes: Returned to compliance on 07/23/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 07-23-2015
Citation: HSC 6.7 25299 - California Health and Safety Code, Chapter 6.7, Section(s) 25299
Violation Description: Failure to comply with one or more of the operating permit conditions.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-15-2014
Citation: 23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Description: Failure to maintain on site an approved monitoring plan.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-07-2015
Citation: HSC 6.7 25299 - California Health and Safety Code, Chapter 6.7, Section(s) 25299
Violation Description: Failure to comply with one or more of the operating permit conditions.
Violation Notes: Returned to compliance on 11/19/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST

THRIFTY OIL #338 (Continued) **S104755098**

Violation Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Violation Date: 10-07-2015
Citation: HSC 6.7 25291 - California Health and Safety Code, Chapter 6.7, Section(s) 25291
Violation Description: Failure to maintain under-dispenser containment, sumps, and/or other secondary containment in good condition and/or free of debris/liquid.
Violation Notes: Returned to compliance on 10/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-23-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Monitoring system certification post UST modification.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-06-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-18-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-18-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-18-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health

THRIFTY OIL #338 (Continued) **S104755098**

Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 09-27-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-07-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-07-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-07-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-15-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 10-15-2014
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

THRIFTY OIL #338 (Continued) **S104755098**

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	10-15-2014
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	11-05-2013
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	11-05-2013
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	11-05-2013
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS

Eval General Type:	Other/Unknown
Eval Date:	11-19-2015
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS

Enforcement Action:

Site ID:	6640
Site Name:	TESORO (THRIFTY) 42133
Site Address:	2600 HAMNER AVE
Site City:	NORCO
Site Zip:	92860
Enf Action Date:	07-23-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST

THRIFTY OIL #338 (Continued) **S104755098**

Enf Action Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Site Address: 2600 HAMNER AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 10-07-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Site Address: 2600 HAMNER AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 10-15-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Site Address: 2600 HAMNER AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 11-05-2013
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HMRRP
Enf Action Source: CERS

Site ID: 6640
Site Name: TESORO (THRIFTY) 42133
Site Address: 2600 HAMNER AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 11-05-2013
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS

Coordinates:
Site ID: 6640
Facility Name: TESORO (THRIFTY) 42133

THRIFTY OIL #338 (Continued) **S104755098**

Env Int Type Code: HWG
Program ID: 10316692
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.919690
Longitude: -117.559960

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: JANET WAGER
Entity Title: Not reported
Affiliation Address: 301 E. OCEAN BLVD., SUITE 1600
Affiliation City: LONG BEACH
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 90802
Affiliation Phone: Not reported

Affiliation Type Desc: UST Permit Applicant
Entity Name: TERESA A. MILES
Entity Title: ENVIRONMENTAL COMPLIANCE SUPERVISOR
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (562) 495-6850

Affiliation Type Desc: UST Property Owner Name
Entity Name: BEST CALIFORNIA GAS, LTD.
Entity Title: Not reported
Affiliation Address: 13116 IMPERIAL HIGHWAY
Affiliation City: SANTA FE SPRINGS
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 90670
Affiliation Phone: (562) 921-3581

Affiliation Type Desc: Document Preparer
Entity Name: BELSHIRE ENVIRONMENTAL SERVICES, INC.
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 19100 RIDGEWOOD PKWY, MS: TX1-022
Affiliation City: SAN ANTONIO
Affiliation State: TX
Affiliation Country: Not reported
Affiliation Zip: 78259
Affiliation Phone: Not reported

THRIFTY OIL #338 (Continued) **S104755098**

Affiliation Type Desc:	Operator
Entity Name:	BEST CALIFORNIA GAS, LTD.
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(210) 626-6153

Affiliation Type Desc:	Property Owner
Entity Name:	BEST CALIFORNIA GAS, LTD.
Entity Title:	Not reported
Affiliation Address:	13116 IMPERIAL HIGHWAY
Affiliation City:	SANTA FE SPRINGS
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	90670
Affiliation Phone:	(562) 921-3581

Affiliation Type Desc:	UST Tank Operator
Entity Name:	TNXMH CORP
Entity Title:	Not reported
Affiliation Address:	2600 HAMNER AVE
Affiliation City:	NORCO
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 371-6571

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Legal Owner
Entity Name:	Tesoro Refining & Marketing Company LLC
Entity Title:	Not reported
Affiliation Address:	19100 RIDGEWOOD PKWY, MS: TX1-022
Affiliation City:	SAN ANTONIO
Affiliation State:	TX
Affiliation Country:	United States
Affiliation Zip:	78259
Affiliation Phone:	(210) 626-6153

Affiliation Type Desc:	UST Tank Owner
Entity Name:	BEST CALIFORNIA GAS, LTD.
Entity Title:	Not reported
Affiliation Address:	13116 IMPERIAL HIGHWAY
Affiliation City:	SANTA FE SPRINGS
Affiliation State:	CA
Affiliation Country:	United States

THRIFTY OIL #338 (Continued) **S104755098**

Affiliation Zip:	90670
Affiliation Phone:	(562) 921-3581
Affiliation Type Desc:	Identification Signer
Entity Name:	TERESA A. MILES
Entity Title:	ENVIRONMENTAL COMPLIANCE SUPERVISOR
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	Tesoro Refining and Marketing Company LLC
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

J45 **THRIFTY OIL STN. #338** **LUST** **U001569928**
NNE **2600 HAMNER AVE** **HIST UST** **N/A**
1/8-1/4 **NORCO, CA 91760** **CERS**
0.218 mi.
1150 ft. **Site 4 of 8 in cluster J**

Relative: **Lower**

Actual: **617 ft.**

LUST:

Name:	THRIFTY OIL #338
Address:	2600 HAMNER AVE
City,State,Zip:	NORCO, CA 91760
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500206
Global Id:	T0606500206
Latitude:	33.9193028
Longitude:	-117.5599784
Status:	Completed - Case Closed
Status Date:	08/31/2011
Case Worker:	AB
RB Case Number:	083301646T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Local Agency Warehouse
Local Case Number:	90776
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	****Data prior to 2005 does not appear in GeoTracker*** Release Information: In August 1990, four steel USTs were removed and replaced in an alternate location on-site. Eight (8) soil samples were collected from beneath the tanks and concentrations up to 2520 ppm TPHg and 1.3 ppm benzene were detected in the soil samples. An unauthorized release report was filed and the site was placed into the LOP. Assessment: June 1991 Three soil borings (BW-2, BW-3, and BW-5) were drilled to depths of 30 feet below ground surface (bgs) and three monitoring wells (BW-1, BW-4, and BW-6) were installed to

THRIFTY OIL STN. #338 (Continued) **U001569928**

approximately 45 feet bgs. TPH concentrations ranging from non-detect to 6100 ppm were detected in soil samples collected from 20 to 30 feet bgs in BW-1 through BW-4. Groundwater was encountered at approximately 30 feet bgs and stabilized at depths ranging from 27 to 32 feet bgs. Groundwater samples contained TPH concentrations ranging from 800 to 4000 ppb. BTEX concentrations ranged from non-detect to 470 ppb. June 1992 - Three additional wells were installed (BW-7 through BW-9). BW-8 hit refusal at 42 feet bgs due to bedrock and well BW-7 was installed off-site in Hamner Avenue. Wells BW-8 and BW-9 were installed upgradient and crossgradient of the existing wells. Hydrocarbons were not detected in the soil or groundwater samples from these wells. Groundwater flow direction was west-southwest with a gradient of 0.01 feet per foot. May 1993 - Four additional borings were drilled (BW-10 through BW-13). BW-10 and BW-11 were converted to groundwater monitoring wells. Groundwater in well BW-6, located immediately south of the former tank pit, had the highest TPH and benzene concentrations (17000 ppb and 140 ppb, respectively). Benzene was not detected in the groundwater from the other monitoring wells, with the exception of BW-11 which had a benzene concentration of 0.4 ppb. July 1997 - Six soil borings (TDD-1,TDD-2,TDD-4,TDD-6,TDD-7,TDD-8) were drilled for further site assessment purposes. Borings were drilled to a maximum depth of 40 feet with one completed as a monitoring well (TDD-6). Highest soil concentrations were detected in TDD-6 (4500 ppm TPHg). 890 ppb MTBE was detected in the groundwater from TDD-6. November 1999 - Two off-site groundwater monitoring wells (BW-14 and BW-15) were installed. TPHg and MTBE were detected in the groundwater from BW-15 at concentrations of 350 ppb and 680 ppb, respectively. May 2001 - Well BW-16 was installed off-site to the south in Lampton Lane. Soil samples from this boring did not contain TPHg or benzene, but contained 0.03 ppm MTBE at 30 feet bgs. 1.4 ppb MTBE was detected in the groundwater from this well. January 2006 - Vapor well VW-1 was installed and off-site well BW-14 was properly destroyed as petroleum constituents had never been detected in this well. Groundwater Remediation: April 13, 2004 to July 6, 2004 - Weekly over-purging of well BW-6 was conducted as an interim groundwater remedial action. Approximately 937 gallons of groundwater was purged and transported off-site for recycling. Soil Remediation: February/March 6, 2006 A soil vapor extraction (SVE) pilot test was performed using BW-1 (screened 10-45 ft bgs), BW-4 (screened 5-45 ft bgs), BW-6 (screened 10-42 ft bgs), and VW-1 (screened 14-29 ft bgs). The test consisted of 20 hours of extraction from each well. BW-1 had the highest hydrocarbon vapor concentrations of all the wells with >1,600 ppmv at startup and 1090 ppmv at the end of the testing period. BW-4 contained hydrocarbon concentrations above 100 ppmv and the remaining wells did not produce any significant concentrations. A total of 42 lbs of hydrocarbon vapors and 0.04 lb MTBE were removed during the event. November/December 2007 Three 5-Day SVE events were conducted using wells BW-1 and BW-4 for extraction. Approximately 201 lbs of hydrocarbons were removed during the 15 days of SVE operation. Final concentrations in well BW-1 were 28 ppmv TPHg, 0.027 ppmv benzene, and 0.016 ppmv MTBE and final concentrations in well BW-4 were 26 ppmv TPHg, 0.023 ppmv benzene, and 0.013 ppmv MTBE. Verification: Soil verification was not conducted due to low vapor concentrations/mass recovery. Groundwater Monitoring: Groundwater monitoring (gauging and sampling) began in 1991. Historically groundwater depth ranged from 25.5 to 34.64 bgs with a

THRIFTY OIL STN. #338 (Continued) **U001569928**

west-southwesterly flow direction and 0.01 ft/ft gradient. Depth to groundwater currently approximately 30 feet bgs. The area of highest contaminant concentrations was around the former UST area. Maximum detected concentrations in the groundwater were in wells BW-1 and BW-6: 17,000 ppb TPHg, 140 ppb benzene, 200 ppb toluene, 780 ppb ethylbenzene, 2,200 ppb xylenes, 5,350 ppb MTBE and 1,110 ppb TBA. Gasoline constituents have not been detected in the groundwater since April 2009. Other information: Subsurface Soil types: Discontinuous layers of silty sand and gravely sands to 45 feet bgs with weathered granitic bedrock below. Remediation: Groundwater over-purging and four SVE pilot tests conducted. Sensitive Receptors: According to Geotracker no DHS supply wells are located with \\% mile of the site. Other Sensitive Receptors (i.e. schools, hospitals, utilities, etc.) within 0.5 mile: Apartment complex for the Elderly (up gradient), restaurants, Riverside Community College (RCC) campus, and other colleges and schools. Sensitive Receptors Likely to be impacted: None; GW is deep and not impacted with hydrocarbons. Furthermore, the apartment complex is located up gradient and therefore the risk of impact is further minimized. Other: The site is currently an active gasoline station. Wells were abandoned NFA letter was issued 8/31/2011
Not reported

LUST:

Global Id:	T0606500206
Contact Type:	Local Agency Caseworker
Contact Name:	ANDREA BRIONES
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	abriones@rivco.org
Phone Number:	9519558980

Global Id:	T0606500206
Contact Type:	Regional Board Caseworker
Contact Name:	VALERIE JAHN-BULL
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	valerie.jahn-bull@waterboards.ca.gov
Phone Number:	9517824903

LUST:

Global Id:	T0606500206
Action Type:	RESPONSE
Date:	07/15/2010
Action:	Monitoring Report - Quarterly

Global Id:	T0606500206
Action Type:	RESPONSE
Date:	07/15/2008
Action:	Monitoring Report - Quarterly

Global Id:	T0606500206
Action Type:	ENFORCEMENT
Date:	08/13/2009
Action:	Staff Letter - #RCDEH081309

THRIFTY OIL STN. #338 (Continued) **U001569928**

Global Id: T0606500206
Action Type: Other
Date: 08/08/1990
Action: Leak Discovery

Global Id: T0606500206
Action Type: RESPONSE
Date: 08/06/2011
Action: Well Destruction Report

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 06/06/2011
Action: Staff Letter

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 10/06/2006
Action: Notification - Public Notice of ROD/RAP/CAP

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 08/21/1990
Action: Notification - Proposition 65

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 10/18/2007
Action: Staff Letter - #RCDEH 101807

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 02/27/2008
Action: Staff Letter - #RCDEH 022708

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 09/23/2007
Action: File review

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 08/31/2011
Action: Closure/No Further Action Letter - #RCDEH Closure

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 08/30/2011
Action: File review - #RCDEH Case File

Global Id: T0606500206
Action Type: Other
Date: 08/08/1990
Action: Leak Stopped

Global Id: T0606500206
Action Type: REMEDIATION

THRIFTY OIL STN. #338 (Continued) **U001569928**

Date: 02/13/2006
Action: Soil Vapor Extraction (SVE)

Global Id: T0606500206
Action Type: REMEDIATION
Date: 11/20/2007
Action: Soil Vapor Extraction (SVE)

Global Id: T0606500206
Action Type: REMEDIATION
Date: 04/13/2004
Action: Pump & Treat (P&T) Groundwater

Global Id: T0606500206
Action Type: RESPONSE
Date: 04/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: Other
Date: 08/21/1990
Action: Leak Reported

Global Id: T0606500206
Action Type: ENFORCEMENT
Date: 09/20/2002
Action: File review

Global Id: T0606500206
Action Type: RESPONSE
Date: 01/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 01/11/2008
Action: Remedial Progress Report

Global Id: T0606500206
Action Type: RESPONSE
Date: 07/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 10/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 01/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 07/15/2009
Action: Monitoring Report - Quarterly

THRIFTY OIL STN. #338 (Continued) **U001569928**

Global Id: T0606500206
Action Type: RESPONSE
Date: 10/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 10/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 01/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 04/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606500206
Action Type: RESPONSE
Date: 10/03/2008
Action: Monitoring Report - Quarterly

LUST:
Global Id: T0606500206
Status: Open - Case Begin Date
Status Date: 08/08/1990

Global Id: T0606500206
Status: Open - Site Assessment
Status Date: 08/21/1990

Global Id: T0606500206
Status: Open - Remediation
Status Date: 09/01/1994

Global Id: T0606500206
Status: Open - Remediation
Status Date: 10/18/2007

Global Id: T0606500206
Status: Completed - Case Closed
Status Date: 08/31/2011

RIVERSIDE CO. LUST:
Name: THRIFTY OIL #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA
Region: RIVERSIDE
Facility ID: 90776
Employee: Briones-LOP
Site Closed: Yes
Case Type: Drinking Water Aquifer affected

THRIFTY OIL STN. #338 (Continued) **U001569928**

Facility Status: closed/action completed
Casetype Decode: An Aquifer used for Drinking Water supply has been contaminated.
Fstatus Decode: Closed/Action completed

HIST UST:
Name: THRIFTY OIL STN. #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 91760
File Number: Not reported
URL: Not reported
Region: STATE
Facility ID: 00000004302
Facility Type: Gas Station
Other Type: Not reported
Contact Name: Not reported
Telephone: 2139239876
Owner Name: BEST CALIFORNIA GAS,LTD.
Owner Address: 10000 LAKEWOOD BLVD.
Owner City,St,Zip: DOWNEY, CA 90240
Total Tanks: 0005

Tank Num: 001
Container Num: 338-1
Year Installed: Not reported
Tank Capacity: 00008142
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: 1/4
Leak Detection: Not reported

Tank Num: 002
Container Num: 338-2
Year Installed: 1981
Tank Capacity: 00015000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: .267
Leak Detection: Stock Inventor

Tank Num: 003
Container Num: 338-3
Year Installed: Not reported
Tank Capacity: 00010161
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Container Construction Thickness: 1/4
Leak Detection: Stock Inventor

Tank Num: 004
Container Num: 338-6
Year Installed: Not reported
Tank Capacity: 00008142
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: 1/4
Leak Detection: Stock Inventor

THRIFTY OIL STN. #338 (Continued) **U001569928**

Tank Num: 005
Container Num: 338-10
Year Installed: Not reported
Tank Capacity: 00000550
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: 12
Leak Detection: Stock Inventor

CERS:
Name: THRIFTY OIL #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 91760
Site ID: 211626
CERS ID: T0606500206
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: ANDREA BRIONES - RIVERSIDE COUNTY LOP
Entity Title: Not reported
Affiliation Address: 3880 LEMON ST SUITE 200
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9519558980

Affiliation Type Desc: Regional Board Caseworker
Entity Name: VALERIE JAHN-BULL - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 MAIN STREET, SUITE 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9517824903

J46 **ARCO #9708** **UST** **U003839083**
NNE **2600 HAMNER AVE** **N/A**
1/8-1/4 **NORCO, CA 92860**
0.218 mi.
1150 ft. **Site 5 of 8 in cluster J**

Relative:
Lower

Actual:
617 ft.

UST:
Name: TESORO (THRIFTY) 42133
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Facility ID: FA0040386
Permitting Agency: Riverside County Department of Environmental Health
Latitude: 33.91969
Longitude: -117.55996

Name: ARCO #9708
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Facility ID: 61

ARCO #9708 (Continued) **U003839083**

Permitting Agency: RIVERSIDE COUNTY
Latitude: 33.9209767
Longitude: -117.5585967

RIVERSIDE CO. UST:
Name: ARCO 42133
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Region: RIVERSIDE
Total Tanks: 4

J47 **THRIFTY OIL CO #338** **HIST UST** **S113165687**
NNE **2600 HAMNER AVE** **HAZNET** **N/A**
1/8-1/4 **NORCO, CA 91760**
0.218 mi.
1150 ft. **Site 6 of 8 in cluster J**

Relative:
Lower

Actual:
617 ft.

HIST UST:
Name: THRIFTY OIL STN 338
Address: 2600 HAMNER AVENUE
City,State,Zip: NORCO, CA 91760
File Number: 0001F433
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F433.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: Not reported

Click here for Geo Tracker PDF:

HAZNET:
Name: THRIFTY OIL CO #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 917600000
Year: 1997
GEPAID: CAL920826060
Contact: --
Telephone: --
Mailing Name: Not reported
Mailing Address: 10000 LAKEWOOD BLVD
Mailing City,St,Zip: DOWNEY, CA 902404020
Gen County: Riverside

THRIFTY OIL CO #338 (Continued) **S113165687**

TSD EPA ID: CAT080013352
TSD County: Los Angeles
Tons: 0.21
CA Waste Code: 134-Aqueous solution with total organic residues less than 10 percent
Method: R01-Recycler
Facility County: Riverside

Name: THRIFTY OIL CO #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 917600000
Year: 1997
GEPAID: CAL920826060
Contact: --
Telephone: --
Mailing Name: Not reported
Mailing Address: 10000 LAKEWOOD BLVD
Mailing City,St,Zip: DOWNEY, CA 902404020
Gen County: Riverside
TSD EPA ID: CAD089446710
TSD County: Los Angeles
Tons: 0.4587
CA Waste Code: 213-Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Method: H01-Transfer Station
Facility County: Riverside

Name: THRIFTY OIL CO #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 917600000
Year: 1996
GEPAID: CAL920826060
Contact: --
Telephone: --
Mailing Name: Not reported
Mailing Address: 10000 LAKEWOOD BLVD
Mailing City,St,Zip: DOWNEY, CA 902404020
Gen County: Riverside
TSD EPA ID: CAD089446710
TSD County: Los Angeles
Tons: 0.688
CA Waste Code: 213-Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Method: H01-Transfer Station
Facility County: Riverside

Name: THRIFTY OIL CO #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 917600000
Year: 1995
GEPAID: CAL920826060
Contact: --
Telephone: --
Mailing Name: Not reported
Mailing Address: 10000 LAKEWOOD BLVD
Mailing City,St,Zip: DOWNEY, CA 902404020
Gen County: Riverside
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Tons: 0.924

THRIFTY OIL CO #338 (Continued) **S113165687**

CA Waste Code: 134-Aqueous solution with total organic residues less than 10 percent
Method: T01-Treatment, Tank
Facility County: Riverside

Name: THRIFTY OIL CO #338
Address: 2600 HAMNER AVE
City,State,Zip: NORCO, CA 917600000
Year: 1994
GEPAID: CAL920826060
Contact: --
Telephone: --
Mailing Name: Not reported
Mailing Address: 10000 LAKEWOOD BLVD
Mailing City,St,Zip: DOWNEY, CA 902404020
Gen County: Riverside
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Tons: 0.63
CA Waste Code: 134-Aqueous solution with total organic residues less than 10 percent
Method: T01-Treatment, Tank
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
6 additional CA_HAZNET: record(s) in the EDR Site Report.

J48 **TESORO THRIFTY 42133** **RCRA NonGen / NLR** **1024838682**
NNE **2600 HAMNER AVE** **CAL000385753**
1/8-1/4 **NORCO, CA 92860**
0.218 mi.
1150 ft. **Site 7 of 8 in cluster J**

Relative: **Lower**

Actual: **617 ft.**

RCRA NonGen / NLR:
Date form received by agency: 05/24/2013
Facility name: TESORO THRIFTY 42133
Facility address: 2600 HAMNER AVE
NORCO, CA 92860
EPA ID: CAL000385753
Mailing address: 19100 RIDGEWOOD PKWY
SAN ANTONIO, TX 78259-0000
Contact: BRENDA RAMIREZ
Contact address: 19100 RIDGEWOOD PKWY
SAN ANTONIO, TX 78259
Contact country: Not reported
Contact telephone: 210-626-5153
Contact email: BRENDA.RAMIREZ@TSOCORP.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TESORO REFINING & MARKETING COMPANY
Owner/operator address: 19100 RIDGEWOOD PKWY
SAN ANTONIO, TX 78259
Owner/operator country: Not reported
Owner/operator telephone: 210-626-6153
Owner/operator email: Not reported
Owner/operator fax: Not reported

TESORO THRIFTY 42133 (Continued) **1024838682**

Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: BRENDA RAMIREZ
Owner/operator address: 19100 RIDGEWOOD PKWY
SAN ANTONIO, TX 78259
Owner/operator country: Not reported
Owner/operator telephone: 210-626-5153
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Other
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: Yes
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

J49 **ARCO FACILITY NO 09708** **RCRA-SQG** **1004677865**
NNE **2600 HAMNER AVE** **FINDS** **CAR000102400**
1/8-1/4 **NORCO, CA 92860** **ECHO**
0.218 mi.
1150 ft. **Site 8 of 8 in cluster J**

Relative:
Lower

Actual:
617 ft.

RCRA-SQG:
Date form received by agency: 07/10/2002
Facility name: ARCO FACILITY NO 09708
Facility address: 2600 HAMNER AVE
NORCO, CA 91760
EPA ID: CAR000102400
Mailing address: P O BOX 6038
ARTESIA, CA 90702-6038
Contact: JACK OMAN
Contact address: P O BOX 6038
ARTESIA, CA 90702-6038
Contact country: US
Contact telephone: 714-690-2425
Contact email: Not reported

ARCO FACILITY NO 09708 (Continued) **1004677865**

EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: B P W COAST PRODUCTS LLC
Owner/operator address: P O BOX 6038
ARTESIA, CA 90702
Owner/operator country: Not reported
Owner/operator telephone: 714-690-2425
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110012203169

ARCO FACILITY NO 09708 (Continued) **1004677865**

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004677865
Registry ID:	110012203169
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110012203169

L50 **911 AUTOMOTIVE** **RCRA NonGen / NLR** **1024854107**
SSW **1950 S FOUR WHEEL DR STE C** **CAL000414629**
1/8-1/4 **NORCO, CA 92860**
0.223 mi.
1175 ft. **Site 1 of 4 in cluster L**

Relative: **Lower**

Actual: **599 ft.**

RCRA NonGen / NLR:

Date form received by agency:	02/25/2016
Facility name:	911 AUTOMOTIVE
Facility address:	1950 S FOUR WHEEL DR STE C NORCO, CA 92860-2677
EPA ID:	CAL000414629
Mailing address:	410 RIVER RD STE A CORONA, CA 92880-1380
Contact:	MOSES SABBARA/OWNER
Contact address:	410 RIVER RD STE A CORONA, CA 92880
Contact country:	Not reported
Contact telephone:	714-412-0505
Contact email:	VZFRANKLOZANO@GMAIL.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MOSES SABBARA
Owner/operator address:	410 RIVER RD STE A CORONA, CA 92880
Owner/operator country:	Not reported
Owner/operator telephone:	951-371-4627
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner

911 AUTOMOTIVE (Continued) **1024854107**

Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	MOSES SABBARA/OWNER
Owner/operator address:	410 RIVER RD STE A CORONA, CA 92880
Owner/operator country:	Not reported
Owner/operator telephone:	714-412-0505
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

L51 **TOTAL AUTO CARE INC** **RCRA NonGen / NLR** **1024819474**
SSW **1950 S FOUR WHEEL DR STE I** **CAL000329656**
1/8-1/4 **NORCO, CA 92860**
0.223 mi.
1175 ft. **Site 2 of 4 in cluster L**

Relative: **Lower**

Actual: **599 ft.**

RCRA NonGen / NLR:

Date form received by agency:	02/13/2008
Facility name:	TOTAL AUTO CARE INC
Facility address:	1950 S FOUR WHEEL DR STE I NORCO, CA 92860-2677
EPA ID:	CAL000329656
Contact:	THOMAS A COLE-PRES
Contact address:	5966 TUCSON CT RIVERSIDE, CA 92504
Contact country:	Not reported
Contact telephone:	951-682-5578
Contact email:	TOTALAUTOCAREINC1@GMAIL.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

TOTAL AUTO CARE INC (Continued) **1024819474**

Owner/Operator Summary:
- Owner/operator name: THOMAS A. COLE
- Owner/operator address: 5966 TUCSON CT RIVERSIDE, CA 92504
- Owner/operator country: Not reported
- Owner/operator telephone: 951-316-6065
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Other
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

- Owner/operator name: THOMAS A COLE-PRES
- Owner/operator address: 5966 TUCSON CT RIVERSIDE, CA 92504
- Owner/operator country: Not reported
- Owner/operator telephone: 951-682-5578
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Other
- Owner/Operator Type: Operator
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: Yes
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Violation Status: No violations found

L52 **BUGGY WORLD** **RCRA-SQG** **1001967682**
SSW **1950 S FOUR WHEEL DR** **CERS HAZ WASTE** **CAR000071969**
1/8-1/4 **NORCO, CA 92860** **FINDS**
0.223 mi. **ECHO**
1175 ft. **Site 3 of 4 in cluster L** **HAZNET**

Relative: **Lower**
Actual: **599 ft.**

RCRA-SQG:
- Date form received by agency: 04/28/2000
- Facility name: BUGGY WORLD
- Facility address: 1950 S FOUR WHEEL DR NORCO, CA 92860
- EPA ID: CAR000071969

BUGGY WORLD (Continued) **1001967682**

Contact:	KEN SKIBA
Contact address:	1950 S FOUR WHEEL DR NORCO, CA 91760
Contact country:	US
Contact telephone:	909-734-1940
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	KEN SKIBA
Owner/operator address:	1950 S FOUR WHEEL DR NUMBER 1 NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	909-734-1934
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Hazardous Waste Summary:

. Waste code:	D000
. Waste name:	Not Defined
. Waste code:	D039
. Waste name:	TETRACHLOROETHYLENE
Violation Status:	No violations found

CERS HAZ WASTE:

BUGGY WORLD (Continued) **1001967682**

Name: RODRIGUEZ AUTO REPAIR
Address: 1950 S FOUR WHEEL DR #G
City,State,Zip: NORCO, CA 92860
Site ID: 62608
CERS ID: 10320049
CERS Description: Hazardous Waste Generator

Violations:
Site ID: 62608
Site Name: Rodriguez Auto Repair
Violation Date: 08-06-2015
Citation: 40 CFR 1 265.31 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.31
Violation Description: Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment..
Violation Notes: Returned to compliance on 05/01/2018. Data clean-up. Hazardous waste permit is inactive.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 62608
Site Name: Rodriguez Auto Repair
Violation Date: 08-06-2015
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes: Returned to compliance on 05/01/2018. Data clean-up. Hazardous waste permit is inactive.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-06-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Enforcement Action:
Site ID: 62608
Site Name: Rodriguez Auto Repair
Site Address: 1950 S FOUR WHEEL DR #G
Site City: NORCO
Site Zip: 92860
Enf Action Date: 08-06-2015
Enf Action Type: Notice of Violation (Unified Program)

BUGGY WORLD (Continued) **1001967682**

Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HW
Enf Action Source: CERS

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: 1950 S Four Wheel Dr
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Parent Corporation
Entity Name: Rodriguez Auto Repair
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Name: TOTAL AUTO CARE
Address: 1950 S FOUR WHEEL DR #I
City,State,Zip: NORCO, CA 92860
Site ID: 77118
CERS ID: 10325497
CERS Description: Hazardous Waste Generator

Violations:
Site ID: 77118
Site Name: Total Auto Care
Violation Date: 08-06-2015
Citation: 40 CFR 1 265.33 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.33
Violation Description: Failure of the facility to test and maintain all communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment.
Violation Notes: Returned to compliance on 08/17/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: HW

BUGGY WORLD (Continued) **1001967682**

Violation Source: CERS

Site ID: 77118
Site Name: Total Auto Care
Violation Date: 08-06-2015
Citation: 40 CFR 1 265.31 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.31
Violation Description: Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment..
Violation Notes: Returned to compliance on 08/17/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-06-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-08-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: - Owner/operator was instructed to drip empty 1 quart motor oil containers prior to placing in the trash (found in metal 16 gallon drum) - Manager stated that oil contaminated rags are laundered by Prudential Uniform - Owner/operator was instructed to remove all unused containers from the facility (empty 50 gallon and 16 gallon metal containers) and also label empty containers - Manager stated that oil filters are picked up by FRS - Manager stated that employee training is done twice a year - Manager stated that batteries are picked up by interstate batteries
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-17-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Enforcement Action:
Site ID: 77118
Site Name: Total Auto Care

BUGGY WORLD (Continued) **1001967682**

Site Address:	1950 S FOUR WHEEL DR #I
Site City:	NORCO
Site Zip:	92860
Enf Action Date:	08-06-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS

Affiliation:

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1950 S Four Wheel Dr # I
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055

Affiliation Type Desc:	Parent Corporation
Entity Name:	Total Auto Care
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

FINDS:

Registry ID: 110006486702

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport,

BUGGY WORLD (Continued) **1001967682**

and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001967682
Registry ID:	110006486702
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110006486702

HAZNET:

Name:	BUGGY WORLD
Address:	1950 S FOUR WHEEL DR
City,State,Zip:	NORCO, CA 928600000
Year:	2001
GEPAID:	CAR000071969
Contact:	BUGGY WORLD
Telephone:	Not reported
Mailing Name:	Not reported
Mailing Address:	1950 S FOUR WHEEL DR
Mailing City,St,Zip:	NORCO, CA 917600000
Gen County:	Riverside
TSD EPA ID:	CAT000613927
TSD County:	San Bernardino
Tons:	0.2772
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	H01-Transfer Station
Facility County:	Riverside

Name:	BUGGY WORLD
Address:	1950 S FOUR WHEEL DR
City,State,Zip:	NORCO, CA 928600000
Year:	2000
GEPAID:	CAR000071969
Contact:	BUGGY WORLD
Telephone:	Not reported
Mailing Name:	Not reported
Mailing Address:	1950 S FOUR WHEEL DR
Mailing City,St,Zip:	NORCO, CA 917600000
Gen County:	Riverside
TSD EPA ID:	CAT000613927
TSD County:	San Bernardino
Tons:	0.147
CA Waste Code:	134-Aqueous solution with total organic residues less than 10 percent
Method:	H01-Transfer Station
Facility County:	Riverside

L53 YOUNGS AUTOMOTIVE MOBILE SERVICE INC DBA YOUNGS AU **RCRA NonGen / NLR** **1024864337**
SSW 1950 S FOUR WHEEL DR **CAL000432898**
1/8-1/4 NORCO, CA 92860
0.223 mi.
1175 ft. **Site 4 of 4 in cluster L**

Relative:
Lower

Actual:
599 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/03/2018
Facility name:	YOUNGS AUTOMOTIVE MOBILE SERVICE INC DBA YOUNGS AUTO CARE CENTER
Facility address:	1950 S FOUR WHEEL DR NORCO, CA 92860
EPA ID:	CAL000432898
Contact:	PAUL YOUNG PRESIDENT
Contact address:	30510 BROOKSTONE LN LAKE ELSINORE, CA 92530
Contact country:	Not reported
Contact telephone:	951-587-7457
Contact email:	SCHEDULE.YOUNGSAUTO@GMAIL.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	YOUNGS AUTOMOTIVE MOBILE SERVICE
Owner/operator address:	30510 BROOKSTONE LN LAKE ELSINORE, CA 92530
Owner/operator country:	Not reported
Owner/operator telephone:	951-587-7457
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	PAUL YOUNG PRESIDENT
Owner/operator address:	30510 BROOKSTONE LN LAKE ELSINORE, CA 92530
Owner/operator country:	Not reported
Owner/operator telephone:	951-587-7457
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

YOUNGS AUTOMOTIVE MOBILE SERVICE INC DBA YOUNGS AUTO CARE CE (Continued) **1024864337**

Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

M54 **NORCO FUEL SALES** **LUST** **S102434421**
SSE **2001 HAMNER AVE** **SWEEPS UST** **N/A**
1/8-1/4 **NORCO, CA 91760** **HIST CORTESE**
0.234 mi. **CERS**
1234 ft. **Site 1 of 3 in cluster M**

Relative:
Lower

Actual:
602 ft.

LUST:

Name:	NORCO FUEL SALES
Address:	2001 HAMNER AVE
City,State,Zip:	NORCO, CA 91760
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500377
Global Id:	T0606500377
Latitude:	33.9108342021926
Longitude:	-117.560565664978
Status:	Completed - Case Closed
Status Date:	08/19/1994
Case Worker:	RIV
RB Case Number:	083302486T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Local Agency Warehouse
Local Case Number:	94212
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

LUST:

Global Id:	T0606500377
Contact Type:	Regional Board Caseworker
Contact Name:	ROSE SCOTT
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	rose.scott@waterboards.ca.gov
Phone Number:	9513206375

Global Id:	T0606500377
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

LUST:

Global Id:	T0606500377
Action Type:	ENFORCEMENT

NORCO FUEL SALES (Continued) **S102434421**

Date: 08/19/1994
Action: Closure/No Further Action Letter - #RCDEH81994

Global Id: T0606500377
Action Type: Other
Date: 12/22/1993
Action: Leak Discovery

Global Id: T0606500377
Action Type: ENFORCEMENT
Date: 08/18/1994
Action: File review - #RCDEH Upload Site File 9/24/2015

Global Id: T0606500377
Action Type: Other
Date: 12/01/1993
Action: Leak Stopped

Global Id: T0606500377
Action Type: REMEDIATION
Date: 07/27/1994
Action: Other (Use Description Field)

Global Id: T0606500377
Action Type: Other
Date: 03/17/1994
Action: Leak Reported

LUST:
Global Id: T0606500377
Status: Open - Case Begin Date
Status Date: 12/01/1993

Global Id: T0606500377
Status: Open - Site Assessment
Status Date: 03/17/1994

Global Id: T0606500377
Status: Open - Remediation
Status Date: 07/27/1994

Global Id: T0606500377
Status: Completed - Case Closed
Status Date: 08/19/1994

LUST REG 8:
Name: NORCO FUEL SALES
Address: 2001 HAMNER AVE
City: NORCO
Region: 8
County: Riverside
Regional Board: Santa Ana Region
Facility Status: Case Closed
Case Number: 083302486T
Local Case Num: 94212

NORCO FUEL SALES (Continued) **S102434421**

Case Type:	Soil only
Substance:	Diesel
Qty Leaked:	Not reported
Abate Method:	Excavate and Dispose - remove contaminated soil and dispose in approved site
Cross Street:	2ND
Enf Type:	CLOS
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	UNK
Global ID:	T0606500377
How Stopped Date:	12/1/1993
Enter Date:	Not reported
Date Confirmation of Leak Began:	3/17/1994
Date Preliminary Assessment Began:	Not reported
Discover Date:	12/22/1993
Enforcement Date:	Not reported
Close Date:	8/19/1994
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	Not reported
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.91114
Longitude:	-117.5608743
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	1
Max MTBE Soil:	Not reported
MTBE Fuel:	0
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	RS
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: DISCOVERED THROUGH SOIL BORINGS; STATION CLOSED

RIVERSIDE CO. LUST:

Name:	NORCO FUEL SALES
Address:	2001 HAMNER AVE
City,State,Zip:	NORCO, CA
Region:	RIVERSIDE

NORCO FUEL SALES (Continued) **S102434421**

Facility ID:	94212
Employee:	Jones
Site Closed:	Yes
Case Type:	Soil only
Facility Status:	closed/action completed
Casetype Decode:	Soil only is impacted
Fstatus Decode:	Closed/Action completed

SWEEPS UST:

Name:	NORCO FUEL SALES
Address:	2001 HAMNER AVE
City:	NORCO
Status:	Active
Comp Number:	1783
Number:	3
Board Of Equalization:	Not reported
Referral Date:	11-23-92
Action Date:	11-23-92
Created Date:	08-26-91
Owner Tank Id:	Not reported
SWRCB Tank Id:	33-000-001783-000001
Tank Status:	A
Capacity:	9950
Active Date:	11-23-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	4

Name:	NORCO FUEL SALES
Address:	2001 HAMNER AVE
City:	NORCO
Status:	Active
Comp Number:	1783
Number:	3
Board Of Equalization:	Not reported
Referral Date:	11-23-92
Action Date:	11-23-92
Created Date:	08-26-91
Owner Tank Id:	Not reported
SWRCB Tank Id:	33-000-001783-000002
Tank Status:	A
Capacity:	9950
Active Date:	11-23-92
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	Not reported

Name:	NORCO FUEL SALES
Address:	2001 HAMNER AVE
City:	NORCO
Status:	Active
Comp Number:	1783
Number:	3
Board Of Equalization:	Not reported
Referral Date:	11-23-92

NORCO FUEL SALES (Continued) **S102434421**

Action Date: 11-23-92
Created Date: 08-26-91
Owner Tank Id: Not reported
SWRCB Tank Id: 33-000-001783-000003
Tank Status: A
Capacity: 9950
Active Date: 11-23-92
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: NORCO FUEL SALES
Address: 2001 HAMNER AVE
City: NORCO
Status: Active
Comp Number: 1783
Number: 3
Board Of Equalization: Not reported
Referral Date: 11-23-92
Action Date: 11-23-92
Created Date: 08-26-91
Owner Tank Id: Not reported
SWRCB Tank Id: 33-000-001783-000004
Tank Status: A
Capacity: 9950
Active Date: 11-23-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

HIST CORTESE:
edr_fname: NORCO FUEL SALES
edr_fadd1: 2001 HAMNER
City,State,Zip: NORCO, CA 91760
Region: CORTESE
Facility County Code: 33
Reg By: LTNKA
Reg Id: 083302486T

CERS:
Name: NORCO FUEL SALES
Address: 2001 HAMNER AVE
City,State,Zip: NORCO, CA 91760
Site ID: 188711
CERS ID: T0606500377
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title: Not reported
Affiliation Address: 3880 LEMON ST SUITE 200
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported

NORCO FUEL SALES (Continued) **S102434421**

Affiliation Zip:	Not reported
Affiliation Phone:	9519558980
Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	ROSE SCOTT - SANTA ANA RWQCB (REGION 8)
Entity Title:	Not reported
Affiliation Address:	3737 MAIN STREET, SUITE 500
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9513206375

N55 **RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS** **ENVIROSTOR** **S105749954**
West **2001 3RD ST** **VCP** **N/A**
1/8-1/4 **NORCO, CA 92860** **HIST Cal-Sites**
0.246 mi. **CERS HAZ WASTE**
1299 ft. **Site 1 of 3 in cluster N** **CERS TANKS**
DEED
Relative: **CERS**
Lower

Actual: **614 ft.**

ENVIROSTOR:

Name:	RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS
Address:	2001 3RD ST
City,State,Zip:	NORCO, CA 92860
Facility ID:	33820001
Status:	Certified O&M - Land Use Restrictions Only
Status Date:	08/05/2016
Site Code:	400202
Site Type:	Voluntary Cleanup
Site Type Detailed:	Voluntary Cleanup
Acres:	713.66
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Willard Garrett
Supervisor:	Maryam Tasnif-Abbasi
Division Branch:	Cleanup Cypress
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	YES
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.91536
Longitude:	-117.5687
APN:	NONE SPECIFIED
Past Use:	RESEARCH - WEAPONS, ABOVE GROUND STORAGE TANKS, INCINERATOR - OTHER, LDF, RESEARCH - WEAPONS, UNDERGROUND STORAGE TANKS, UNKNOWN
Potential COC:	Dioxin (as 2,3,7,8-TCDD TEQ Lead Antimony and compounds Cadmium and compounds Copper and compounds Furan Lead, Organic (tetraethyl lead Zinc Explosives (UXO, MEC
Confirmed COC:	30011-NO Dioxin (as 2,3,7,8-TCDD TEQ Lead Antimony and compounds Cadmium and compounds Copper and compounds Furan Lead, Organic (tetraethyl lead Zinc
Potential Description:	SOIL
Alias Name:	Naval Weapons Station Seal Beach Detachment Corona

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Alias Type: Alternate Name
Alias Name: PART OF FLEET ANALYSIS CENTER-CORONA ANN
Alias Type: Alternate Name
Alias Name: 110033606952
Alias Type: EPA (FRS #)
Alias Name: P43059
Alias Type: PCode
Alias Name: 400202
Alias Type: Project Code (Site Code)
Alias Name: 33820001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Operations and Maintenance Workplan / Report
Completed Date: 05/09/2011
Comments: OLC consultation

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 09/30/1990
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 06/24/2013
Comments: Workplan completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 03/26/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/08/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Deed/LUR Enforcement & Implementation Plan
Completed Date: 03/28/2016
Comments: LUC completed on 20160328

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/04/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Completed Date: 10/18/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 04/08/2014
Comments: DTSC letter sent to RCCD.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 07/05/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/28/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/02/1990
Comments: Air Monitoring, Geophysical Survey, Subsurface Invest. Rpt.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/28/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 08/29/1990
Comments: Cleanup involved removal and offsite disposal of twenty tons of contaminated soil. CU and PB were contaminants of concern. Site was formerly part of the Fleet Analysis Center. A portion of that site became this site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 11/29/2011
Comments: vca executed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Land Use Restriction Monitoring Report
Completed Date: 02/02/2017
Comments: 2017 LUC Inspection Rpt. Approved 20170202

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Completed Date: 11/09/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 02/24/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/26/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/03/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/03/2016
Comments: 2016 - 2017 Annual Cost Est. completed 20161103

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 03/28/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/04/2015
Comments: Annual Cost Estimate Completed - FY 2016

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/05/2017
Comments: FY 2017 - 2018 Annual Cost Est. Completed 20171205

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 03/28/2019
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Site Characterization Report
Future Due Date: 2020
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Future Document Type: Removal Action Workplan
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

VCP:
Name: RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 92860
Facility ID: 33820001
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 713.66
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Willard Garrett
Supervisor: Maryam Tasnif-Abbasi
Division Branch: Cleanup Cypress
Site Code: 400202
Assembly: 60
Senate: 31
Special Programs Code: Not reported
Status: Certified O&M - Land Use Restrictions Only
Status Date: 08/05/2016
Restricted Use: YES
Funding: DERA
Lat/Long: 33.91536 / -117.5687
APN: NONE SPECIFIED
Past Use: RESEARCH - WEAPONS, ABOVE GROUND STORAGE TANKS, INCINERATOR - OTHER, LDF, RESEARCH - WEAPONS, UNDERGROUND STORAGE TANKS, UNKNOWN
Potential COC: 30009, 30013, 30058, 30108, 30156, 30298, 30343, 30594, 30011
Confirmed COC: 30011-NO,, ,30009,30013,30058,30108,30156,30298,30343,30594
Potential Description: SOIL
Alias Name: Naval Weapons Station Seal Beach Detachment Corona
Alias Type: Alternate Name
Alias Name: PART OF FLEET ANALYSIS CENTER-CORONA ANN
Alias Type: Alternate Name
Alias Name: 110033606952
Alias Type: EPA (FRS #)
Alias Name: P43059
Alias Type: PCode
Alias Name: 400202
Alias Type: Project Code (Site Code)
Alias Name: 33820001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Operations and Maintenance Workplan / Report
Completed Date: 05/09/2011

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Comments: OLC consultation

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Feasibility Study Report
Completed Date: 09/30/1990
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 06/24/2013
Comments: Workplan completed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 03/26/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 04/08/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Deed/LUR Enforcement & Implementation Plan
Completed Date: 03/28/2016
Comments: LUC completed on 20160328

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/04/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/18/2013
Comments: Completed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 04/08/2014
Comments: DTSC letter sent to RCCD.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction Monitoring Report
Completed Date: 07/05/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Completed Sub Area Name: Not reported
Completed Document Type: Remedial Action Completion Report
Completed Date: 09/28/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/02/1990
Comments: Air Monitoring, Geophysical Survey, Subsurface Invest. Rpt.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/28/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 08/29/1990
Comments: Cleanup involved removal and offsite disposal of twenty tons of contaminated soil. CU and PB were contaminants of concern. Site was formerly part of the Fleet Analysis Center. A portion of that site became this site.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 11/29/2011
Comments: vca executed.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Land Use Restriction Monitoring Report
Completed Date: 02/02/2017
Comments: 2017 LUC Inspection Rpt. Approved 20170202

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/09/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 02/24/2015
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/26/2013
Comments: Completed

Completed Area Name: PROJECT WIDE

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/03/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/03/2016
Comments: 2016 - 2017 Annual Cost Est. completed 20161103

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Land Use Restriction
Completed Date: 03/28/2016
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/04/2015
Comments: Annual Cost Estimate Completed - FY 2016

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/05/2017
Comments: FY 2017 - 2018 Annual Cost Est. Completed 20171205

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 03/28/2019
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Site Characterization Report
Future Due Date: 2020
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Removal Action Workplan
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Calsite:
Name: RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS
Address: 2001 3RD ST
City: NORCO
Region: GLENDALE
Facility ID: 33820001
Facility Type: OPEN
Type: OPEN MILITARY BASE

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Branch: SO
Branch Name: OMF-SOUTHERN CALIF
File Name: Not reported
State Senate District: 08291990
Status: CERTIFIED OPERATION AND MAINTENANCE, ALL PLANNED ACTIVITIES IMPLEMENTED, REMEDIATION CONTINUES
Status Name: CERTIFIED / OPERATION & MAINTENANCE
Lead Agency: DEPT OF TOXIC SUBSTANCES CONTROL
NPL: Not Listed
SIC Code: 82
SIC Name: EDUCATIONAL SERVICES
Access: Not reported
Cortese: Not reported
Hazardous Ranking Score: Not reported
Date Site Hazard Ranked: Not reported
Groundwater Contamination: Unknown
Staff Member Responsible for Site: Not reported
Supervisor Responsible for Site: Not reported
Region Water Control Board: Not reported
Region Water Control Board Name: Not reported
Lat/Long Direction: Not reported
Lat/Long (dms): 0 0 0 / 0 0 0
Lat/long Method: Not reported
Lat/Long Description: Not reported
State Assembly District Code: 71
State Senate District Code: 37
Facility ID: 33820001
Activity: OM
Activity Name: OPERATION & MAINTENANCE
AWP Code: 1
Proposed Budget: 0
AWP Completion Date: 06301995
Revised Due Date: Not reported
Comments Date: Not reported
Est Person-Yrs to complete: 0
Estimated Size: S
Request to Delete Activity: Not reported
Activity Status: COM
Definition of Status: CERTIFIED / OPERATION & MAINTENANCE
Liquids Removed (Gals): 0
Liquids Treated (Gals): 0
Action Included Capping: Not reported
Well Decommissioned: Not reported
Action Included Fencing: Not reported
Removal Action Certification: Not reported
Activity Comments: Not reported
For Commercial Reuse: 0
For Industrial Reuse: 0
For Residential Reuse: 0
Unknown Type: 0
Facility ID: 33820001
Activity: RIFS
Activity Name: REMEDIAL INVESTIGATION / FEASIBILITY STUDY
AWP Code: 1
Proposed Budget: 0
AWP Completion Date: 09301990
Revised Due Date: Not reported

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Comments Date:	09301990
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	COM
Definition of Status:	CERTIFIED / OPERATION & MAINTENANCE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	33820001
Activity:	RAP
Activity Name:	REMEDIAL ACTION PLAN / RECORD OF DECISION
AWP Code:	1
Proposed Budget:	0
AWP Completion Date:	06301990
Revised Due Date:	Not reported
Comments Date:	06301990
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	COM
Definition of Status:	CERTIFIED / OPERATION & MAINTENANCE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	33820001
Activity:	FRA
Activity Name:	FINAL REMEDIAL ACTION
AWP Code:	1
Proposed Budget:	0
AWP Completion Date:	06301990
Revised Due Date:	Not reported
Comments Date:	06301990
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	COM
Definition of Status:	CERTIFIED / OPERATION & MAINTENANCE
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Well Decommissioned: Not reported
Action Included Fencing: Not reported
Removal Action Certification: Not reported
Activity Comments: Not reported
For Commercial Reuse: 0
For Industrial Reuse: 0
For Residential Reuse: 0
Unknown Type: 0
Facility ID: 33820001
Activity: CERT
Activity Name: CERTIFICATION
AWP Code: Not reported
Proposed Budget: 0
AWP Completion Date: Not reported
Revised Due Date: Not reported
Comments Date: 08291990
Est Person-Yrs to complete: 0
Estimated Size: Not reported
Request to Delete Activity: Not reported
Activity Status: COM
Definition of Status: CERTIFIED / OPERATION & MAINTENANCE
Liquids Removed (Gals): 0
Liquids Treated (Gals): 0
Action Included Capping: Not reported
Well Decommissioned: Not reported
Action Included Fencing: Not reported
Removal Action Certification: N
Activity Comments: Not reported
For Commercial Reuse: 0
For Industrial Reuse: 0
For Residential Reuse: 0
Unknown Type: 0
Alternate Address: 2001 3RD ST
Alternate City,St,Zip: NORCO, CA 92860
Alternate Address: 2001 THIRD STREET
Alternate City,St,Zip: NORCO, CA 91720
Background Info: Not reported
Comments Date: 08291990
Comments: Cleanup involved removal and offsite disposal of twenty tons of c
Comments Date: 08291990
Comments: ontaminated soil. CU and PB were contaminants of concern. Site
Comments Date: 08291990
Comments: was formerly part of the Fleet Analysis Center. A portion of tha
Comments Date: 08291990
Comments: t site became this site.
ID Name: BEP DATABASE PCODE
ID Value: P43059
Alternate Name: PART OF FLEET ANALYSIS CENTER-CORONA ANN
Alternate Name: RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS
Alternate Name: Not reported
Special Programs Code: Not reported
Special Programs Name: Not reported

CERS HAZ WASTE:
Name: RCC-NORCO CAMPUS
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 92860-2600

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Site ID: 146854
CERS ID: 10327072
CERS Description: Hazardous Waste Generator

CERS TANKS:
Name: RCC-NORCO CAMPUS
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 92860-2600
Site ID: 146854
CERS ID: 10327072
CERS Description: Aboveground Petroleum Storage

DEED:
Name: RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 92860
Envirostor ID: 33820001
Area: PROJECT WIDE
Sub Area: Not reported
Site Type: VOLUNTARY CLEANUP
Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY
Agency: Not reported
Covenant Uploaded: Not reported
Deed Date(s): 03/28/2016
File Name: Envirostor Land Use Restrictions

CERS:
Name: RCC-NORCO CAMPUS
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 92860-2600
Site ID: 146854
CERS ID: 10327072
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to provide the following training to all oil-handling personnel: 1. Operation and maintenance of equipment to prevent discharges. 2. Discharge procedure protocols. 3. Applicable pollution control laws, rules, and regulations. 4. General facility operations. 5. Contents of the SPCC Plan.
Violation Notes: Returned to compliance on 12/11/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: 19 CCR 6.95 25508(a)(1) - California Code of Regulations, Title 19, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit the Business Activities

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

	Page and/or Business Owner Operator Identification Page.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	40 CFR 1 262.34(d)(5)(iii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(iii)
Violation Description:	Failure to ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.67 25270.4.5(b) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(b)
Violation Description:	Failure of a conditionally exempt facility to allow the UPA to conduct a periodic inspection, install secondary containment when the UPA determines that it is necessary, and/or conduct daily visual inspections to protect the waters of the state.
Violation Notes:	Returned to compliance on 12/11/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	07-05-2017
Citation:	HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 08/03/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-14-2018
Citation:	22 CCR 23 66273.34 - California Code of Regulations, Title 22, Chapter 23, Section(s) 66273.34
Violation Description:	Failure to label or mark each individual or container or the designated area of universal waste as required. 1) Waste batteries shall be marked with "Universal Waste-Battery(ies)?. 2) Mercury containing equipment shall be marked with "Universal Waste -Mercury-Containing Equipment?. 3) Lamps shall be marked with ?Universal Waste-Lamp(s)?. 4)Each electronic devices or the container

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

	or the designated area shall be marked with ?Universal Waste-Electronic Device(s)?. 5) Each CRTs or the container or the designated area shall be marked with "Universal Waste-CRT(s)?. 6) CRT glass or the designated area shall be marked with ?Universal Waste-CRT glass?.
Violation Notes:	Returned to compliance on 07/05/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description:	Failure to prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan.
Violation Notes:	Returned to compliance on 12/11/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description:	Failure to comply with one or more of the following requirements: 1. Have record of inspections and integrity tests signed by the appropriate supervisor or inspector. 2. Keep written procedures and records of inspections and integrity tests for at least three years. 3. Keep comparison records.
Violation Notes:	Returned to compliance on 12/11/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	40 CFR 1 262.34(d)(5)(i) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(i)
Violation Description:	Failure to have at least one employee either on the premises or on call (i.e., available to respond to an emergency by reaching the

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

	facility within a short period of time) with the responsibility for coordinating all emergency response measures.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description:	Failure to maintain a complete copy of the SPCC Plan at the facility if the facility is normally attended at least four hours per day, or at the nearest field office if the facility is not so attended.
Violation Notes:	Returned to compliance on 12/11/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	22 CCR 23 66273.31(a) - California Code of Regulations, Title 22, Chapter 23, Section(s) 66273.31(a)
Violation Description:	Failure of the universal waste handler to transfer universal waste to the appropriate destination facility.
Violation Notes:	Returned to compliance on 06/14/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	40 CFR 1 262.34(d)(5)(ii) - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 262.34(d)(5)(ii)
Violation Description:	Failure to post the following information next to the telephone: (A) The name and telephone number of the emergency coordinator; (B) Location of fire extinguishers and spill control material, and, if present, fire alarm; and (C) The telephone number of the fire department, unless the facility has a direct alarm.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 09/07/2017.

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit a site map with all required content.
Violation Notes: Returned to compliance on 09/07/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.5 25201(a) - California Health and Safety Code, Chapter 6.5, Section(s) 25201(a)
Violation Description: Failure to dispose of hazardous waste at a facility which has a permit from DTSC or disposing of hazardous waste at any point which is not authorized according to this chapter.
Violation Notes: Returned to compliance on 06/14/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Description: Hazardous Waste Generator Program - Abandonment/Illegal Disposal/Unauthorized Treatment - General
Violation Notes: Returned to compliance on 09/07/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 09/07/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Citation:	Un-Specified
Violation Description:	Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	HSC 6.95 25508.1(a)-(f) - California Health and Safety Code, Chapter 6.95, Section(s) 25508.1(a)-(f)
Violation Description:	Failure to electronically update business plan within 30 days of any one of the following events: A 100 percent or more increase in the quantity of a previously disclosed material. Any handling of a previously undisclosed hazardous materials at or above reportable quantities. A change of business address, business ownership, or business name. A substantial change in the handler's operations that requires modification to any portion of the business plan.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	22 CCR 16 66266.81(a)(3) - California Code of Regulations, Title 22, Chapter 16, Section(s) 66266.81(a)(3)
Violation Description:	Failure of facilities that accept spent lead acid batteries in exchange or partial exchange for operable lead-acid storage batteries to comply with the following storage requirements : 1) Storing more than one ton of spent batteries at any one location for more than 180 days. 2) Storing one ton or less of spent batteries at any one location for more than one year, or 3) Removing the electrolyte.
Violation Notes:	Returned to compliance on 06/14/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854
Site Name:	RCC-Norco Campus
Violation Date:	06-15-2017
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 09/07/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	146854

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: Un-Specified
Violation Description: Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes: Returned to compliance on 06/14/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-14-2018
Citation: Un-Specified
Violation Description: Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes: Returned to compliance on 07/05/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 146854
Site Name: RCC-Norco Campus
Violation Date: 06-15-2017
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Description: Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes: Returned to compliance on 09/07/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 06-14-2018
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 06-14-2018
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-15-2017
Violations Found: Yes
Eval Type: Routine done by local agency

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-15-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-15-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 07-05-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-27-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 08-27-2013
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 09-07-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 09-07-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 12-11-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Affiliation:
Affiliation Type Desc: Operator
Entity Name: Javier.Sierra@norcocollege.edu
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (951) 372-7040

Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health
Entity Title: Not reported
Affiliation Address: 4065 County Circle Drive, Room 104
Affiliation City: Riverside
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92503
Affiliation Phone: (951) 358-5055

Affiliation Type Desc: Document Preparer
Entity Name: David Brooks- SafetyNet Inc.?
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Environmental Contact
Entity Name: Javier Sierra
Entity Title: Not reported
Affiliation Address: 2001 Thirs Street
Affiliation City: Norco
Affiliation State: CA

RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS (Continued) **S105749954**

Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2001 Third St
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860-2600
Affiliation Phone:	Not reported
Affiliation Type Desc:	Identification Signer
Entity Name:	Justin Czerniak
Entity Title:	College Safety and Emergency Planning Coordinator
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Legal Owner
Entity Name:	Norco College
Entity Title:	Not reported
Affiliation Address:	2001 Third St
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 372-7040
Affiliation Type Desc:	Parent Corporation
Entity Name:	RCC-Norco Campus
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Property Owner
Entity Name:	Norco College
Entity Title:	Not reported
Affiliation Address:	2001 Third St
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 372-7040

N56 **NORCO COLLEGE** **RCRA NonGen / NLR** **1024791871**
West **2001 3RD ST** **CAL000113053**
1/8-1/4 **NORCO, CA 92860**
0.246 mi.
1299 ft. **Site 2 of 3 in cluster N**

Relative:
Lower

Actual:
614 ft.

RCRA NonGen / NLR:

Date form received by agency:	03/25/1993
Facility name:	NORCO COLLEGE
Facility address:	2001 3RD ST NORCO, CA 92860-2627
EPA ID:	CAL000113053
Mailing address:	2001 THIRD ST NORCO, CA 92860-0000
Contact:	JUSTIN CZERNIAK
Contact address:	2001 THIRD ST NORCO, CA 92860
Contact country:	Not reported
Contact telephone:	951-378-7798
Contact email:	JUSTIN.CZERNIAK@NORCOCOLLEGE.EDU
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	JUSTIN CZERNIAK
Owner/operator address:	2001 THIRD ST NORCO, CA 92860
Owner/operator country:	Not reported
Owner/operator telephone:	951-378-7798
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	RIVERSIDE COMMUNITY COLG DIST
Owner/operator address:	4800 MAGNOLIA AVE RIVERSIDE, CA 92506
Owner/operator country:	Not reported
Owner/operator telephone:	951-222-8660
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Other
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	Yes
Treater, storer or disposer of HW:	No
Underground injection activity:	No

NORCO COLLEGE (Continued) **1024791871**

On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

N57 **NORCO COLLEGE** **AST S113064360**
West **2001 3RD ST** **HAZNET N/A**
1/8-1/4 **NORCO, CA 92860**
0.246 mi.
1299 ft. **Site 3 of 3 in cluster N**

Relative: **Lower**
Actual: **614 ft.**

AST:

Name:	RCC-NORCO CAMPUS
Address:	2001 3RD ST
City/Zip:	NORCO,
Certified Unified Program Agencies:	Not reported
Owner:	RCC-Norco Campus
Total Gallons:	Not reported
CERSID:	10327072
Facility ID:	FA0032279
Business Name:	RCC-Norco Campus
Phone:	(951) 372-7040
Fax:	Not reported
Mailing Address:	2001 Third St
Mailing Address City:	Norco
Mailing Address State:	CA
Mailing Address Zip Code:	Not reported
Operator Name:	Steven T. Monsanto
Operator Phone:	(951) 372-7040
Owner Phone:	(951) 372-7040
Owner Mail Address:	2001 Third St
Owner State:	CA
Owner Zip Code:	92860
Owner Country:	United States
Property Owner Name:	Norco College
Property Owner Phone:	(951) 372-7040
Property Owner Mailing Address:	2001 Third St
Property Owner City:	Norco
Property Owner Stat :	CA
Property Owner Zip Code:	92860
Property Owner Country:	United States
EPAID:	CAL000113053

HAZNET:

Name:	NORCO COLLEGE
Address:	2001 3RD ST
City,State,Zip:	NORCO, CA 928602627
Year:	2017
GEPAID:	CAL000113053
Contact:	JUSTIN CZERNIAK
Telephone:	9513787798

NORCO COLLEGE (Continued) **S113064360**

Mailing Name: Not reported
Mailing Address: 2001 THIRD ST
Mailing City,St,Zip: NORCO, CA 928600000
Gen County: Riverside
TSD EPA ID: CAD982444481
TSD County: San Bernardino
Tons: 0.3425
CA Waste Code: 352-Other organic solids
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: NORCO COLLEGE
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 928602627
Year: 2017
GEPAID: CAL000113053
Contact: JUSTIN CZERNIAK
Telephone: 9513787798
Mailing Name: Not reported
Mailing Address: 2001 THIRD ST
Mailing City,St,Zip: NORCO, CA 928600000
Gen County: Riverside
TSD EPA ID: CAD983649880
TSD County: Los Angeles
Tons: 0.125
CA Waste Code: 551-Laboratory waste chemicals
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: NORCO COLLEGE
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 928602627
Year: 2016
GEPAID: CAL000113053
Contact: JAMES MCMAHON
Telephone: 9513727120
Mailing Name: Not reported
Mailing Address: 2001 THIRD ST
Mailing City,St,Zip: NORCO, CA 928600000
Gen County: Riverside
TSD EPA ID: CAD982444481
TSD County: San Bernardino
Tons: 0.2275
CA Waste Code: 352-Other organic solids
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: NORCO COLLEGE
Address: 2001 3RD ST
City,State,Zip: NORCO, CA 928602627
Year: 2016
GEPAID: CAL000113053
Contact: JAMES MCMAHON
Telephone: 9513727120

NORCO COLLEGE (Continued) **S113064360**

Mailing Name:	Not reported
Mailing Address:	2001 THIRD ST
Mailing City,St,Zip:	NORCO, CA 928600000
Gen County:	Riverside
TSD EPA ID:	AZR000501510
TSD County:	99
Tons:	0.12
CA Waste Code:	352-Other organic solids
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Name:	NORCO COLLEGE
Address:	2001 3RD ST
City,State,Zip:	NORCO, CA 928602627
Year:	2016
GEPAID:	CAL000113053
Contact:	JAMES MCMAHON
Telephone:	9513727120
Mailing Name:	Not reported
Mailing Address:	2001 THIRD ST
Mailing City,St,Zip:	NORCO, CA 928600000
Gen County:	Riverside
TSD EPA ID:	AZR000501510
TSD County:	99
Tons:	0.35445
CA Waste Code:	222-Oil/water separation sludge
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Click this hyperlink while viewing on your computer to access
66 additional CA_HAZNET: record(s) in the EDR Site Report.

M58 **SHELL SERVICE STATION** **LUST** **S105850449**
South **1850 HAMNER AVENUE** **N/A**
1/4-1/2 **NORCO, CA 92860**
0.264 mi.
1392 ft. **Site 2 of 3 in cluster M**

Relative: LUST REG 8:
Lower

Name:	SHELL SERVICE STATION
Address:	1850 HAMNER AVENUE
City:	NORCO
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Preliminary site assessment workplan submitted
Case Number:	Not reported
Local Case Num:	200319666
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	2ND STREET
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	OM

Actual:
606 ft.

SHELL SERVICE STATION (Continued) **S105850449**

How Stopped:	Close Tank
Leak Cause:	UNK
Leak Source:	UNK
Global ID:	T0606520856
How Stopped Date:	5/27/2003
Enter Date:	Not reported
Date Confirmation of Leak Began:	5/27/2003
Date Preliminary Assessment Began:	Not reported
Discover Date:	5/27/2003
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	5/27/2003
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	Not reported
GW Qualifies:	=
Soil Qualifies:	=
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	0
Longitude:	0
MTBE Date:	9/20/2003
Max MTBE GW:	200000
MTBE Concentration:	0
Max MTBE Soil:	6800
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	CAB
Staff Initials:	KW
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	Not reported
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

M59 **SHELL SERVICE STATION** **RCRA-SQG** **1004677577**
South **1850 HAMNER** **LUST** **CAR000099119**
1/4-1/2 **NORCO, CA 91760** **FINDS**
0.264 mi. **ECHO**
1392 ft. **Site 3 of 3 in cluster M** **HAZNET**
CERS

Relative:
Lower

Actual:
606 ft.

RCRA-SQG:

Date form received by agency:	06/26/2001
Facility name:	SHELL SERVICE STATION
Facility address:	1850 HAMNER S A P 135655 NORCO, CA 91760
EPA ID:	CAR000099119
Mailing address:	P O BOX 2648

SHELL SERVICE STATION (Continued) **1004677577**

HOUSTON, TX 77252-2648
Contact: SONDRA BIENVENU
Contact address: P O BOX 2648
HOUSTON, TX 77252-2648
Contact country: US
Contact telephone: 713-241-5036
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: EQUILON ENTERPRISES L L C
Owner/operator address: P O BOX 2648
HOUSTON, TX 77252
Owner/operator country: Not reported
Owner/operator telephone: 713-241-5036
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

SHELL SERVICE STATION (Continued) **1004677577**

LUST:

Name:	SHELL HAMNER
Address:	1850 HAMNER AVENUE
City,State,Zip:	NORCO, CA 92860
Lead Agency:	RIVERSIDE COUNTY LOP
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606520856
Global Id:	T0606520856
Latitude:	33.909266
Longitude:	-117.56162
Status:	Completed - Case Closed
Status Date:	08/23/2013
Case Worker:	Not reported
RB Case Number:	Not reported
Local Agency:	Not reported
File Location:	Local Agency
Local Case Number:	200319666
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	***Data prior to 2005 does not appear in GeoTracker. Consult agency files for all site data*** Soil samples were taken in November 2002 during tank removal activities. Up to 31 ppm MTBE was detected in the soil. 3 borings (B-1 through B-3) were drilled and 4 gw monitoring wells were installed (MW-1 through MW-4) September though November 2003. Up to 6500 ppb TPHg, 95000 ppb MTBE, and 93000 ppb TBA was detected in the gw. 5 additional gw monitoring wells (MW-6 through MW-10) were installed in February 2004. 2 gw monitoring wells (MW-11, MW-12) and 5 dual phase extraction wells (DPE-1 through DPE-5) were installed in Nov. 2005. A 5-day DPE test was conducted but was terminated after 44 hours due to low extraction rates and low flow rates. 17.3 lbs of hydrocarbons and 318 gallon of groundwater were removed during the test. A vapor risk assessment was conducted May 11, 2006 and 2 borings (B-4 and B-5) and 3 gw monitoring wells (MW-13, MW-14, MW-15) were installed in July 2006. 3 vapor probes (VP-9,VP-10, VP-11) were install March 7, 2007. Wells MW-16 through MW-19 and borings B-6 and B-7 were drilled March 7 through 9, 2007. Vapor test and slug tests were performed. 1 AS/SVE well (AS1/SVE1) and 5 observation wells (OB-1 to OB-5) were installed January 22-23, 2008. A 36 hour AS/SVE pilot test conducted Feb. 5-6, 2008. AS is suitable however SVE was not. A 2-hr AS test was conducted April 29, 2008. Recommended pulsed air sparge. 7 AS wells (AS-2 through AS-8) were installed in September 2008. The Biosparge system was started on October 17, 2008 and shut down January 4, 2011. 1 gw monitoring well (MW-20) was installed April 2, 2009. 6300 ppb TPPH and 5900 ppb MTBE was detected in the gw. 1 gw monitoring well (MW-21) was installed and 2 borings (B-8, B-9) were drilled January 12-13, 2010. Injection wells INJ-1S/INJ-1D and INJ-2 were installed on-site for hydrogen peroxide injection feasibility testing in March 2011. Soil samples were not analyzed. Concentrations up to 260 ppb TPHg (INJ-1S), 300 ppb MTBE (INJ-1S) and 290 ppb TBA (INJ-1S) were detected in the GW. Air bio-sparging was conducted using sparge wells AS-1 through AS-8. Wells MW-1, MW-2, MW-8, MW-9, MW-13 and wells OB-1 through OB-5 were used as observation wells starting in October 2008. The wells were pulsed 2-hours on and 2-hours off. A total of 2,072,170 ft3 of ambient air was injected into the GW. Analytical data indicated that the bio-sparge operations reduced the plume core concentrations of the fuel oxygenates to below the remedial objectives of 1000 ppb and

SHELL SERVICE STATION (Continued) **1004677577**

the system was shut down in January 2011. A hydrogen peroxide injection pilot test was conducted un March 2011. The feasibility test consisted of injecting 103 gallons of 3% hydrogen peroxide into wells INJ-1S, INJ-1D and INJ-2. Wells MW-1, MW-4, DPE-4 and DPE-5 used for GW monitoring points and samples were collected prior to and after injection on a pre-determined schedule. MTBE concentrations decreased from 680 to 500 ppb and TBA decreased from 190 to 64 ppb in MW-1. TBA increased from 1900 to 3800, then decreased to 1500 ppb in DPE-4 and decreased from 2500 to 730 ppb in DPE-5. Hexavalent chromium was detected at 1.5 ppb in the baseline samples, increased to 100 ppb after the injection, then decreased to 2.4 to 6.6 ppb during the June 24, 2011 sampling event. It was determined that hydrogen peroxide was not a viable remedial alternative for this site due to low soil permeability. Eight quarters of post-remedial GW monitoring has been conducted in 2011 and 2012 since the hydrogen peroxide pilot test and completion of bio-sparging. The available data indicates that the GW plume is stable and/or decreasing and most recent sampling event conducted in October 2012 showed remaining on- and off-site concentrations of 1400 ppb TPHg (MW-20), 1600 ppb MTBE (MW-20) and 82 ppb TBA (MW-1). Wayne Perry, Inc. evaluated the site and concluded that the plume core wells have been identified as wells MW-2, MW-8, MW-9, MW-12, MW-15 and MW-20. Well MW-2 has had the historically highest MTBE and TBA levels in GW and was installed in the source area. GW monitoring events have shown that MTBE decreased in MW-2 from 91000 to 55 ppb and TBA decreased from 50000 to 47 ppb. Off-site well MW-20 currently has the highest MTBE detected at 1600 ppb which is down from the highest concentrations of 5900. Wayne Perry, Inc. estimates that GW in all of the wells should be below the MCLs for MTBE and TBA within 20 years and the potential for further migration of the plume is limited. Wayne Perry, Inc determined that the residual MTBE and TBA do not pose a potential threat to human health or the environment and requested closure for the site. The mass remaining in-situ in the vadose zone soils was calculated by Wayne Perry Inc. to be approximately 0.52 MTBE and 4.39 lbs TBA. The wells were properly abandoned July/Aug 2013. Case closed 8/23/2013

LUST:

Global Id:	T0606520856
Contact Type:	Regional Board Caseworker
Contact Name:	CARL BERNHARDT
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	carl.bernhardt@waterboards.ca.gov
Phone Number:	9517824495

LUST:

Global Id:	T0606520856
Action Type:	ENFORCEMENT
Date:	08/13/2009
Action:	Staff Letter - #RCDEH081309
Global Id:	T0606520856
Action Type:	RESPONSE
Date:	10/15/2009
Action:	Monitoring Report - Quarterly

SHELL SERVICE STATION (Continued) **1004677577**

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/24/2009
Action: Well Installation Report

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 08/17/2009
Action: Staff Letter - #RCDEH081709

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 12/15/2009
Action: Staff Letter - #RCDEH121509

Global Id: T0606520856
Action Type: RESPONSE
Date: 09/17/2009
Action: Well Installation Workplan

Global Id: T0606520856
Action Type: RESPONSE
Date: 02/11/2010
Action: Well Installation Report

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 09/15/2011
Action: Staff Letter - #RCDEH 091511

Global Id: T0606520856
Action Type: RESPONSE

SHELL SERVICE STATION (Continued) **1004677577**

Date: 01/20/2011
Action: Corrective Action Plan / Remedial Action Plan

Global Id: T0606520856
Action Type: RESPONSE
Date: 08/26/2011
Action: CAP/RAP - Other Report

Global Id: T0606520856
Action Type: RESPONSE
Date: 01/15/2011
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 12/26/2006
Action: Staff Letter - #RCDEH 122606

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 12/22/2010
Action: Staff Letter - #RCDEH 122210

Global Id: T0606520856
Action Type: Other
Date: 05/27/2003
Action: Leak Discovery

Global Id: T0606520856
Action Type: RESPONSE
Date: 05/23/2008
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2011
Action: Monitoring Report - Annually

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2011
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/21/2011
Action: Other Report / Document

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 01/02/2008
Action: Staff Letter - #RCDEH010208

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 12/30/2007
Action: File review

SHELL SERVICE STATION (Continued) **1004677577**

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 02/17/2011
Action: Staff Letter - #RCDEH 021711

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 03/28/2011
Action: Technical Correspondence / Assistance / Other - #RCDEH 032811

Global Id: T0606520856
Action Type: Other
Date: 05/27/2003
Action: Leak Stopped

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 02/29/2008
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2012
Action: Monitoring Report - Annually

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/15/2012
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 08/19/2013
Action: Well Destruction Report - Regulator Responded

Global Id: T0606520856
Action Type: REMEDIATION
Date: 02/01/2008
Action: Soil Vapor Extraction (SVE)

Global Id: T0606520856
Action Type: REMEDIATION
Date: 03/01/2011
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606520856
Action Type: REMEDIATION
Date: 10/17/2008
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606520856
Action Type: REMEDIATION

SHELL SERVICE STATION (Continued) **1004677577**

Date: 11/07/2005
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606520856
Action Type: REMEDIATION
Date: 11/01/2002
Action: Excavation

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 06/18/2007
Action: Staff Letter - #RCDEH 061807

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 02/24/2009
Action: Staff Letter - #RCDEH022409

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 03/20/2012
Action: Technical Correspondence / Assistance / Other - #RCDEH 032012

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 05/01/2012
Action: Meeting

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/15/2012
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 01/15/2013
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 04/17/2013
Action: Staff Letter - #RCDEH 041713

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 02/23/2011
Action: Meeting

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 09/21/2011
Action: Meeting

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 03/11/2013
Action: LOP Case Closure Summary to RB

SHELL SERVICE STATION (Continued) **1004677577**

Global Id: T0606520856
Action Type: Other
Date: 05/27/2003
Action: Leak Reported

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/30/2007
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 08/10/2007
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 05/07/2013
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 07/02/2013
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/29/2013
Action: Correspondence

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 11/01/2010
Action: Letter - Notice - #RCDEH 110110

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 11/04/2008
Action: Staff Letter - #RCDEH110308

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 09/03/2008
Action: Staff Letter - #RCDEH 090308

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 11/04/2008
Action: File review

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 07/10/2012
Action: Technical Correspondence / Assistance / Other - #RCDEH 071012

Global Id: T0606520856
Action Type: ENFORCEMENT

SHELL SERVICE STATION (Continued) **1004677577**

Date: 05/02/2013
Action: Notification - Public Notice of Case Closure

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 10/05/2005
Action: File review

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 01/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 12/05/2008
Action: Well Installation Workplan

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 01/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 04/15/2013
Action: Monitoring Report - Annually

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 04/11/2008
Action: Staff Letter - #RCDEH041108

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 02/10/2009
Action: File review

Global Id: T0606520856
Action Type: ENFORCEMENT
Date: 08/23/2013
Action: Closure/No Further Action Letter - #RCDEH closure docs

SHELL SERVICE STATION (Continued) **1004677577**

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/17/2008
Action: Other Report / Document

Global Id: T0606520856
Action Type: RESPONSE
Date: 10/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0606520856
Action Type: RESPONSE
Date: 01/15/2010
Action: Monitoring Report - Quarterly

LUST:
Global Id: T0606520856
Status: Open - Case Begin Date
Status Date: 05/27/2003

Global Id: T0606520856
Status: Open - Site Assessment
Status Date: 05/27/2003

Global Id: T0606520856
Status: Open - Site Assessment
Status Date: 09/18/2003

Global Id: T0606520856
Status: Open - Remediation
Status Date: 10/17/2008

Global Id: T0606520856
Status: Open - Eligible for Closure
Status Date: 04/11/2013

Global Id: T0606520856
Status: Completed - Case Closed
Status Date: 08/23/2013

RIVERSIDE CO. LUST:
Name: SHELL HAMNER
Address: 1850 HAMNER AVE
City,State,Zip: NORCO, CA
Region: RIVERSIDE
Facility ID: 200319666
Employee: Shurlow-LOP
Site Closed: Yes
Case Type: Drinking Water Aquifer affected
Facility Status: closed/action completed
Casetype Decode: An Aquifer used for Drinking Water supply has been contaminated.
Fstatus Decode: Closed/Action completed

FINDS:

SHELL SERVICE STATION (Continued) **1004677577**

Registry ID: 110012202767

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004677577
Registry ID:	110012202767
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110012202767

HAZNET:

Name:	SHELL SERVICE STATION
Address:	1850 HAMNER
City,State,Zip:	NORCO, CA 91760
Year:	2008
GEPAID:	CAR000099119
Contact:	Adam Estes
Telephone:	3172917007
Mailing Name:	Not reported
Mailing Address:	PO BOX 3127
Mailing City,St,Zip:	HOUSTON, TX 772530000
Gen County:	Riverside
TSD EPA ID:	CAD097030993
TSD County:	Los Angeles
Tons:	0.22935
CA Waste Code:	122-Alkaline solution without metals pH >= 12.5
Method:	H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County:	Riverside

Name:	SHELL SERVICE STATION
Address:	1850 HAMNER
City,State,Zip:	NORCO, CA 91760
Year:	2007
GEPAID:	CAR000099119
Contact:	Adam Estes
Telephone:	3172917007
Mailing Name:	Not reported
Mailing Address:	PO BOX 3127
Mailing City,St,Zip:	HOUSTON, TX 772530000
Gen County:	Riverside
TSD EPA ID:	CAD028409019

SHELL SERVICE STATION (Continued) **1004677577**

TSD County: Los Angeles
Tons: 0.0075
CA Waste Code: 352-Other organic solids
Method: H141-Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Facility County: Riverside

Name: SHELL SERVICE STATION
Address: 1850 HAMNER
City,State,Zip: NORCO, CA 91760
Year: 2006
GEPAID: CAR000099119
Contact: Adam Estes
Telephone: 3172917007
Mailing Name: Not reported
Mailing Address: PO BOX 3127
Mailing City,St,Zip: HOUSTON, TX 772530000
Gen County: Riverside
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Tons: 0.006
CA Waste Code: 352-Other organic solids
Method: H01-Transfer Station
Facility County: Riverside

Name: SHELL SERVICE STATION
Address: 1850 HAMNER
City,State,Zip: NORCO, CA 91760
Year: 2005
GEPAID: CAR000099119
Contact: Adam Estes
Telephone: 3172917007
Mailing Name: Not reported
Mailing Address: PO BOX 3127
Mailing City,St,Zip: HOUSTON, TX 772530000
Gen County: Riverside
TSD EPA ID: CAD008302903
TSD County: Los Angeles
Tons: 0.125
CA Waste Code: 181-Other inorganic solid waste
Method: H01-Transfer Station
Facility County: Riverside

Name: SHELL SERVICE STATION
Address: 1850 HAMNER
City,State,Zip: NORCO, CA 91760
Year: 2005
GEPAID: CAR000099119
Contact: Adam Estes
Telephone: 3172917007
Mailing Name: Not reported
Mailing Address: PO BOX 3127
Mailing City,St,Zip: HOUSTON, TX 772530000
Gen County: Riverside
TSD EPA ID: CAD028409019
TSD County: Los Angeles
Tons: 0.02

SHELL SERVICE STATION (Continued) **1004677577**

CA Waste Code: 352-Other organic solids
Method: H01-Transfer Station
Facility County: Riverside

Click this hyperlink while viewing on your computer to access
6 additional CA_HAZNET: record(s) in the EDR Site Report.

CERS:
Name: SHELL HAMNER
Address: 1850 HAMNER AVENUE
City,State,Zip: NORCO, CA 92860
Site ID: 190600
CERS ID: T0606520856
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: CARL BERNHARDT - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 MAIN STREET, SUITE 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9517824495

60
NNE
1/4-1/2
0.368 mi.
1943 ft.

Relative:
Higher

Actual:
619 ft.

CHEVRON STATION NO 93830 **RCRA-SQG 1000111932**
2740 HAMNER AVE **LUST CAD981443385**
NORCO, CA 92860 **FINDS**
ECHO
HIST CORTESE
CERS

RCRA-SQG:
Date form received by agency: 06/11/2004
Facility name: CHEVRON STATION NO 93830
Facility address: 2740 HAMNER AVE
NORCO, CA 92860-1926
EPA ID: CAD981443385
Mailing address: P O BOX 6004
SAN RAMON, CA 94583
Contact: KATHY NORRIS
Contact address: P O BOX 6004
SAN RAMON, CA 94583
Contact country: US
Contact telephone: 925-842-5931
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

CHEVRON STATION NO 93830 (Continued) **1000111932**

Owner/operator name: CHEVRON
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 02/17/1986
Owner/Op end date: Not reported

Owner/operator name: CHEVRON
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 02/17/1986
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/11/2004
Site name: CHEVRON STATION NO 93830
Classification: Large Quantity Generator

Date form received by agency: 05/16/2002
Site name: CHEVRON STATION NO 93830
Classification: Small Quantity Generator

Date form received by agency: 09/01/1996
Site name: CHEVRON STATION NO 93830
Classification: Small Quantity Generator

CHEVRON STATION NO 93830 (Continued) **1000111932**

Hazardous Waste Summary:

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D008
. Waste name: LEAD

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

LUST:
Name: CHEVRON #9-3830
Address: 2740 HAMNER AVE
City,State,Zip: NORCO, CA 91760
Lead Agency: RIVERSIDE COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500404
Global Id: T0606500404
Latitude: 33.9218814508195
Longitude: -117.559561365607
Status: Completed - Case Closed
Status Date: 01/30/1995
Case Worker: RIV
RB Case Number: 083302562T
Local Agency: RIVERSIDE COUNTY LOP
File Location: Local Agency Warehouse
Local Case Number: 94945
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0606500404
Contact Type: Regional Board Caseworker
Contact Name: MIGUEL OVIEDO
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 Main Street, Suite 500
City: RIVERSIDE
Email: miguel.oviedo@waterboards.ca.gov
Phone Number: 9517823238

Global Id: T0606500404
Contact Type: Local Agency Caseworker
Contact Name: Riverside County LOP
Organization Name: RIVERSIDE COUNTY LOP
Address: 3880 LEMON ST SUITE 200
City: RIVERSIDE
Email: Not reported
Phone Number: 9519558980

LUST:
Global Id: T0606500404
Action Type: ENFORCEMENT
Date: 01/29/1995

CHEVRON STATION NO 93830 (Continued) **1000111932**

Action: File review - #RCDEH upload site file 9/5/2014

Global Id: T0606500404
Action Type: ENFORCEMENT
Date: 01/30/1995
Action: Closure/No Further Action Letter - #RCDEH01395

Global Id: T0606500404
Action Type: Other
Date: 10/27/1994
Action: Leak Discovery

Global Id: T0606500404
Action Type: Other
Date: 10/27/1994
Action: Leak Stopped

Global Id: T0606500404
Action Type: REMEDIATION
Date: 10/28/1994
Action: Excavation

Global Id: T0606500404
Action Type: Other
Date: 10/28/1994
Action: Leak Reported

LUST:
Global Id: T0606500404
Status: Open - Case Begin Date
Status Date: 10/27/1994

Global Id: T0606500404
Status: Open - Site Assessment
Status Date: 10/27/1994

Global Id: T0606500404
Status: Open - Remediation
Status Date: 10/28/1994

Global Id: T0606500404
Status: Open - Site Assessment
Status Date: 10/28/1994

Global Id: T0606500404
Status: Completed - Case Closed
Status Date: 01/30/1995

LUST REG 8:
Name: CHEVRON #9-3830
Address: 2740 HAMNER AVE
City: NORCO
Region: 8
County: Riverside
Regional Board: Santa Ana Region

CHEVRON STATION NO 93830 (Continued) **1000111932**

Facility Status:	Case Closed
Case Number:	083302562T
Local Case Num:	94945
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	LAMPTON
Enf Type:	CLOS
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	Not reported
Leak Source:	Piping
Global ID:	T0606500404
How Stopped Date:	10/27/1994
Enter Date:	12/12/1994
Date Confirmation of Leak Began:	10/27/1994
Date Preliminary Assessment Began:	Not reported
Discover Date:	10/27/1994
Enforcement Date:	Not reported
Close Date:	1/30/1995
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	12/12/1994
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.9204748
Longitude:	-117.5597974
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	2
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	TME
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: DISCOVERED THROUGH STATION UPGRADE. REPLACED DISPENSERS TO STOP DISCHARGE. INITIAL MITIGATIVE MEASURES INCLUDED EXCAVATING CONTAMINATED SOIL BENEATH DISPENSERS.

CHEVRON STATION NO 93830 (Continued) **1000111932**

RIVERSIDE CO. LUST:
Name: CHEVRON #93830
Address: 2740 HAMNER AVE
City,State,Zip: NORCO, CA
Region: RIVERSIDE
Facility ID: 94945
Employee: Malloy
Site Closed: Yes
Case Type: Soil only
Facility Status: closed/action completed
Casetype Decode: Soil only is impacted
Fstatus Decode: Closed/Action completed

FINDS:

Registry ID: 110006470773

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Registry ID: 110055672115

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000111932
Registry ID: 110055672115
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110055672115

Envid: 1000111932
Registry ID: 110006470773
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110006470773

HIST CORTESE:
edr_fname: CHEVRON #9-3830
edr_fadd1: 2740 HAMNER

CHEVRON STATION NO 93830 (Continued) **1000111932**

City,State,Zip: NORCO, CA 91760
Region: CORTESE
Facility County Code: 33
Reg By: LTNKA
Reg Id: 083302562T

CERS:
Name: CHEVRON #9-3830
Address: 2740 HAMNER AVE
City,State,Zip: NORCO, CA 91760
Site ID: 255584
CERS ID: T0606500404
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title: Not reported
Affiliation Address: 3880 LEMON ST SUITE 200
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9519558980

Affiliation Type Desc: Regional Board Caseworker
Entity Name: MIGUEL OVIEDO - SANTA ANA RWQCB (REGION 8)
Entity Title: Not reported
Affiliation Address: 3737 Main Street, Suite 500
Affiliation City: RIVERSIDE
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: 9517823238

61
NNE
1/4-1/2
0.421 mi.
2224 ft.

REPLANET LLC **SWRCY** **S107136914**
2790 HAMNER AVE **CERS HAZ WASTE** **N/A**
NORCO, CA 92860 **CERS**

Relative: Higher

Actual: 624 ft.

SWRCY:
Name: REPLANET LLC
Address: 2790 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Reg Id: 177718
Cert Id: RC177718.001
Mailing Address: 800 N Haven Ave Suite 120
Mailing City: Ontario
Mailing State: CA
Mailing Zip Code: 91764
Website: http://www.replanet.com
Email: Not reported
Phone Number: (877) 737-5263
Rural: N
Operation Begin Date: 02/01/2013
Aluminium: Y

REPLANET LLC (Continued) **S107136914**

Glass: Y
Plastic: Y
Bimetal: Y
Hours of Operation: Mon Closed; Tue - Sat 9:00 am - 4:30 pm, Closed 12:30 pm - 1:30 pm; Sun Closed
Organization ID: 151891
Organization Name: rePlanet LLC

CERS HAZ WASTE:
Name: STATER BROS. MARKETS 044
Address: 2790 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 157042
CERS ID: 10320421
CERS Description: Hazardous Waste Generator

CERS:
Name: STATER BROS. MARKETS 044
Address: 2790 HAMNER AVE
City,State,Zip: NORCO, CA 92860
Site ID: 157042
CERS ID: 10320421
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 157042
Site Name: Stater Bros. Markets 044
Violation Date: 04-18-2016
Citation: 22 CCR 12 66262.34(d) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(d)
Violation Description: Failure to dispose of hazardous waste within 180 days (or 270 if waste is transported over 200 miles) for the generator who generates less than 1000 kilogram per month, but more than 100 kilograms per month.
Violation Notes: Returned to compliance on 06/14/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 157042
Site Name: Stater Bros. Markets 044
Violation Date: 04-18-2016
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Notes: Returned to compliance on 06/14/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-09-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: - The purpose of this visit is to conduct a routine inspection of the

REPLANET LLC (Continued) **S107136914**

	facility named above. The facility is a retail store.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-09-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. The facility is a retail store and potentially generates the following hazardous waste streams: incidental retail waste - Manager was directed to have the aerosol cans picked up immediately and e-mail the waste manifest to this Department. - Manager stated that there have been no hazardous waste pick ups within the last 1-2 years. Any broken items are donated to employees.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-18-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-18-2016
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	06-14-2016
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	06-14-2016
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection

REPLANET LLC (Continued) **S107136914**

Eval Date: 07-01-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-01-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Coordinates:
Site ID: 157042
Facility Name: Stater Bros. Markets 044
Env Int Type Code: HWG
Program ID: 10320421
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.922650
Longitude: -117.560030

Affiliation:
Affiliation Type Desc: Document Preparer
Entity Name: Chris Ramirez
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Identification Signer
Entity Name: Chris Ramirez
Entity Title: Supervisor of Support Services
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: Stater Bros. Markets
Entity Title: Not reported
Affiliation Address: P O BOX 150
Affiliation City: San Bernardino
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 92402

REPLANET LLC (Continued) **S107136914**

Affiliation Phone:	(909) 733-5000
Affiliation Type Desc:	Parent Corporation
Entity Name:	Stater Bros. Markets
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Property Owner
Entity Name:	Stater Bros. Markets
Entity Title:	Not reported
Affiliation Address:	P O BOX 150
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92402
Affiliation Phone:	(909) 733-5000
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Environmental Contact
Entity Name:	Chris Ramirez
Entity Title:	Not reported
Affiliation Address:	P O BOX 150
Affiliation City:	San Bernardino
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92402
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	2790 Hammner Ave
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92860
Affiliation Phone:	Not reported
Affiliation Type Desc:	Operator
Entity Name:	Stater Bros. Markets 044
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported

REPLANET LLC (Continued) **S107136914**

Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (951) 734-1838

O62 **NORCO MAIN RANCH INC** **ENVIROSTOR** **U001569920**
SSW **1811 MOUNTAIN AVE** **CERS HAZ WASTE** **N/A**
1/4-1/2 **NORCO, CA 91760** **SWEEPS UST**
0.429 mi. **HIST UST**
2267 ft. **Site 1 of 2 in cluster O** **CERS TANKS**
CHMIRS
Relative: Lower **CERS**

Actual: 596 ft.

ENVIROSTOR:
Name: NORCO EGG FARM
Address: 1811 MOUNTAIN AVENUE
City,State,Zip: NORCO, CA 91760
Facility ID: 33020001
Status: Refer: RWQCB
Status Date: 04/01/1985
Site Code: Not reported
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: * Mmonroy
Division Branch: Cleanup Cypress
Assembly: 60
Senate: 31
Special Program: * Site Char & Assess Grant (CERCLA 104)
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 33.9075
Longitude: -117.5669
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: * AQUEOUS SOLUTION WITH METALS
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: NORCO RANCH
Alias Type: Alternate Name
Alias Name: CAD009868480
Alias Type: EPA Identification Number
Alias Name: 33020001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 10/28/1994
Comments: CALSITES VALIDATION PROGRAM CONFIRMS NFA FOR DTSC.

NORCO MAIN RANCH INC (Continued) **U001569920**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 04/01/1985
Comments: T/C W/ D.CARTER,NORCO,714-737-6735,7/11 84-1)SOURCE ACT: EGG CLEANING & SANITIZG 2)YR OF OPER: 1949 TO PRESENT. WASTE: SALINE BRINES,SODIUM,CR,POTASSIUM,SODIUM CARBONATE,SODIUM HYDROXIDE,SODIUM METASI LICATE,SODIUM PHOSPHATE,BIODGRADABLE,SUR FACTANTS,DIMETHY SILICONE,CHLORINATED ISOCYURANATE,IODINE.SINCE 1980 WASTE WTR IS COLLECTED & SENT THROUIGH A WATER TREATMENT PLANT. SUBMIT TO EPA PRELIM ASSESS DONE CERCLA 104

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 02/28/1983
Comments: FACILITY IDENTIFIED ID FROM RWQCB IN 1968 HAD WASTE DIS. PONDS (2). WASTE NOW SEWERED. FATE OF PONDS IS UNK.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CERS HAZ WASTE:
Name: HIDDEN VILLA RANCH
Address: 1811 MOUNTAIN AVE
City,State,Zip: NORCO, CA 92860
Site ID: 122524
CERS ID: 10328242
CERS Description: Hazardous Waste Generator

SWEEPS UST:
Name: NORCO MAIN RANCH INC
Address: 1811 MOUNTAIN AVE
City: NORCO
Status: Active
Comp Number: 29678
Number: 1
Board Of Equalization: Not reported
Referral Date: 11-17-92
Action Date: 11-17-92
Created Date: 02-29-88
Owner Tank Id: 000755
SWRCB Tank Id: 33-000-029678-000001
Tank Status: A
Capacity: 20000
Active Date: 11-17-92
Tank Use: M.V. FUEL
STG: P
Content: DIESEL

NORCO MAIN RANCH INC (Continued) **U001569920**

Number Of Tanks: 5

Name: NORCO MAIN RANCH INC
Address: 1811 MOUNTAIN AVE
City: NORCO
Status: Active
Comp Number: 29678
Number: 1
Board Of Equalization: Not reported
Referral Date: 11-17-92
Action Date: 11-17-92
Created Date: 02-29-88
Owner Tank Id: 000755
SWRCB Tank Id: 33-000-029678-000002
Tank Status: A
Capacity: 20000
Active Date: 11-17-92
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: NORCO MAIN RANCH INC
Address: 1811 MOUNTAIN AVE
City: NORCO
Status: Active
Comp Number: 29678
Number: 1
Board Of Equalization: Not reported
Referral Date: 11-17-92
Action Date: 11-17-92
Created Date: 02-29-88
Owner Tank Id: 000755
SWRCB Tank Id: 33-000-029678-000003
Tank Status: A
Capacity: 7500
Active Date: 11-17-92
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

Name: NORCO MAIN RANCH INC
Address: 1811 MOUNTAIN AVE
City: NORCO
Status: Active
Comp Number: 29678
Number: 1
Board Of Equalization: Not reported
Referral Date: 11-17-92
Action Date: 11-17-92
Created Date: 02-29-88
Owner Tank Id: 000755
SWRCB Tank Id: 33-000-029678-000004
Tank Status: A
Capacity: 7500
Active Date: 11-17-92

NORCO MAIN RANCH INC (Continued) **U001569920**

Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Name: NORCO MAIN RANCH INC
Address: 1811 MOUNTAIN AVE
City: NORCO
Status: Active
Comp Number: 29678
Number: 1
Board Of Equalization: Not reported
Referral Date: 11-17-92
Action Date: 11-17-92
Created Date: 02-29-88
Owner Tank Id: 000755
SWRCB Tank Id: 33-000-029678-000005
Tank Status: A
Capacity: 2500
Active Date: 11-17-92
Tank Use: UNKNOWN
STG: P
Content: EMPTY
Number Of Tanks: Not reported

HIST UST:
Name: NORCO RANCH MAIN TRUCK TERMINA
Address: 1811 MOUNTAIN AV
City,State,Zip: NORCO, CA 91760
File Number: 0001F836
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F836.pdf
Region: STATE
Facility ID: 00000029678
Facility Type: Other
Other Type: FLEET TERMINAL
Contact Name: JOHN P. MULLEN
Telephone: 7147376735
Owner Name: NORCO RANCH INC.
Owner Address: 1811 MOUNTAIN AV.
Owner City,St,Zip: NORCO, CA 91670
Total Tanks: 0005

Tank Num: 001
Container Num: #1
Year Installed: 1983
Tank Capacity: 00020000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: .27MIN
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: #2
Year Installed: 1983
Tank Capacity: 00020000
Tank Used for: PRODUCT
Type of Fuel: DIESEL

NORCO MAIN RANCH INC (Continued) **U001569920**

Container Construction Thickness: .27MIN
Leak Detection: Stock Inventor

Tank Num: 003
Container Num: #3
Year Installed: 1964
Tank Capacity: 00007500
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 004
Container Num: #4
Year Installed: 1964
Tank Capacity: 00007500
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 005
Container Num: #5
Year Installed: 1964
Tank Capacity: 00002500
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Click here for Geo Tracker PDF:

CERS TANKS:
Name: HIDDEN VILLA RANCH
Address: 1811 MOUNTAIN AVE
City,State,Zip: NORCO, CA 92860
Site ID: 122524
CERS ID: 10328242
CERS Description: Aboveground Petroleum Storage

Name: HIDDEN VILLA RANCH
Address: 1811 MOUNTAIN AVE
City,State,Zip: NORCO, CA 92860
Site ID: 122524
CERS ID: 10328242
CERS Description: Underground Storage Tank

CHMIRS:
Name: Not reported
Address: 1811 MOUNTAIN AVE
City,State,Zip: NORCO, CA
OES Incident Number: 3-1291
OES notification: 03/08/2003
OES Date: Not reported
OES Time: Not reported
Date Completed: **Not reported**

NORCO MAIN RANCH INC (Continued) **U001569920**

Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	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
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2003
Agency:	So CA Edison
Incident Date:	3/8/200312:00:00 AM
Admin Agency:	Riverside County Environmental Health
Amount:	Not reported
Contained:	Yes
Site Type:	Merchant/Business
E Date:	Not reported
Substance:	Mineral Oil
Gallons:	30
Unknown:	0
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported

NORCO MAIN RANCH INC (Continued) **U001569920**

Injuries: Not reported
Fatals: Not reported
Comments: Not reported
Description: Substance was released when a garbage truck backed into pole knocking transformer to ground. PCB Is unknown at this time.

CERS:
Name: HIDDEN VILLA RANCH
Address: 1811 MOUNTAIN AVE
City,State,Zip: NORCO, CA 92860
Site ID: 122524
CERS ID: 10328242
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: HSC 6.67 25270.4.5 (a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5 (a)
Violation Description: Failure to comply with one or more of the following requirements: 1. Have record of inspections and integrity tests signed by the appropriate supervisor or inspector. 2. Keep written procedures and records of inspections and integrity tests for at least three years. 3. Keep comparison records.
Violation Notes: Returned to compliance on 06/26/2019.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: 40 CFR 1 265.173 - U.S. Code of Federal Regulations, Title 40, Chapter 1, Section(s) 265.173
Violation Description: Failure to meet the following container management requirements: (a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. (b) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.
Violation Notes: Returned to compliance on 05/17/2019. OBSERVATION: Observed 2 metal 55 gallon drums without bung cap in place. CORRECTIVE ACTION: Owner/operator shall maintain all hazardous waste containers closed when not adding/removing hazardous waste.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to label stationary hazardous waste tanks as "hazardous waste" and mark with an accumulation start date.

NORCO MAIN RANCH INC (Continued) **U001569920**

Violation Notes:	Returned to compliance on 05/17/2019. OBSERVATION: Observed hazardous waste tank (where used oil filters were being drained into) that was missing a proper label. CORRECTIVE ACTION: Owner/operator shall label hazardous waste tanks with all the required information. Label shall include at least the words ""hazardous waste"" and the accumulation start date. Submit photos to this department, if applicable.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	03-16-2016
Citation:	HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description:	Failure to prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan .
Violation Notes:	Returned to compliance on 03/21/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	03-16-2016
Citation:	HSC 6.67 25270.4.5(b)(1) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(b)(1)
Violation Description:	Failure to perform daily inspections at an exempt facility.
Violation Notes:	Returned to compliance on 03/21/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	04-30-2019
Citation:	Un-Specified
Violation Description:	Business Plan Program - Operations/Maintenance - General Local Ordinance
Violation Notes:	Returned to compliance on 05/29/2019. OBSERVATION: Observed faded NFPA-704 signs located at the entrance of the facility (gate). CORRECTIVE ACTION: Owner/operator shall replace all faded or otherwise unrecognizable NFPA-704 signs. Submit photos to this department.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	04-30-2019
Citation:	23 CCR 16 2641(h) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(h)
Violation Description:	Failure to have an approved UST Monitoring Plan.
Violation Notes:	Returned to compliance on 05/17/2019. OBSERVATION: Observed UST Monitoring Plan(s) to be inaccurate and/or missing information for the following tanks: a. All three tanks: monitoring panel is ILS-350 not ILS-300 b. Tank#2: CERS monitoring plan states that the LLD

NORCO MAIN RANCH INC (Continued) **U001569920**

manufacturer/model is Vaporless/LD2000. However, the submitted monitoring certification form for 2019 states that the LLD manufacturer/model is FE PETRO/1000 UST Monitoring Plan is not approved as submitted. CORRECTIVE ACTION: Owner/operator shall make corrections to the UST Monitoring Plan(s) and submit in CERS.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to prepare an SPCC Plan that meets all applicable requirements.
Violation Notes: Returned to compliance on 06/26/2019.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-21-2017
Citation: 22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description: Failure to obtain an Identification Number prior to treating, storing, disposing of, transporting or offering for transportation any hazardous waste.
Violation Notes: Returned to compliance on 09/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-16-2016
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to make SPCC plan amendment(s) when the facility has had a change in: design, construction, operation, or maintenance which affects the facility?s discharge potential.
Violation Notes: Returned to compliance on 03/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-16-2016
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to comply with all of the following requirements: 1. Failure to conduct inspections and tests in accordance with written procedures that you or a certifying engineer have developed for the facility. 2. Failure to sign written procedures and/or a record of inspections and/or customary business records by the appropriate supervisor or

NORCO MAIN RANCH INC (Continued) **U001569920**

inspector. 3. Failure to keep written procedures and/or a record of inspections and/or customary business records with the plan. AND 4. Failure to maintain written procedures and/or a record of inspections and/or customary business records for three years.
Violation Notes: Returned to compliance on 03/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-16-2016
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to provide training regarding: 1. The operation and maintenance of equipment to prevent discharges. 2. Discharge procedure protocols. 3. Applicable pollution control laws, rules, and regulations. 4. General facility operations. AND 5. The contents of the SPCC Plan.
Violation Notes: Returned to compliance on 03/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-16-2016
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 03/21/2017.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description: Failure to provide the following training to all oil-handling personnel: 1. Operation and maintenance of equipment to prevent discharges. 2. Discharge procedure protocols. 3. Applicable pollution control laws, rules, and regulations. 4. General facility operations. 5. Contents of the SPCC Plan.
Violation Notes: Returned to compliance on 06/26/2019.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: 22 CCR 12 66262.40(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.40(a)
Violation Description: Failure to keep a copy of each properly signed manifest for at least three years from the date the waste was accepted by the initial

NORCO MAIN RANCH INC (Continued) **U001569920**

transporter. The manifest signed at the time the waste was accepted for transport shall be kept until receiving a signed copy from the designated facility which received the waste.

Violation Notes: Returned to compliance on 05/17/2019. OBSERVATION: Owner/operator only had manifests from January- April (2018) for review. CORRECTIVE ACTION: Owner/operator shall obtain all manifests for hazardous waste shipments which occurred in the past 3 years. Manifests shall be made available for inspection.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: HSC 6.67 25270.4.5 (a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5 (a)
Violation Description: Failure to complete a review and evaluation of the SPCC Plan at least once every five years, document the completion of the review, and sign a statement as to whether the SPCC Plan will be amended.
Violation Notes: Returned to compliance on 06/26/2019.
Violation Division: Riverside County Department of Env Health
Violation Program: APSA
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 03-19-2014
Citation: HSC 6.7 25284(a)(3) - California Health and Safety Code, Chapter 6.7, Section(s) 25284(a)(3)
Violation Description: Failure to submit, maintain, or implement an owner/operator written agreement.
Violation Notes: Returned to compliance on 02/14/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: 23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)
Violation Description: Failure to comply with one or more of the following overfill prevention equipment requirements: Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after

NORCO MAIN RANCH INC (Continued) **U001569920**

	October 1,?2018. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. For USTs installed on and after October?1,?2018, perform an inspection at installation and every 36 months thereafter. Inspected within 30 days after a repair to the overfill prevention equipment. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Inspected by a certified UST service technician. Maintain records of overfill prevention equipment inspection for 36 months.
Violation Notes:	Returned to compliance on 05/17/2019. OBSERVATION: Overfill prevention equipment inspection records were not available at the time of inspection. CORRECTIVE ACTION: Owner/operator shall maintain records of overfill prevention equipment inspections for 36 months. A copy shall be provided to this Department.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	03-16-2016
Citation:	HSC 6.67 25270.4.5(a) - California Health and Safety Code, Chapter 6.67, Section(s) 25270.4.5(a)
Violation Description:	Failure to perform a five-year review of the SPCC plan.
Violation Notes:	Returned to compliance on 03/21/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	APSA
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	04-30-2019
Citation:	HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description:	Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes:	Returned to compliance on 05/29/2019. OBSERVATION: No training records observed/provided during inspection. CORRECTIVE ACTION: Owner/operator shall provide training to all employees. Documentation shall be retained and be made available for inspection for a minimum period of 3 years from the date of the training.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS
Site ID:	122524
Site Name:	Hidden Villa Ranch
Violation Date:	04-30-2019
Citation:	23 CCR 16 2665(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2665(b)
Violation Description:	"Failure to submit a copy of the overfill prevention equipment inspection results on the ?Overfill Prevention Equipment Inspection Report Form? to the UPA within 30 days after the inspection. "
Violation Notes:	Returned to compliance on 05/17/2019. OBSERVATION: An "Overfill Prevention Equipment Inspection Report Form" was not submitted to this

NORCO MAIN RANCH INC (Continued) **U001569920**

Department within 30 days after the completion of the test (03/21/2019) CORRECTIVE ACTION: Owner/operator shall immediately submit to this Department a complete and accurate copy of the Overfill Prevention Equipment Inspection Report Form for inspection completed on 03/21/2019.

Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Violation Date: 04-30-2019
Citation: 22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description: Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes: Returned to compliance on 05/17/2019. OBSERVATION: Observed the following 2 metal 55 gallon drums in hazardous waste area that were missing proper labels: CORRECTIVE ACTION: Owner/operator shall label hazardous waste containers with all the required information. Label shall include at least: the words ""hazardous waste"", generator name and address, accumulation start date, composition and physical state of waste, and hazardous property statement. Submit photos to this department, if applicable.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-08-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-11-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Annual Cert
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-16-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW

NORCO MAIN RANCH INC (Continued) **U001569920**

Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-16-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-16-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-16-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-19-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-21-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 03-21-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Eval General Type: Other/Unknown

NORCO MAIN RANCH INC (Continued) **U001569920**

Eval Date: 03-21-2017
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 03-21-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 04-26-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Delivering typed inspection report.
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 04-26-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Delivering typed inspection report.
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Other/Unknown
Eval Date: 04-26-2016
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Delivering typed inspection report.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-30-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: APSA
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-30-2019
Violations Found: Yes
Eval Type: Routine done by local agency

NORCO MAIN RANCH INC (Continued) **U001569920**

Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. The annual monitoring certification was done by Bob Toomey (ICC#8322843). The annual monitoring certification was done on 03/29/2019. - Last monitoring certification: 03/08/2018 - Last SB989:11/09/07 - Because the monitoring certification could not be witnessed, checklist items numbers 33-48 were not observed. - Observe DO monthly inspection for 01/10/2019 to be incomplete in section VIII (Alarm History). DO shall ensure that monthly inspection are properly completed. - Observed owner/operator using the outdated employee training forms. Owner/operator shall use the newly required employee training forms. Facility employee certificate training forms will be e-mailed to the operator.
Eval Division:	Riverside County Department of Env Health
Eval Program:	UST
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-30-2019
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. The facility is an egg distributor warehouse and potentially generates the following waste streams: used oil, used fuel filters, spent batteries, aerosol cans, contaminated absorbent, used antifreeze. - Facility has an average of one pick up a month (Desert Environmental Services and Alexis) - Facility's batteries are picked up by Powerstride
Eval Division:	Riverside County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	04-30-2019
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	- The purpose of this visit is to conduct a routine inspection of the facility named above. The facility is an egg distributor warehouse. - Yadira Jimenez was able to access CERS business plan online.
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	07-17-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Other/Unknown
Eval Date:	07-17-2013
Violations Found:	No
Eval Type:	Other, not routine, done by local agency
Eval Notes:	Not reported
Eval Division:	Riverside County Department of Env Health

NORCO MAIN RANCH INC (Continued) **U001569920**

Eval Program: UST
Eval Source: CERS

Enforcement Action:
Site ID: 122524
Site Name: Hidden Villa Ranch
Site Address: 1811 MOUNTAIN AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 03-16-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: APSA
Enf Action Source: CERS

Site ID: 122524
Site Name: Hidden Villa Ranch
Site Address: 1811 MOUNTAIN AVE
Site City: NORCO
Site Zip: 92860
Enf Action Date: 03-19-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS

Coordinates:
Site ID: 122524
Facility Name: Hidden Villa Ranch
Env Int Type Code: HWG
Program ID: 10328242
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.
Latitude: 33.908080
Longitude: -117.566780

Affiliation:
Affiliation Type Desc: Environmental Contact
Entity Name: Yadira Jimenez
Entity Title: Not reported
Affiliation Address: 1811 Mountain Ave.
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: Tim Luberski
Entity Title: Not reported
Affiliation Address: 1811 Mountain Ave.
Affiliation City: Norco

NORCO MAIN RANCH INC (Continued) **U001569920**

Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 271-2866
Affiliation Type Desc:	UST Tank Operator
Entity Name:	Hidden Villa Ranch
Entity Title:	Not reported
Affiliation Address:	1811 Mountain Ave.
Affiliation City:	Norco
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92860
Affiliation Phone:	(951) 271-3866
Affiliation Type Desc:	Identification Signer
Entity Name:	David Magana
Entity Title:	Warehouse Manager
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Parent Corporation
Entity Name:	Hidden Villa Ranch
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055
Affiliation Type Desc:	Document Preparer
Entity Name:	Yadira Jimenez
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address

NORCO MAIN RANCH INC (Continued) **U001569920**

Entity Title: Not reported
Affiliation Address: 1811 Mountain Ave
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 92860
Affiliation Phone: Not reported

Affiliation Type Desc: Operator
Entity Name: Luberski, Inc. dba Hidden Villa Ranch
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (951) 271-3866

Affiliation Type Desc: UST Property Owner Name
Entity Name: H & H Properties
Entity Title: Not reported
Affiliation Address: PO Box 250
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 92860
Affiliation Phone: (951) 737-6735

Affiliation Type Desc: UST Tank Owner
Entity Name: H & H Properties
Entity Title: Not reported
Affiliation Address: PO Box 250
Affiliation City: Norco
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 92860
Affiliation Phone: (951) 737-6735

O63 **NORCO EGG FARM** **SEMS-ARCHIVE** **1003878304**
SSW **1811 MOUNTAIN AVE** **CAD009868480**
1/4-1/2 **NORCO, CA 91760**
0.429 mi.
2267 ft. **Site 2 of 2 in cluster O**

Relative:
Lower

Actual:
596 ft.

SEMS Archive:
Site ID: 0901244
EPA ID: CAD009868480
Cong District: 36
FIPS Code: 06065
FF: N
NPL: Not on the NPL
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information

SEMS Archive Detail:
Region: 09
Site ID: 0901244
EPA ID: CAD009868480

NORCO EGG FARM (Continued) **1003878304**

Site Name:	NORCO EGG FARM
NPL:	N
FF:	N
OU:	00
Action Code:	PA
Action Name:	PA
SEQ:	1
Start Date:	1985-04-01 06:00:00
Finish Date:	1987-11-01 05:00:00
Qual:	N
Current Action Lead:	St Perf
Region:	09
Site ID:	0901244
EPA ID:	CAD009868480
Site Name:	NORCO EGG FARM
NPL:	N
FF:	N
OU:	00
Action Code:	VS
Action Name:	ARCH SITE
SEQ:	1
Start Date:	Not reported
Finish Date:	1987-11-01 05:00:00
Qual:	Not reported
Current Action Lead:	EPA Perf In-Hse
Region:	09
Site ID:	0901244
EPA ID:	CAD009868480
Site Name:	NORCO EGG FARM
NPL:	N
FF:	N
OU:	00
Action Code:	DS
Action Name:	DISCVRY
SEQ:	1
Start Date:	1985-04-01 06:00:00
Finish Date:	1985-04-01 06:00:00
Qual:	Not reported
Current Action Lead:	St Perf

P64 **ST. ANTHONY MOBIL** **LUST** **S102438014**
NNE **2807 HAMNER AVE** **SWEEPS UST** **N/A**
1/4-1/2 **NORCO, CA 91760** **HIST CORTESE**
0.440 mi.
2323 ft. **Site 1 of 2 in cluster P**

Relative: **Higher**
Actual: **619 ft.**

LUST REG 8:

Name:	ST. ANTHONY MOBIL
Address:	2807 HAMNER AVE
City:	NORCO
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Leak being confirmed
Case Number:	083302530T

ST. ANTHONY MOBIL (Continued) **S102438014**

Local Case Num:	94799
Case Type:	Soil only
Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	4THT
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	Structure Failure
Leak Source:	Piping
Global ID:	T0606500393
How Stopped Date:	Not reported
Enter Date:	11/18/1994
Date Confirmation of Leak Began:	9/19/1994
Date Preliminary Assessment Began:	Not reported
Discover Date:	9/14/1994
Enforcement Date:	Not reported
Close Date:	Not reported
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	11/18/1994
GW Qualifies:	=
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.9217888
Longitude:	-117.5591544
MTBE Date:	4/15/2003
Max MTBE GW:	6460
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	NOM
Staff Initials:	UNK
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: DISCOVERED DURING SYSTEM UPGRADE. 90 DAY LETTER ISSUED IN NOV 1996.

SWEEPS UST:

Name:	SHELL NORCO
Address:	2807 HAMNER AVE
City:	NORCO
Status:	Active

ST. ANTHONY MOBIL (Continued) **S102438014**

Comp Number: 5871
Number: 1
Board Of Equalization: 44-017904
Referral Date: 11-18-92
Action Date: 11-18-92
Created Date: 02-29-88
Owner Tank Id: 000210
SWRCB Tank Id: 33-000-005871-000001
Tank Status: A
Capacity: 7500
Active Date: 11-18-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 3

Name: SHELL NORCO
Address: 2807 HAMNER AVE
City: NORCO
Status: Active
Comp Number: 5871
Number: 1
Board Of Equalization: 44-017904
Referral Date: 11-18-92
Action Date: 11-18-92
Created Date: 02-29-88
Owner Tank Id: 000210
SWRCB Tank Id: 33-000-005871-000002
Tank Status: A
Capacity: 12000
Active Date: 11-18-92
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

Name: SHELL NORCO
Address: 2807 HAMNER AVE
City: NORCO
Status: Active
Comp Number: 5871
Number: 1
Board Of Equalization: 44-017904
Referral Date: 11-18-92
Action Date: 11-18-92
Created Date: 02-29-88
Owner Tank Id: 000210
SWRCB Tank Id: 33-000-005871-000003
Tank Status: A
Capacity: 12000
Active Date: 11-18-92
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

ST. ANTHONY MOBIL (Continued) **S102438014**

HIST CORTESE:

edr_fname:	ST. ANTHONY MOBIL
edr_fadd1:	2807
City,State,Zip:	NORCO, CA 91760
Region:	CORTESE
Facility County Code:	33
Reg By:	LTNKA
Reg Id:	083302530T

P65 **NORCO SHELL** **LUST** **1000177831**
NNE **2807 HAMNER** **HIST UST** **N/A**
1/4-1/2 **NORCO, CA 91760** **CERS**
0.440 mi.
2323 ft. **Site 2 of 2 in cluster P**

Relative:
Higher

Actual:
619 ft.

LUST:

Name:	MOBIL ST ANTHONY
Address:	2807 HAMNER AVE
City,State,Zip:	NORCO, CA 91760
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606500393
Global Id:	T0606500393
Latitude:	33.9217888
Longitude:	-117.5591544
Status:	Completed - Case Closed
Status Date:	01/13/2016
Case Worker:	NOM
RB Case Number:	083302530T
Local Agency:	RIVERSIDE COUNTY LOP
File Location:	Not reported
Local Case Number:	94799
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	.RWQCB-SA NOTE: The LTCP evaluation for this site was prepared by USTCF personnel without input or review from the lead oversight agency and information contained therein DOES NOT reflect the views and opinions of this agency. Note: State Board Order issued site closure for this site.

LUST:

Global Id:	T0606500393
Contact Type:	Regional Board Caseworker
Contact Name:	NANCY OLSON-MARTIN
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	nolson-martin@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0606500393
Contact Type:	Local Agency Caseworker
Contact Name:	Riverside County LOP
Organization Name:	RIVERSIDE COUNTY LOP
Address:	3880 LEMON ST SUITE 200
City:	RIVERSIDE
Email:	Not reported
Phone Number:	9519558980

NORCO SHELL (Continued) **1000177831**

LUST:

Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	05/08/2009
Action:	Warning Letter
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	06/19/2009
Action:	Verbal Enforcement
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	07/08/2009
Action:	Staff Letter
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	11/06/2013
Action:	Clean Up Fund - Letter to RP
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	11/06/2013
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	11/06/2013
Action:	Clean Up Fund - Case Closure Review Summary Report (RSR)
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	02/07/2014
Action:	Clean Up Fund - Letter to RP
Global Id:	T0606500393
Action Type:	ENFORCEMENT
Date:	02/07/2014
Action:	Clean Up Fund - Letter to RP
Global Id:	T0606500393
Action Type:	RESPONSE
Date:	08/04/2009
Action:	Correspondence
Global Id:	T0606500393
Action Type:	RESPONSE
Date:	02/16/2006
Action:	Interim Remedial Action Plan
Global Id:	T0606500393
Action Type:	RESPONSE
Date:	07/30/2010
Action:	Correspondence
Global Id:	T0606500393

NORCO SHELL (Continued) **1000177831**

Action Type: RESPONSE
Date: 02/28/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/24/2005
Action: * Referral to Regional Board or Another State Agency

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 09/06/2012
Action: Clean Up Fund - Case Closure Review Summary Report (RSR)

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 09/28/2009
Action: Clean Up Fund - Case Closure Review Summary Report (RSR)

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/22/2011
Action: Clean Up Fund - Case Closure Review Summary Report (RSR)

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/04/2009
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/03/2009
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/30/2009
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 05/22/2009
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/02/2015
Action: Email Correspondence

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 09/08/2005
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/14/2010

NORCO SHELL (Continued) **1000177831**

Action: Staff Letter

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/03/2010
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/13/2010
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/13/2010
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/13/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/30/2010
Action: Remedial Progress Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/06/2015
Action: Email Correspondence

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 05/06/2011
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/17/2014
Action: State Water Board Closure Order

Global Id: T0606500393
Action Type: Other
Date: 09/14/1994
Action: Leak Discovery

Global Id: T0606500393
Action Type: RESPONSE
Date: 01/31/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/07/2011
Action: Correspondence

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/11/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/19/2011
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/30/2011
Action: Remedial Progress Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/02/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/15/2011
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/25/2015
Action: Email Correspondence

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 01/19/2006
Action: Warning Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 02/17/2006
Action: Warning Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 05/26/2006
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 11/27/2006
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 05/24/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT

NORCO SHELL (Continued) **1000177831**

Date: 01/31/2007
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 09/23/2011
Action: Staff Letter

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/14/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/08/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/08/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/10/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 07/30/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/15/2011
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/28/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/21/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/15/2011
Action: Tank Removal Report / UST Sampling Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/14/2012
Action: Other Report / Document

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/07/2011
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 05/20/2012
Action: Sensitive Receptor Survey Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/30/2012
Action: CAP/RAP - Other Report

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 12/05/2006
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 12/19/2006
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/05/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 11/20/2007
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 11/08/2007
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 10/31/2006
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/16/2007
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/30/2007
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT

NORCO SHELL (Continued) **1000177831**

Date: 11/09/2007
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/05/2007
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 10/09/2007
Action: Verbal Enforcement

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/18/2008
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/17/2008
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/28/2008
Action: Verbal Enforcement

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/16/2007
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/04/2011
Action: Meeting

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/02/2010
Action: Warning Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 01/14/2011
Action: Staff Letter

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/15/2006
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Soil and Water Investigation Workplan

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/15/2005
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Preliminary Site Assessment Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/16/2006
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/10/2006
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 02/14/2012
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/04/2012
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 01/01/2013
Action: CAP/RAP - Other Report

Global Id: T0606500393
Action Type: RESPONSE

NORCO SHELL (Continued) **1000177831**

Date: 07/30/2012
Action: Monitoring Report - Semi-Annually

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/31/2015
Action: Well Destruction Report - Regulator Responded

Global Id: T0606500393
Action Type: REMEDIATION
Date: 01/02/1999
Action: Excavation

Global Id: T0606500393
Action Type: REMEDIATION
Date: 10/22/2007
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500393
Action Type: REMEDIATION
Date: 10/22/2007
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500393
Action Type: REMEDIATION
Date: 01/25/2011
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500393
Action Type: REMEDIATION
Date: 01/25/2011
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500393
Action Type: REMEDIATION
Date: 10/21/2010
Action: In Situ Physical/Chemical Treatment (other than SVE)

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 01/29/2008
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/16/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/25/2008
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 05/06/2008
Action: Verbal Communication

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 07/31/2007
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/19/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/24/2008
Action: File review

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/26/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 07/01/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/30/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 01/30/2008
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 03/02/2012
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 10/25/2005
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/29/2008
Action: Staff Letter

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/16/2005
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE

NORCO SHELL (Continued) **1000177831**

Date: 11/30/2007
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/10/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/05/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/30/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/28/2012
Action: Correspondence

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/27/2008
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 10/27/2005
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 10/29/2010
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 04/28/2011
Action: Other Report - #UST Sample Analytical Report

Global Id: T0606500393
Action Type: Other
Date: 09/19/1994
Action: Leak Reported

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/15/2006
Action: Well Installation Report

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/15/2006
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 01/30/2007
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/01/2007
Action: Other Workplan

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/01/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/30/2007
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/22/2007
Action: Well Installation Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/22/2007
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/30/2007
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/21/2007
Action: Soil and Water Investigation Workplan

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 06/12/2008
Action: Technical Correspondence / Assistance / Other

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 08/24/2007
Action: Staff Letter

Global Id: T0606500393
Action Type: ENFORCEMENT

NORCO SHELL (Continued) **1000177831**

Date: 12/02/2008
Action: Verbal Enforcement

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 12/28/2012
Action: Referral to Other State Agency

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 09/29/2017
Action: Closure/No Further Action Letter - #WQO-2014-0067-UST

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/03/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/20/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/21/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/23/2006
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 09/23/2008
Action: Well Installation Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/18/2008
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/18/2008
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/01/2007
Action: Well Installation Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 07/30/2007
Action: Monitoring Report - Quarterly

NORCO SHELL (Continued) **1000177831**

Global Id: T0606500393
Action Type: RESPONSE
Date: 04/04/2008
Action: Soil and Water Investigation Workplan

Global Id: T0606500393
Action Type: RESPONSE
Date: 05/12/2008
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/28/2008
Action: Other Report / Document

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/28/2008
Action: CAP/RAP - Feasibility Study Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 10/01/2009
Action: Other Report / Document

Global Id: T0606500393
Action Type: ENFORCEMENT
Date: 05/21/2012
Action: Staff Letter

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/05/2009
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 11/29/2010
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 12/19/2008
Action: Verbal Communication

Global Id: T0606500393
Action Type: RESPONSE
Date: 06/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/03/2009
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE

NORCO SHELL (Continued) **1000177831**

Date: 08/04/2009
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 01/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 05/22/2009
Action: Correspondence

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/04/2009
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 03/30/2007
Action: CAP/RAP - Feasibility Study Report

Global Id: T0606500393
Action Type: RESPONSE
Date: 07/31/2007
Action: Other Workplan

Global Id: T0606500393
Action Type: RESPONSE
Date: 05/30/2008
Action: Monitoring Report - Quarterly

Global Id: T0606500393
Action Type: RESPONSE
Date: 08/04/2009
Action: Correspondence

LUST:
Global Id: T0606500393
Status: Open - Case Begin Date
Status Date: 09/14/1994

Global Id: T0606500393
Status: Open - Site Assessment
Status Date: 09/19/1994

Global Id: T0606500393
Status: Open - Site Assessment
Status Date: 01/30/2006

Global Id: T0606500393
Status: Open - Verification Monitoring
Status Date: 03/12/2007

Global Id: T0606500393
Status: Open - Remediation

NORCO SHELL (Continued) **1000177831**

Status Date: 01/15/2008

Global Id: T0606500393
Status: Open - Site Assessment
Status Date: 01/15/2008

Global Id: T0606500393
Status: Open - Site Assessment
Status Date: 04/04/2008

Global Id: T0606500393
Status: Open - Remediation
Status Date: 10/21/2010

Global Id: T0606500393
Status: Open - Eligible for Closure
Status Date: 08/06/2013

Global Id: T0606500393
Status: Completed - Case Closed
Status Date: 01/13/2016

RIVERSIDE CO. LUST:
Name: MOBIL ST ANTHONY
Address: 2807 HAMNER AVE
City,State,Zip: NORCO, CA
Region: RIVERSIDE
Facility ID: 94799
Employee: Winters
Site Closed: Referred to Water Board
Case Type: Drinking Water Aquifer affected
Facility Status: 0
Casetype Decode: An Aquifer used for Drinking Water supply has been contaminated.
Fstatus Decode: Not reported

HIST UST:
Name: NORCO SHELL
Address: 2807 HAMNER
City,State,Zip: NORCO, CA 91760
File Number: 0001F8BE
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001F8BE.pdf
Region: STATE
Facility ID: 00000005871
Facility Type: Gas Station
Other Type: Not reported
Contact Name: LOUISE CRAGHEAD
Telephone: 7147369031
Owner Name: RICHARD ALDEN
Owner Address: 2307 RIVERSIDE AVE
Owner City,St,Zip: BLOOM, CA 92316
Total Tanks: 0003

Tank Num: 001
Container Num: 1
Year Installed: Not reported

NORCO SHELL (Continued) **1000177831**

Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00012000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	Not reported
Tank Capacity:	00012000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

CERS:

Name:	MOBIL ST ANTHONY
Address:	2807 HAMNER AVE
City,State,Zip:	NORCO, CA 91760
Site ID:	207489
CERS ID:	T0606500393
CERS Description:	Leaking Underground Storage Tank Cleanup Site

Affiliation:

Affiliation Type Desc:	Local Agency Caseworker
Entity Name:	Riverside County LOP - RIVERSIDE COUNTY LOP
Entity Title:	Not reported
Affiliation Address:	3880 LEMON ST SUITE 200
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	9519558980
Affiliation Type Desc:	Regional Board Caseworker
Entity Name:	NANCY OLSON-MARTIN - SANTA ANA RWQCB (REGION 8)
Entity Title:	Not reported
Affiliation Address:	3737 MAIN STREET, SUITE 500
Affiliation City:	RIVERSIDE
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

66
WNW
1/4-1/2
0.453 mi.
2393 ft.

CORONA ANNEX
NORCO, CA

UXO **1024713877**
N/A

Relative:
Higher

Actual:
623 ft.

UXO:

DoD Component:	FUDS
Installation Name:	CORONA ANNEX
Facility Address 2:	Not reported
Site ID:	01OEW
Site Type:	Unexploded Munitions and Ordnance Area
Latitude:	33.917301000000002
Longitude:	-117.57199900000001

67
NW
1/4-1/2
0.500 mi.
2639 ft.

CORONA NAVAL WEAPONS STATION
IN THE CITY OF NORCO WEST OF I-15 BETWEEN 5TH STREET AND 3RD
NORCO, CA 92860

ENVIROSTOR **S109034294**
N/A

Relative:
Higher

Actual:
653 ft.

ENVIROSTOR:

Name:	CORONA NAVAL WEAPONS STATION
Address:	IN THE CITY OF NORCO WEST OF I-15 BETWEEN 5TH STREET AND 3RD STREET
City,State,Zip:	NORCO, CA 92860
Facility ID:	80001224
Status:	Active
Status Date:	06/04/2014
Site Code:	400496
Site Type:	Military Evaluation
Site Type Detailed:	Open Base
Acres:	50
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Stephen Niou
Supervisor:	Robert Senga
Division Branch:	Cleanup Cypress
Assembly:	60
Senate:	31
Special Program:	Navy
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.92199
Longitude:	-117.5683
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	T10000006535
Alias Type:	GeoTracker Global ID
Alias Name:	400496
Alias Type:	Project Code (Site Code)
Alias Name:	80001224
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE

CORONA NAVAL WEAPONS STATION (Continued) **S109034294**

Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Report
Completed Date: 05/11/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Assessment Work Plan
Completed Date: 03/02/2015
Comments: Not reported

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Site Characterization Report
Future Due Date: 2020
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

68
SSW
1/2-1
0.566 mi.
2990 ft.

NORCO RANCH
1661 MOUNTAIN AVENUE
NORCO, CA 92860

ENVIROSTOR **S111022967**
VCP **N/A**

Relative:
Lower

Actual:
594 ft.

ENVIROSTOR:
Name: NORCO RANCH
Address: 1661 MOUNTAIN AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 60001466
Status: No Further Action
Status Date: 09/13/2011
Site Code: 401561
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 1.25
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Eileen Mananian
Division Branch: Cleanup Cypress
Assembly: 60
Senate: 31
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 33.90601
Longitude: -117.5656
APN: 12621-0010-7
Past Use: PESTICIDE/INSECTIDE/RODENTICIDE STORAGE
Potential COC: TPH-diesel TPH-gas TPH-MOTOR OIL TPH-Stoddard Solvent
Confirmed COC: NONE SPECIFIED
Potential Description: SOIL
Alias Name: 12621-0010-7

NORCO RANCH (Continued) **S111022967**

Alias Type: APN
Alias Name: 401561
Alias Type: Project Code (Site Code)
Alias Name: 60001466
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 05/03/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/13/2011
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

VCP:
Name: NORCO RANCH
Address: 1661 MOUNTAIN AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 60001466
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 1.25
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Eileen Mananian
Division Branch: Cleanup Cypress
Site Code: 401561
Assembly: 60
Senate: 31
Special Programs Code: Voluntary Cleanup Program
Status: No Further Action
Status Date: 09/13/2011
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 33.90601 / -117.5656
APN: 12621-0010-7
Past Use: PESTICIDE/INSECTIDE/RODENTICIDE STORAGE
Potential COC: 30024, 30025, 3002502, 3002503

NORCO RANCH (Continued) **S111022967**

Confirmed COC:	NONE SPECIFIED
Potential Description:	SOIL
Alias Name:	12621-0010-7
Alias Type:	APN
Alias Name:	401561
Alias Type:	Project Code (Site Code)
Alias Name:	60001466
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Voluntary Cleanup Agreement
Completed Date:	05/03/2011
Comments:	Not reported

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Characterization Report
Completed Date:	09/13/2011
Comments:	Not reported

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Q69 **NORCO USARC** **FUDS** **1024903428**
North **N/A**
1/2-1 **NORCO, CA**
0.588 mi.
3105 ft. **Site 1 of 2 in cluster Q**

Relative:
Higher

Actual:
662 ft.

FUDS:

EPA Region:	9
Installation ID:	CA99799F744300
Congressional District Number:	42
Facility Name:	NORCO USARC
FUDS Number:	J09CA0141
City:	NORCO
State:	CA
County:	RIVERSIDE
Telephone:	213-452-3920
USACE Division:	South Pacific Division (SPD)
USACE District:	Los Angeles District (SPL)
Status:	Properties without projects
Current Owner:	Other
X Coord:	-117.562499999674
Y Coord:	33.924999999751002
Latitude:	33.924999999999997
Longitude:	-117.5625

Q70 **NORCO** **ENVIROSTOR** **S107736908**
North **N/A**
1/2-1 **NORCO, CA**
0.588 mi.
3105 ft. **Site 2 of 2 in cluster Q**

Relative:
Higher

Actual:
662 ft.

ENVIROSTOR:

Name:	NORCO
Address:	Not reported
City,State,Zip:	NORCO, CA
Facility ID:	80000098
Status:	Inactive - Needs Evaluation
Status Date:	07/01/2005
Site Code:	Not reported
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	0
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Douglas Bautista
Division Branch:	Cleanup Cypress
Assembly:	60
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	33.925
Longitude:	-117.5625
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CA99799F744300
Alias Type:	Federal Facility ID
Alias Name:	J09CA0141
Alias Type:	INPR
Alias Name:	80000098
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	05/18/1994
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

71
North
1/2-1
0.604 mi.
3189 ft.

CORONA ANNEX
NORCO, CA

FUDS **1007212248**
N/A

Relative:
Higher

Actual:
670 ft.

FUDS:

EPA Region:	9
Installation ID:	CA99799F599900
Congressional District Number:	42
Facility Name:	CORONA ANNEX
FUDS Number:	J09CA1120
City:	NORCO
State:	CA
County:	RIVERSIDE
Telephone:	213-452-3920
USACE Division:	South Pacific Division (SPD)
USACE District:	Los Angeles District (SPL)
Status:	Properties with all projects at site closeout
Current Owner:	Local Government; Other Federal Government
X Coord:	-117.57199899975301
Y Coord:	33.917300999942
Latitude:	33.917301000000002
Longitude:	-117.57199900000001

FUDS Detail as of Jan 2015:

Fiscal Year:	2013
Federal Facility ID:	CA9799F5999
RAB:	Not reported
NPL Status:	Not Listed
Description:	The U.S. acquired a total of 713.665 acres of land in fee and direct purchase for the former Corona Naval Hospital, located in the city of Norco, Riverside County, California. The site is located about 3 miles north of the City of Corona, in Norco, Riverside County, California. The site entrance is located on Fifth Street south of Norconian Drive. The site is bounded by Fifth Street to the north, Hamner Avenue to the east, Third Street to the south, and Western Avenue to the west. Disestablishment of the hospital was declared by the Navy on 1 November 1949. The hospital was reopened on 1 June 1951 and the Navy inactivated the hospital again in September 1957. On 21 September 1959, 580 acres of the former hospital site were transferred to Bureau of Naval Weapons for use by the Naval Ordnance Laboratory. The remaining 115 acres were declared excess and recommended to GSA for disposal.) On 30 March 1962, 92.3553 acres were transferred to the State of California for use as a Narcotics Rehabilitation Center. On 15 May 1962, an additional 14.6014 acres were transferred to Corona Unified School District. On 4 June 1985, 141.86 acres were transferred to Riverside Community College District. Approximately 219 acres were transferred by quitclaim deeds to two private owners on 19 May 1967 and 23 June 1972. These parcels were subsequently purchased by two housing developers. The Seal Beach Naval Weapons Station currently owns 245.75 acres.
History:	The site is a former Navy site for testing and targeting activities. Beginning in December 1941, the U.S. acquired a total of 713.665 acres of land in fee and direct purchase for the former Corona Naval Hospital. In 1959, the entire site was transferred to the Bureau of Naval Weapons. Subsequently, portions of the site totaling 467.915 acres were declared excess, and selected parcels of the site were relinquished and transferred through several quitclaim deeds at various time periods to private developers and the State of

CORONA ANNEX (Continued) **1007212248**

California. The Navy currently occupies 245.75 acres. Disposals occurred as follows: On 30 March 1962, 92.3553 acres were transferred to the State of California for use as a Narcotics Rehabilitation Center. On 15 May, 1962, 14.604 acres were transferred to Corona Unified School District. On 19 May 1967 and 23 June 1972, approx. 219 acres were transferred by quitclaim deeds to Lewis Homes and Crestwood Homes Development. On June 1985, 141.86 acres were transferred to Riverside Community College. Military munitions were produced or demilitarized at this location and therefore may present an explosive hazard.

CTC: 124.40000000000001
Current Program: Not reported
Future Program: Not reported
Institutional ID: 61865

R72 **NORCO HIGH SCHOOL ADDITION** **ENVIROSTOR** **S104735503**
ESE **2065 TEMESCULA AVENUE** **SCH** **N/A**
1/2-1 **NORCO, CA 92860** **CERS**
0.727 mi.
3838 ft. **Site 1 of 2 in cluster R**

Relative: Higher
Actual: 652 ft.

ENVIROSTOR:
Name: NORCO HIGH SCHOOL ADDITION
Address: 2065 TEMESCULA AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 33010017
Status: No Further Action
Status Date: 03/20/2001
Site Code: 404109
Site Type: School Investigation
Site Type Detailed: School
Acres: 1
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 60
Senate: 31
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.91187
Longitude: -117.5482
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016
Confirmed COC: PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016
Potential Description: NMA
Alias Name: CORONA NORCO USD/NORCO HIGH SCH/VCA
Alias Type: Alternate Name
Alias Name: CORONA-NORCO UNIFIED SCHOOL DISTRICT
Alias Type: Alternate Name
Alias Name: NORCO HIGH SCHOOL ADDITION
Alias Type: Alternate Name

NORCO HIGH SCHOOL ADDITION (Continued) **S104735503**

Alias Name: 404109
Alias Type: Project Code (Site Code)
Alias Name: 33010017
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 04/10/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 05/04/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 08/02/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 10/14/2003
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: NORCO HIGH SCHOOL ADDITION
Address: 2065 TEMESCULA AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 33010017
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 1
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Yolanda Garza
Division Branch: Southern California Schools & Brownfields Outreach

NORCO HIGH SCHOOL ADDITION (Continued) **S104735503**

Site Code:	404109
Assembly:	60
Senate:	31
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	03/20/2001
Restricted Use:	NO
Funding:	School District
Latitude:	33.91187
Longitude:	-117.5482
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016
Confirmed COC:	PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016
Potential Description:	NMA
Alias Name:	CORONA NORCO USD/NORCO HIGH SCH/VCA
Alias Type:	Alternate Name
Alias Name:	CORONA-NORCO UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	NORCO HIGH SCHOOL ADDITION
Alias Type:	Alternate Name
Alias Name:	404109
Alias Type:	Project Code (Site Code)
Alias Name:	33010017
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	04/10/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Other Report
Completed Date:	05/04/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	08/02/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	10/14/2003
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported

NORCO HIGH SCHOOL ADDITION (Continued) **S104735503**

Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CERS:
Name: NORCO HIGH SCHOOL AD
Address: 2065 TEMESCULA AVENUE
City,State,Zip: NORCO, CA 92860
Site ID: 340656
CERS ID: 33010017
CERS Description: School Investigation

Affiliation:
Affiliation Type Desc: Supervisor
Entity Name: YOLANDA GARZA
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

R73 **NORCO HIGH SCHOOL MODERNIZATION** **ENVIROSTOR** **S102823296**
ESE **2065 TEMESCAL AVENUE** **SCH** **N/A**
1/2-1 **NORCO, CA 92860**
0.729 mi.
3849 ft. **Site 2 of 2 in cluster R**

Relative:
Higher

Actual:
652 ft.

ENVIROSTOR:
Name: NORCO HIGH SCHOOL MODERNIZATION
Address: 2065 TEMESCAL AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 60000681
Status: No Further Action
Status Date: 05/15/2008
Site Code: 404756
Site Type: School Investigation
Site Type Detailed: School
Acres: 19.4
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 60
Senate: 31
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 33.91187
Longitude: -117.5482
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS, SCHOOL - HIGH SCHOOL
Potential COC: Under Investigation
Confirmed COC: NONE SPECIFIED

NORCO HIGH SCHOOL MODERNIZATION (Continued) **S102823296**

Potential Description: IA, OTH, SOIL, SV
Alias Name: 404756
Alias Type: Project Code (Site Code)
Alias Name: 60000681
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 08/02/2007
Comments: Signed agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/27/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 12/10/2007
Comments: DTSC conditionally approved PEA Workplan for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/15/2008
Comments: DTSC approved the PEA with No Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 06/14/2007
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: NORCO HIGH SCHOOL MODERNIZATION
Address: 2065 TEMESCAL AVENUE
City,State,Zip: NORCO, CA 92860
Facility ID: 60000681
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 19.4

NORCO HIGH SCHOOL MODERNIZATION (Continued) **S102823296**

National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404756
Assembly: 60
Senate: 31
Special Program Status: Not reported
Status: No Further Action
Status Date: 05/15/2008
Restricted Use: NO
Funding: School District
Latitude: 33.91187
Longitude: -117.5482
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS, SCHOOL - HIGH SCHOOL
Potential COC: Under Investigation
Confirmed COC: NONE SPECIFIED
Potential Description: IA, OTH, SOIL, SV
Alias Name: 404756
Alias Type: Project Code (Site Code)
Alias Name: 60000681
Alias Type: Envirostor ID Number

Completed Info:

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 08/02/2007
Comments: Signed agreement sent (FedEx) to District.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 06/27/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 12/10/2007
Comments: DTSC conditionally approved PEA Workplan for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/15/2008
Comments: DTSC approved the PEA with No Further Action determination

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 06/14/2007
Comments: Not reported

NORCO HIGH SCHOOL MODERNIZATION (Continued) **S102823296**

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

74
ENE
1/2-1
0.981 mi.
5180 ft.

NORCO INTERMEDIATE SCHOOL
2711 TEMESCAL AVE
NORCO, CA 92860

ENVIROSTOR **S113015087**
SCH **N/A**
HAZNET

Relative:
Higher

Actual:
689 ft.

ENVIROSTOR:

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVENUE
City,State,Zip:	NORCO, CA 92860
Facility ID:	60002744
Status:	Active
Status Date:	10/31/2018
Site Code:	404959
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	0
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	, 60
Senate:	, 31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.92123
Longitude:	-117.5437
APN:	100-123-001
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	100-123-001
Alias Type:	APN
Alias Name:	404959
Alias Type:	Project Code (Site Code)
Alias Name:	60002744
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/30/2018

NORCO INTERMEDIATE SCHOOL (Continued) **S113015087**

Comments:	DTSC processed Phase I Determination
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	03/22/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	03/08/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	03/08/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement Application
Completed Date:	12/17/2018
Comments:	Received EOP Application from the District
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Preliminary Endangerment Assessment Report
Future Due Date:	2019
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVENUE
City,State,Zip:	NORCO, CA 92860
Facility ID:	60002744
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	0
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404959
Assembly:	, 60
Senate:	, 31
Special Program Status:	Not reported

NORCO INTERMEDIATE SCHOOL (Continued) **S113015087**

Status:	Active
Status Date:	10/31/2018
Restricted Use:	NO
Funding:	School District
Latitude:	33.92123
Longitude:	-117.5437
APN:	100-123-001
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	100-123-001
Alias Type:	APN
Alias Name:	404959
Alias Type:	Project Code (Site Code)
Alias Name:	60002744
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/30/2018
Comments:	DTSC processed Phase I Determination
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	03/22/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	03/08/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Annual Oversight Cost Estimate
Completed Date:	03/08/2019
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement Application
Completed Date:	12/17/2018
Comments:	Received EOP Application from the District
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Preliminary Endangerment Assessment Report
Future Due Date:	2019
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

NORCO INTERMEDIATE SCHOOL (Continued) **S113015087**

HAZNET:

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVE
City,State,Zip:	NORCO, CA 928602392
Year:	1997
GEPAID:	CAD982344210
Contact:	ROBERT PEREZ
Telephone:	9517367199
Mailing Name:	Not reported
Mailing Address:	2820 CLARK AVE
Mailing City,St,Zip:	NORCO, CA 928601903
Gen County:	Riverside
TSD EPA ID:	CAD008302903
TSD County:	Los Angeles
Tons:	0.035
CA Waste Code:	122-Alkaline solution without metals pH >= 12.5
Method:	H01-Transfer Station
Facility County:	Riverside

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVE
City,State,Zip:	NORCO, CA 928602392
Year:	1997
GEPAID:	CAD982344210
Contact:	ROBERT PEREZ
Telephone:	9517367199
Mailing Name:	Not reported
Mailing Address:	2820 CLARK AVE
Mailing City,St,Zip:	NORCO, CA 928601903
Gen County:	Riverside
TSD EPA ID:	CAD008302903
TSD County:	Los Angeles
Tons:	0.0675
CA Waste Code:	791-Liquids with pH <= 2
Method:	H01-Transfer Station
Facility County:	Riverside

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVE
City,State,Zip:	NORCO, CA 928602392
Year:	1997
GEPAID:	CAD982344210
Contact:	ROBERT PEREZ
Telephone:	9517367199
Mailing Name:	Not reported
Mailing Address:	2820 CLARK AVE
Mailing City,St,Zip:	NORCO, CA 928601903
Gen County:	Riverside
TSD EPA ID:	CAD008302903
TSD County:	Los Angeles
Tons:	0.0075
CA Waste Code:	141-Off-specification, aged or surplus inorganics
Method:	H01-Transfer Station
Facility County:	Riverside

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVE

NORCO INTERMEDIATE SCHOOL (Continued) **S113015087**

City,State,Zip:	NORCO, CA 928602392
Year:	1997
GEPAID:	CAD982344210
Contact:	ROBERT PEREZ
Telephone:	9517367199
Mailing Name:	Not reported
Mailing Address:	2820 CLARK AVE
Mailing City,St,Zip:	NORCO, CA 928601903
Gen County:	Riverside
TSD EPA ID:	CAD009007626
TSD County:	Los Angeles
Tons:	14.3276
CA Waste Code:	151-Asbestos containing waste
Method:	D80-Disposal, Land Fill
Facility County:	Riverside

Name:	NORCO INTERMEDIATE SCHOOL
Address:	2711 TEMESCAL AVE
City,State,Zip:	NORCO, CA 928602392
Year:	1993
GEPAID:	CAD982344210
Contact:	ROBERT PEREZ
Telephone:	9517367199
Mailing Name:	Not reported
Mailing Address:	2820 CLARK AVE
Mailing City,St,Zip:	NORCO, CA 928601903
Gen County:	Riverside
TSD EPA ID:	AZD049318009
TSD County:	99
Tons:	0.014
CA Waste Code:	551-Laboratory waste chemicals
Method:	H01-Transfer Station
Facility County:	Riverside

Click this hyperlink while viewing on your computer to access
1 additional CA_HAZNET: record(s) in the EDR Site Report.

Count: 6 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NORCO	S121659116	NORCO TOWN CENTER	2741 & 2743 HAMNER AVE	92860	CIWQS
NORCO	S121665059	POLLYS NORCO 217	HAMNER S OF 2ND ST		CIWQS
NORCO	1023301569	HAMNER WIDENING PROJECT	HAMNER	92860	FINDS
NORCO	S107539853		ON HAMNER, 1/8 MI N OF 6TH STR	92860	CDL
NORCO	S121659108	NORCO RETAIL CENTER	S OF 3131 HAMNER AVE		CIWQS
NORCO	S121659115	NORCO TOWN & COUNTRY	TOWN AND COUNTRY DR BW HAMNER	92860	CIWQS

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
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 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: N/A
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

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: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list 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). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS 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 the 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. The 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 potential NPL site.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/28/2019
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly 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). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

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: 08/13/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

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: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
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: 08/19/2019
Date Data Arrived at EDR: 08/20/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/09/2019
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: 09/09/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 14

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

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: 04/29/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 58

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
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: 04/29/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 58

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
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: 05/13/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

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 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 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: 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: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

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 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 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: No Update Planned

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

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/13/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 08/26/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 42

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 41

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/12/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Varies

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: 10/03/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
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: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/23/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/05/2019
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: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 11/07/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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: 04/29/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 58

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

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: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/24/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
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: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/26/2019
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

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: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 03/26/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 34

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
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: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

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: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: No Update Planned

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

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/02/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

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: 04/29/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 58

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

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: 06/30/2018
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 09/24/2019
Number of Days to Update: 70

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/04/2019
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

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: 06/11/2019
Date Data Arrived at EDR: 06/13/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/28/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 26

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

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

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/04/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
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

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/05/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

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: 07/30/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Semi-Annually

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: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
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: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 89

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

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: 05/15/2019
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 58

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 55

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
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 / No Longer Regulated

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: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

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: 05/15/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
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: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

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: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: N/A

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: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 11/25/2019
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: 06/24/2019
Date Data Arrived at EDR: 06/26/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 89

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

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: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

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: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Every 4 Years

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: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/23/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

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: 09/30/2018
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 106

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Annually

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: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

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: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 08/20/2019
Date Data Arrived at EDR: 09/05/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 18

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 11/18/2019
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: 03/20/2019
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
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: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/03/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

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: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

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: 06/20/2019
Date Data Arrived at EDR: 06/20/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 49

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant 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: 09/06/2019
Next Scheduled EDR Contact: 12/16/2019
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: 09/03/2019
Next Scheduled EDR Contact: 12/16/2019
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: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/09/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/01/2019
Next Scheduled EDR Contact: 10/14/2019
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

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 04/01/2019
Date Data Arrived at EDR: 04/30/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 100

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

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: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 30

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
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: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Biennially

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: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/10/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/30/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

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: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 10/14/2019
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

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: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

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: 05/03/2019
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 71

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/27/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/30/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 34

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/10/2019
Next Scheduled EDR Contact: 12/23/2019
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: 05/03/2019
Date Data Arrived at EDR: 06/05/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 90

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/07/2019
Date Data Arrived at EDR: 04/09/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 79
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Quarterly

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

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: 06/24/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 57
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/24/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 04/18/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 11
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/15/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Varies

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: 06/04/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 55
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/19/2019
Date Data Arrived at EDR: 03/22/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 18
Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 59
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/18/2019
Next Scheduled EDR Contact: 12/30/2019
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: 07/19/2019
Date Data Arrived at EDR: 07/22/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 66
Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 69
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

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: 05/15/2019
Date Data Arrived at EDR: 05/16/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 63
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
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. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 05/29/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 54

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
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

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/02/2019
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: 07/08/2019
Date Data Arrived at EDR: 07/09/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 65

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
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: 05/17/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 66

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/13/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/13/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/09/2019
Number of Days to Update: 66

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

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: 06/17/2019
Date Data Arrived at EDR: 06/18/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 65

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
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: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/20/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Varies

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: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: No Update Planned

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: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/11/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 64

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 08/14/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/21/2019
Number of Days to Update: 7

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/11/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 43

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
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 Hist Auto: EDR Exclusive Historical Auto 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 Hist Cleaner: EDR Exclusive Historical 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:

CS ALAMEDA: 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: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/10/2019
Date Data Arrived at EDR: 04/11/2019
Date Made Active in Reports: 06/20/2019
Number of Days to Update: 70

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 06/27/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 26

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 27

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/23/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 05/17/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/22/2019
Date Data Arrived at EDR: 05/23/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 56

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/26/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 29

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 06/05/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 47

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: 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: 07/11/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/08/2019
Date Data Arrived at EDR: 07/10/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 72

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/19/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/06/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 07/16/2019
Number of Days to Update: 70

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: 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: 05/16/2019
Date Data Arrived at EDR: 05/17/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 13

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 05/30/2019
Date Data Arrived at EDR: 05/31/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 53

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/22/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

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: N/A
Telephone: N/A
Last EDR Contact: 09/12/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/09/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/08/2019
Next Scheduled EDR Contact: 10/21/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/15/2019
Date Data Arrived at EDR: 07/17/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 71

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/17/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/27/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/27/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 06/25/2019
Next Scheduled EDR Contact: 10/07/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/15/2019
Date Data Arrived at EDR: 07/17/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 19

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/12/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/04/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: 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: 05/28/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 67

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 53

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 05/23/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 53

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/25/2019
Date Data Arrived at EDR: 07/30/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 62

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/30/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 02/21/2019
Date Data Arrived at EDR: 02/22/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 9

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/09/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 21

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/09/2019
Date Made Active in Reports: 05/30/2019
Number of Days to Update: 21

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/02/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 07/16/2019
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/12/2019
Number of Days to Update: 69

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 71

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/10/2019
Date Data Arrived at EDR: 07/11/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/16/2019
Next Scheduled EDR Contact: 12/30/2019
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/06/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 55

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 06/28/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: 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: 05/06/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 09/13/2019
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 06/28/2019
Next Scheduled EDR Contact: 10/14/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 07/16/2019
Date Data Arrived at EDR: 07/16/2019
Date Made Active in Reports: 09/24/2019
Number of Days to Update: 70

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/16/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: 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: 05/31/2019
Date Data Arrived at EDR: 05/31/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 52

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: 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: 06/04/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 08/08/2019
Number of Days to Update: 65

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/04/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/16/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 69
Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

SAN DIEGO CO SAM: 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: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: 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: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/11/2019
Next Scheduled EDR Contact: 12/29/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 08/06/2019
Date Data Arrived at EDR: 08/14/2019
Date Made Active in Reports: 08/15/2019
Number of Days to Update: 1

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/05/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: 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: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2019
Date Data Arrived at EDR: 05/23/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 56

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: 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

LUST SANTA CLARA: 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: 08/21/2019
Next Scheduled EDR Contact: 12/09/2019
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/19/2019
Date Data Arrived at EDR: 05/23/2019
Date Made Active in Reports: 07/22/2019
Number of Days to Update: 60
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90
Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51
Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/14/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 47
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 06/18/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 29

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2019
Date Data Arrived at EDR: 07/02/2019
Date Made Active in Reports: 09/20/2019
Number of Days to Update: 80

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/19/2019
Next Scheduled EDR Contact: 01/06/2020
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 07/18/2019
Date Data Arrived at EDR: 07/18/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 70

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/03/2019
Date Data Arrived at EDR: 06/04/2019
Date Made Active in Reports: 07/23/2019
Number of Days to Update: 49

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/28/2019
Next Scheduled EDR Contact: 12/16/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 05/20/2019
Date Data Arrived at EDR: 05/21/2019
Date Made Active in Reports: 07/18/2019
Number of Days to Update: 58

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/19/2019
Date Data Arrived at EDR: 07/23/2019
Date Made Active in Reports: 09/26/2019
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/19/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 05/09/2019
Date Data Arrived at EDR: 05/10/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 68

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/05/2019
Next Scheduled EDR Contact: 11/18/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/31/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: 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: 05/29/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 63

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

LF VENTURA: 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: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: No Update Planned

LUST VENTURA: 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: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: No Update Planned

MED WASTE VENTURA: 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: 05/29/2019
Date Data Arrived at EDR: 07/29/2019
Date Made Active in Reports: 09/30/2019
Number of Days to Update: 63
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/22/2019
Next Scheduled EDR Contact: 11/04/2019
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 06/10/2019
Date Data Arrived at EDR: 06/12/2019
Date Made Active in Reports: 07/24/2019
Number of Days to Update: 42
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/09/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/26/2019
Date Data Arrived at EDR: 06/28/2019
Date Made Active in Reports: 07/31/2019
Number of Days to Update: 33
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/25/2019
Next Scheduled EDR Contact: 01/13/2020
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/03/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 07/16/2019
Number of Days to Update: 70
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/25/2019
Next Scheduled EDR Contact: 11/11/2019
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: 05/14/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 08/05/2019
Number of Days to Update: 83
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/07/2019
Next Scheduled EDR Contact: 11/25/2019
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/09/2019
Next Scheduled EDR Contact: 10/21/2019
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: 01/01/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 06/21/2019
Number of Days to Update: 51

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2019
Next Scheduled EDR Contact: 11/11/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/15/2019
Next Scheduled EDR Contact: 10/28/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/16/2019
Next Scheduled EDR Contact: 12/02/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/06/2019
Next Scheduled EDR Contact: 12/23/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

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.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NORCO PROJECT
2350 HAMNER AVENUE
NORCO, CA 92860

TARGET PROPERTY COORDINATES

Latitude (North):	33.91512 - 33° 54' 54.43''
Longitude (West):	117.562033 - 117° 33' 43.32''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	448044.4
UTM Y (Meters):	3752692.8
Elevation:	619 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640930 CORONA NORTH, CA
Version Date:	2012

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 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.

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).

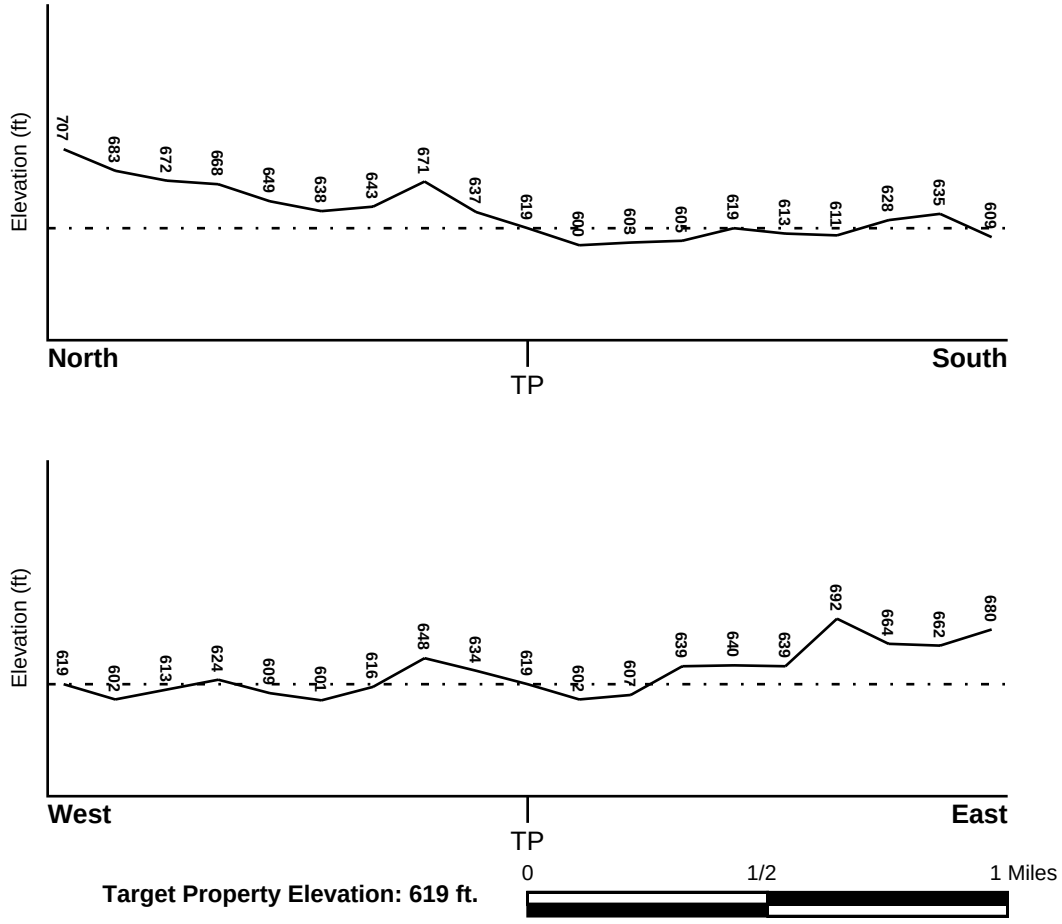
TOPOGRAPHIC INFORMATION

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 SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



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

Flood Plain Panel at Target Property	FEMA Source Type
06065C0691G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C0687G	FEMA FIRM Flood data
06065C0689G	FEMA FIRM Flood data
06071C9375H	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CORONA NORTH	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

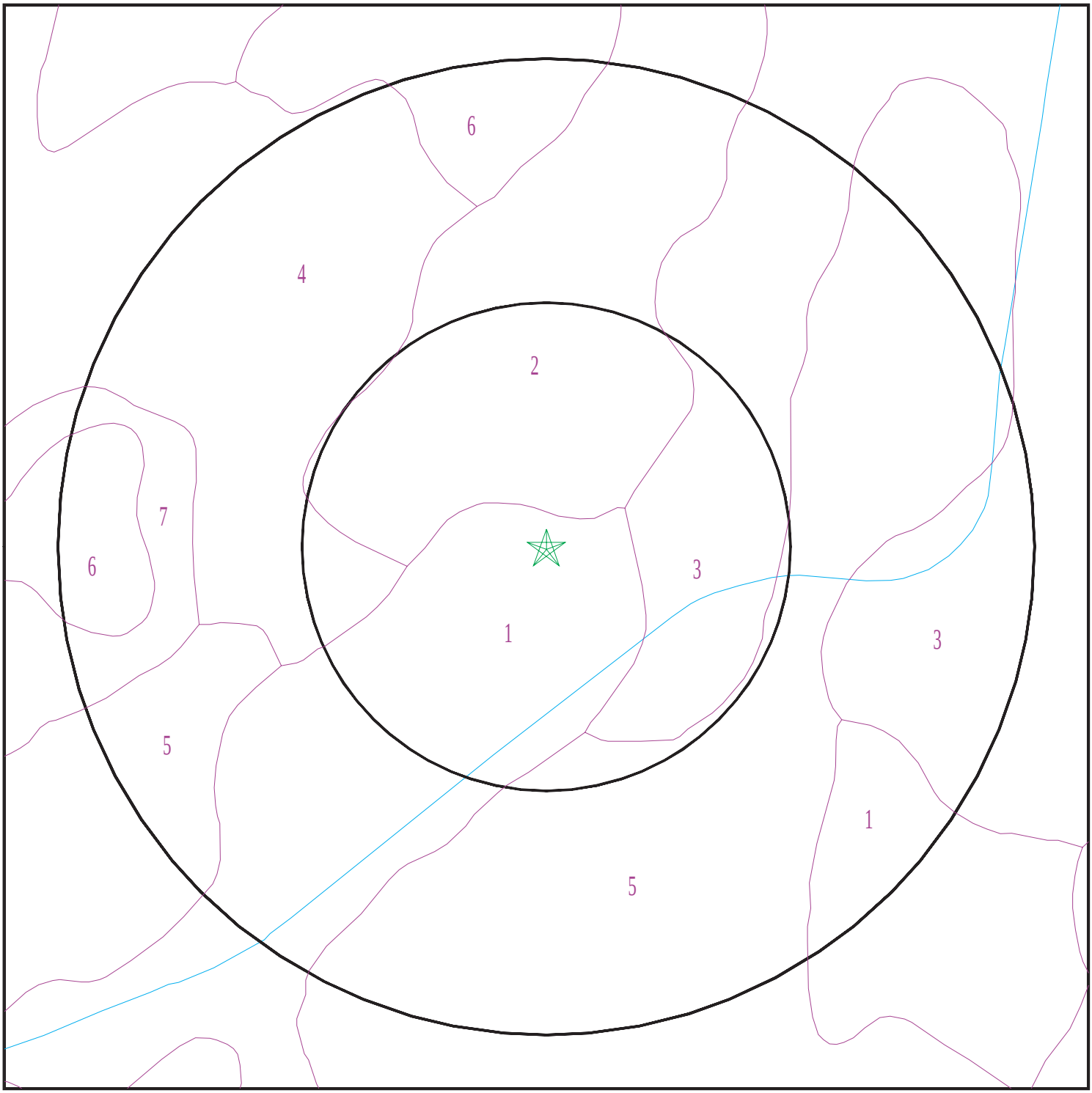
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive 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).

SSURGO SOIL MAP - 5813845.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Norco Project	CLIENT:	Geotek
ADDRESS:	2350 Hamner Avenue Norco CA 92860	CONTACT:	Anna M. Scott
LAT/LONG:	33.91512 / 117.562033	INQUIRY #:	5813845.2s
		DATE:	October 02, 2019 8:56 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: BUCHENAU

Soil Surface Texture: loam

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: Moderately 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	9 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
2	9 inches	51 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
3	51 inches	61 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: VISTA

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: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	14 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	14 inches	24 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	24 inches	27 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: 0.42 Min: 0	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 3

Soil Component Name: RAMONA

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	7 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, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	7 inches	16 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, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	16 inches	68 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: DELHI

Soil Surface Texture: fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	fine sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	9 inches	48 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	48 inches	59 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 5

Soil Component Name: PLACENTIA

Soil Surface Texture: fine sandy loam

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: Moderately well drained

Hydric Status: Partially 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	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
2	18 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
3	38 inches	57 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
4	57 inches	59 inches	gravelly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9

Soil Map ID: 6

Soil Component Name: Cieneba

Soil Surface Texture: 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: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	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:
2	14 inches	22 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:

Soil Map ID: 7

Soil Component Name: FALLBROOK

Soil Surface Texture: 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: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

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	14 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	14 inches	24 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	24 inches	27 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	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

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000138920	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

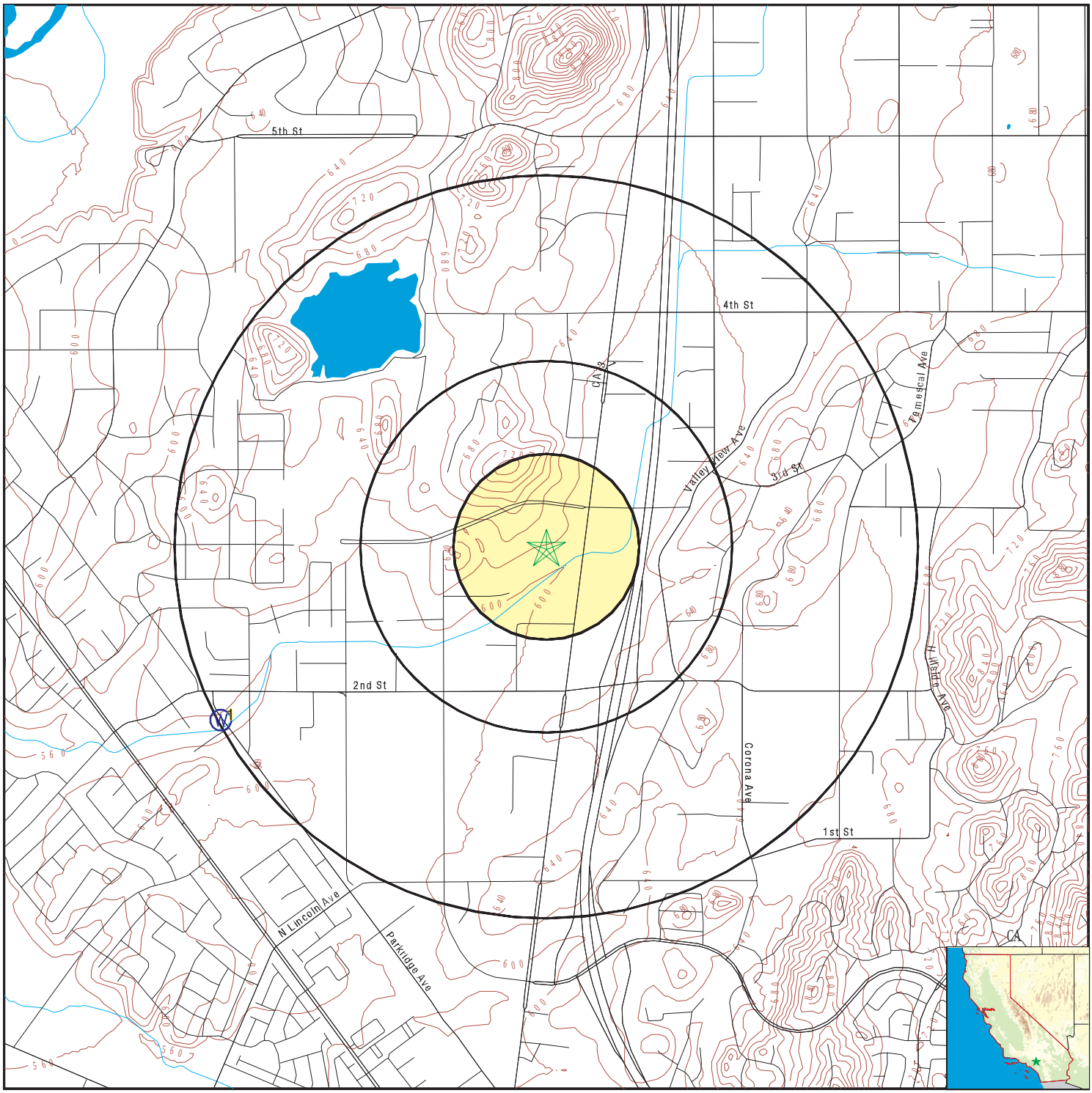
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5813845.2s



- 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
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Norco Project	CLIENT:	Geotek
ADDRESS:	2350 Hamner Avenue Norco CA 92860	CONTACT:	Anna M. Scott
LAT/LONG:	33.91512 / 117.562033	INQUIRY #:	5813845.2s
		DATE:	October 02, 2019 8:56 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
WSW
1/2 - 1 Mile
Lower | **FED USGS** | **USGS40000138920**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	003S007W14J002S	Type:	Well
Description:	Not Reported	HUC:	18070203
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	243
Well Depth Units:	ft	Well Hole Depth:	243
Well Hole Depth Units:	ft		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92860	1	0

Federal EPA Radon Zone for RIVERSIDE 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 RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

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.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

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.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

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 Service (NRCS)
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 Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, 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 Public Health
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.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
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.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
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.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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.

STREET AND ADDRESS INFORMATION

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APPENDIX E

PROJECT TEAM QUALIFICATIONS

Anna M. Scott

Project Geologist

Education

B.S., Geology, University of California, Riverside

Professional Experience

Ms. Anna Scott has over 30 years of geotechnical experience and has worked on or managed a wide range of geotechnical projects throughout southern California, including the High Desert, Inland Empire, Antelope Valley, Coachella Valley, Orange County and Bakersfield area. Her geotechnical experience has ranged from field and laboratory technician to field, staff and project geologist. Ms. Scott's responsibilities include preparation of proposals, preliminary geotechnical investigations, seismic studies, settlement monitor installation and studies, and field studies as a technician and geologist for large grading projects. Ms. Scott has performed Phase I and II ESAs for various property acquisitions and transfers throughout southern California.

Representative Project Experience

Ms. Scott has worked on numerous projects throughout southern California. Her experience includes working with various entities including the public and private sectors. Her vast knowledge includes geotechnical, environmental and materials services. This experience has been attained through small and large projects over the numerous years of her career.

Employment History

GeoTek, Inc., Riverside-Project Geologist, February 2005 – Present

GeoSoils, Inc., Santa Ana, September 1987 – February 2005

Edward H. LaMont, CEG, PG

Branch Manager

Areas of Expertise

Geotechnical Field Investigations
Grading and Earthwork Construction
Industry Standard of Care
Hillside, Liquefaction, Seismic Hazard, Fault Analyses and Forensic Studies.

Education

Bachelor of Science in Geology, Cal State University, Northridge

Registrations

Registered Geologist, PG 6025
Certified Engineering Geologist, CEG 1892

Certifications

OSHA 40-Hr HAZWOPER Training
OSHA 8-Hour Refresher
First Aid/CPR

Professional Affiliations

Association of Engineering Geologist
South Coast Geological Society
San Diego Association of Geologist
Inland Geological Society
BIA Riverside
BIA San Diego

Professional Experience

Mr. LaMont has been involved with numerous public works, residential and commercial earthwork projects within the southern California area. Many residential and public works projects have been successfully completed across southern and central California. Projects include fault and subsidence studies, fault evaluations, various commercial and residential site developments, FEMA levee certifications and military construction projects. These projects have generally included preliminary geotechnical investigations, slope stability evaluations, review and design recommendations, street improvements construction and testing services, and project management.

In addition, Mr. LaMont has performed governmental review of geotechnical reports for the County of Orange. Mr. LaMont has also completed geotechnical studies for the Riverside County Flood Control and Cities of Banning, Chino, Corona, Palm Springs, Lancaster and Victorville, to name a few.

Representative Project Experience

Project experience has included residential and commercial developments, for various land developers including Melia Homes, Meritage Homes, Frontier Enterprises, DR Horton, Integral Communities, Taylor-Morrison, Warmington Homes, Shea Homes, etc. Mr. LaMont has also completed geotechnical investigations and performed project management for numerous residential tracts and commercial facilities all across Southern California.

Professional History

Branch Manager/Principal Geologist - Riverside GeoTek, Inc., 2004 to present

Vice President, Principal Geologist - GeoSoils, Inc., Santa Ana, 2003 to 2004

Geotechnical Reviewer, Engineering Geologist - County of Orange, 2001 to 2003.

Project Geologist - GeoSoils, Inc., Santa Ana, California, 1994 to 2001.

Staff/Project Geologist - GeoSoils, Inc., Carlsbad, California, 1988 to 1994.

J. MICHAEL BATTEN, CAC, CEM, REPA

Principal/Environmental Services Manager

Education

BS in Geology, California State University, Fresno 1988

Registrations

- Certified Asbestos Consultant (CA #95-1721)
- Licensed Asbestos Abatement Consultant (NV #IJPM0655)
- Certified Environmental Manager (NV #1782)
- Asbestos Professional Inspector (IL #100-11092)
- Registered Environmental Property Assessor (#113162))
- Certified Lead Inspector Assessor (CA #4358)
- Certified Lead Inspector (EPA #LBP-I-1162326-1)
- Certified Lead Risk Assessor (EPA #LBP-R-1162326-1)

Certifications

- AHERA Certified Asbestos Building Inspector, Management Planner, Project Designer, & Contractor/Supervisor
- EPA Accredited Lead-based Paint Inspector & Risk Assessor
- OSHA HAZWOPER certified worker & supervisor
- OSHA Construction Safety & Health (10-Hour)

Affiliations

- American Society of Testing and Materials
- National Registry of Environmental Professionals

Professional Experience

Mr. Batten has over 30 years of environmental experience, throughout which he has conducted and managed numerous environmental investigations, assessments, and remediations. He has prepared several NEPA assessments, USEPA EIS, and CEQA EIR reports. In addition, Mr. Batten has extensive experience in conducting asbestos and lead-based paint surveys and preparing management plans, including remediation design, for asbestos and lead present in buildings.

Project Experience

- **Phase I Environmental Site Assessments:** Mr. Batten has conducted more than 2,000 Phase I Environmental Site Assessments in 27 states, including Brownfield studies under USEPA grants.
- **Phase II Environmental Site Assessments:** Mr. Batten has conducted more than 150 Phase II Environmental Assessments, including Brownfield studies under USEPA grants.
- **Site Characterizations and Remediations:** Mr. Batten has experience conducting numerous site characterizations and remediations, including obtaining regulatory closure.
- **NEPA Studies:** Mr. Batten has conducted more than 200 NEPA studies, including Environmental Assessments, Environmental Impact Reports/Environmental Impact Studies, in eight states. The agencies involved include USEPA, FCC, BLM, National Park Service, and California EPA.
- **Asbestos Services:** Mr. Batten has conducted over 600 asbestos surveys in several states. He has also prepared numerous Asbestos Management Plans, prepared design plans, and monitored numerous abatement projects.
- **Lead-Based Paint Services:** Mr. Batten has conducted numerous Lead-Based Paint surveys.
- **Landfills**: Mr. Batten has conducted investigations and overseen remediations on landfills in Fresno, California and Henderson, Nevada.
- **Other Services:** Mr. Batten has been called upon to conduct less usual services on occasion, including mold consultation and investigation, radon studies, vapor intrusion studies, and indoor air quality studies.

J. MICHAEL BATTEN, continued…

Professional History

Environmental Services Manager. GeoTek, Inc., 2001 to present.

Director of Environmental Services. ATC Associates, Inc., 1999 to 2001.

Director of Operations. Hygienetics Environmental Services, Inc., 1997 to 1999.

Project Manager. AllWest Environmental, Inc., 1996 to 1997.

Project Manager. Citadel Environmental Services, Inc., 2/1996 to 9/1996.

Project Manager. Boelter Environmental consultants, 3/1995 to 9/1995.

Senior Staff Geologist. Converse Consultants, 1992 to 1995.

Staff Geologist. Converse Environmental West, 1991 to 1992.

Project Geologist. Krazan and Associates, 1990 to 1991.

Environmental Technician. Krazan and Associates, 1989 to 1990.

National Registry of Environmental Professionals

For

Environmental Certifications

This is to Certify that

Michael J Batten

having sucessfully demonstrated to the Academic Board of this organization the required level of knowledge and ability, is here by awarded the distinction of

Registered Environmental Property Assessor

together with all rights, benefits and privileges attached thereto and that the name and title of the aforementioned registrant is today placed upon the register of the organization.

Given under our hands on this 15 day of June, 2013.

Richard A Young

Executive Director

NREP

113162

Registrant Number

This Certificate is the property of the National Registry of Environmental Professionals and must, upon demand, be returned.

United States Environmental Protection Agency

This is to certify that

J M Batten

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires March 14, 2022

LBP-I-I162326-2

Certification #

December 08, 2018

Issued On

Adrienne Priselac, Manager, Toxics Office

Land Division

United States Environmental Protection Agency

This is to certify that

J M Batten

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires March 14, 2022

LBP-R-I162326-2

Certification #

December 08, 2018

Issued On

Adrienne Priselac, Manager, Toxics Office

Land Division

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

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
http://www.dir.ca.gov/dirdatabases.html actu@dir.ca.gov

505011721C 109 115

August 23, 2018

J. Michael Batten
8240 Edmond Street
Las Vegas NV 89139

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached (Revised 10/24/2012)

California Department of
PublicHealth
CDPH

Mr. J. Michael Batten
GeoTek, Inc.
6835 S. Escondido Street
Las Vegas, Nevada 89119

IDPH
ILLINOIS DEPARTMENT OF PUBLIC HEALTH

525-535 West Jefferson Street • Springfield, Illinois 62761-0001 • www.dph.illinois.gov

MICHAEL BATTEN
8240 EDMOND STREET
LAS VEGAS, NV 89139

4/5/2018

ASBESTOS PROFESSIONAL LICENSE ID NUMBER: 11092

Enclosed is your Asbestos Professional License. Please note the expiration date on the card and in the image depicted below.

COPY OF THE ASBESTOS PROFESSIONAL LICENSE

Front of License

IDPH

ASBESTOS PROFESSIONAL LICENSE

ID NUMBER	ISSUED	EXPIRES
100 - 11092	**4/5/2018**	05/15/2019

MICHAEL BATTEN
8240 EDMOND STREET
LAS VEGAS, NV 89139
Environmental Health

Back of License

ENDORSEMENTS	TC EXPIRES
INSPECTOR	3/20/2019

Alteration of this license shall result in legal action
This license issued under authority of the State of Illinois Department of Public Health
This license is valid only when accompanied by a valid training course certificate.

If you have any questions or need further assistance, contact the Asbestos Program at (217)782-3517 or fax (217)785-5897.

Our WEB address is: dph.illinois.gov/topics-services/environmental-health-protection/asbestos
EMAIL Address: dph.asbestos@illinois.gov

State of Nevada

Department of Conservation and Natural Resources

Division of Environmental Protection

This is to certify that

Michael J Batten

having given satisfactory evidence of the necessary qualifications as required by the Nevada Revised Statute 459.400 to 459.600, inclusive, and Nevada Administrative Code 459.970 to 459.9729, inclusive, has been granted certification as a

Environmental Manager

in the State of Nevada

In testimony whereof, witness the signature of the Administrator and the Seal of the State of Nevada.

1782

Certification Number

Greg Lovato, Administrator

8/31/2021

Expiration Date

State of Nevada Department of Business & Industry

Industrial Relations (DIR)

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That J. Michael Batten
Geotek Insite Inc.
is Licensed As Asbestos Abatement Consultant

License No. IJ-655 Expiration Date 09/12/2019

Signature Of Licensee J. Michael Batten

2019

OCCUPATIONAL TRAINING & SUPPLY, INC.
7233 S. Adams Street • Willowbrook, IL 60527 • (630) 655-3900 • www.otssafety.com

Asbestos Building Inspector Refresher

Occupational Training & Supply, Inc. certifies that

Michael Batten

has successfully completed the Asbestos Building Inspector Refresher course and has passed the competency exam with a minimum score of 70%. The course is accredited by the Illinois Department of Public Health and Indiana Department of Environmental Management for purposes of accreditation in accordance with EPA 40 CFR 763, Asbestos Hazard Emergency response Act (AHERA) and TSCA Title II.

Course Date: 3/19/2019

Exam Date: 3/19/2019

Expiration Date: 3/19/2020

Certificate Number: BIR1903190998

Kathy DeSalvo, Director

OSHA 002340551

U.S. Department of Labor
Occupational Safety and Health Administration

Michael Batten

has successfully completed a 10-hour Occupational Safety and Health Training Course in

Construction Safety & Health

Kenner Costen (Trainer)

12/12/09 (Date)

M & C Environmental Training

Asbestos Inspector
Refresher Training Course

Michael Batten

Has successfully completed the Asbestos Inspector Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 528 - 1388

Course Approval Number: CA-003-96

Location: Oakland, California — Expiration: March 7, 2020

Dates: March 7, 2019

Director of Training: John McGinnis

Certificate Number 45383 IR

M & C Environmental Training

Asbestos Management Planner
Refresher Training Course

Michael Batten

Has successfully completed the Asbestos Management Planner Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7, Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training Inc., 1619 Beverly Place, Berkeley, California. Tel. # (510) 528 - 1388

Course Approval Number: CA-003-08

Location: Oakland, California — Expiration: March 7, 2020

Dates: March 7, 2019

Director of Training: John McGinnis

Certificate Number 45396 PR

M&C Environmental Training

Asbestos Project Designer
Refresher Training Course

J. Michael Batten

has successfully completed the Asbestos Project Designer Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 528 - 1388

Course Approval Number: CA-003-10

Location: Oakland, California — Expiration: September 12, 2019

Dates: September 12, 2018

Director of Training: John McGinnis

Certificate Number 44440 DR

M&C Environmental Training

Asbestos Contractor/Supervisor
Refresher Training Course

J. Michael Batten

has successfully completed the Asbestos Contractor/Supervisor Refresher course approved by the California Division of Occupational Safety and Health for purposes of certification required by Title 8, Article 2.7 Chapter 3.2, Section 341.16 and the accreditation required under the Toxic Substances Control Act, Title II. Conducted by M&C Environmental Training, Inc., 1619 Beverly Place, Berkeley, California 94707. Tel. #(510) 528 - 1388

Course Approval Number: CA-003-04

Location: Oakland, California — Expiration: September 14, 2019

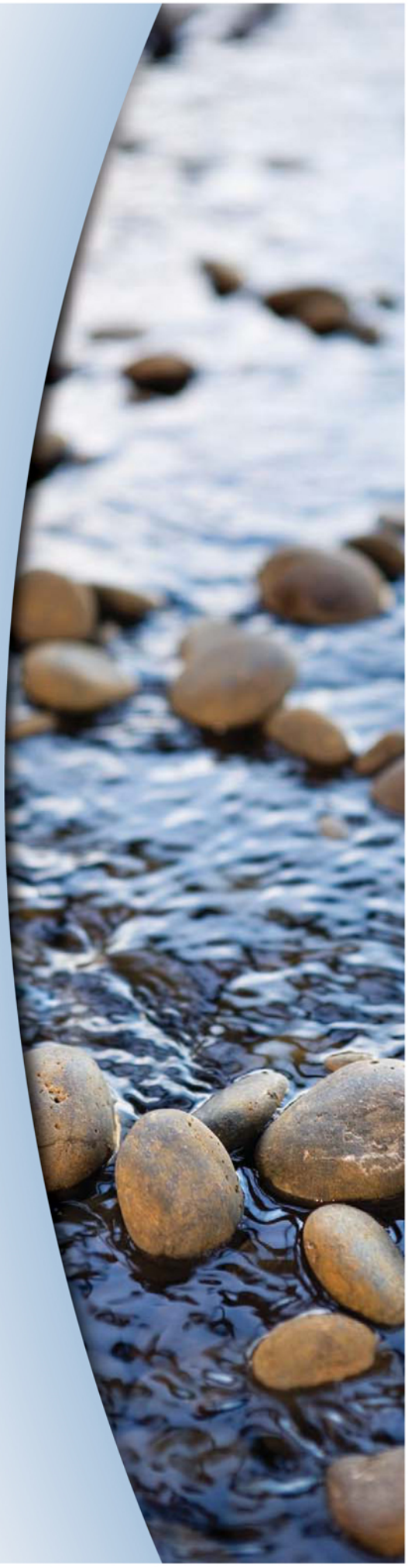
Dates: September 14, 2018

Director of Training: John McGinnis

Certificate Number 44478 SR

Appendix I

Preliminary Hydrology Study



PRELIMINARY HYDROLOGY STUDY

NORCO VALLEY SQUARE MIXED USE DEVELOPMENT

APN: 126-050-002, 004 & 129-380-010
HAMNER AVENUE & THIRS ST.
Norco, California

Prepared For

FRONTIER COMMUNITIES
215 EAST CONVENTION CENTERWAY,
SUITE114
ONTARIO, CA 91764

Prepared By

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Date Prepared: April 2020

Job Number: 1655.003

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1.0 INTRODUCTION

1.1 GEOGRAPHIC SETTING

The Study area consists of a proposed 19.1acres mixed use development located southwest of Hamner Avenue and Third Street in the City Norco, County of Riverside and the state of California. Currently the project lies within three parcels with APNs: *126-050-002, 126-050-004 and 129-380-010*. Its latitude and longitude are *33.9153*° and *-117.562*° respectively.

1.2 PURPOSE OF THIS REPORT

The purpose of this report is to accomplish the following objectives:

To determine the storm water runoff discharges generated within local drainage areas for pre-developed and post-developed conditions (see Appendix 2).

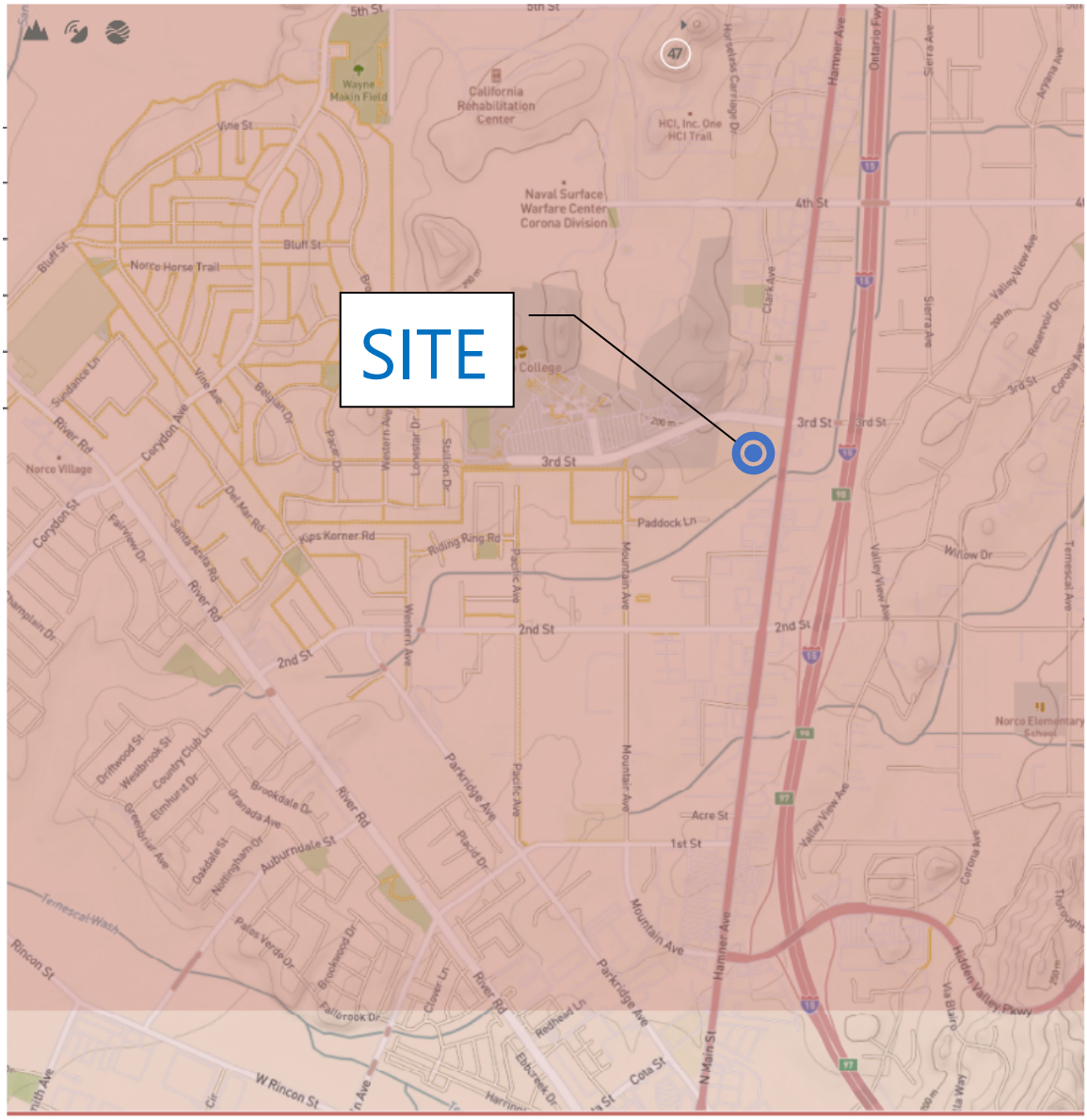
To identify the increased peak flow rates from proposed development on the downstream end of the site. Storms to be studied include the 1-hour, 3-hour, 6-hour, and 24-hour duration events for the 2-year, 5-year and 10-year return frequencies (see Appendix 3 and 4).

To support the design of underground detention basins which will mitigate post-development increased peak discharge. For the purpose of the Preliminary hydrology analysis, only preliminary sizing is needed, which would be based on the maximum volume obtained from the difference in volume between "pre-developed" and "post-developed" conditions out of all the duration and return frequency as mentioned earlier.

1.3 REFERENCES

- Riverside County Flood Control and Water Conservation District Hydrology Manual.
- Conceptual Grading Plan.

1.4 PROJECT SITE LOCATION MAP



Source: USGS Maps

2.0 EXISTING TOPOGRAPHIC & HYDROLOGIC CONDITIONS

2.1 EXISTING TOPOGRAPHY

Currently one of the parcels used as RV-Retail shop with retail building, RV parking and paved driving aisle. The other two are parcels are vacant, poorly covered with weeds and scattered shrubs and trees. The site is bounded by 3rd street on north, Hamner Avenue on east, North Norco Channel and residential housing on south and Norco community college on the west. Third Street and Hamner Avenue are improved streets with existing curb and gutter. The elevation of the middle of the project boundary is higher than its surrounding areas and the terrain is sheet flowing towards all direction. The terrain on west beyond its property boundary has gradual rise and thereby the project receives runoff from the west.

2.2 EXISTING DRAINAGE PATTERN

The site drainage presently sheet flowing partly to the north into 3rd street, to the east into Hamner Avenue and mostly toward south into the existing concrete lined North Norco Channel. The site also receives runoff from northwesterly land of approximately 4.4 acres and sheet flows southeasterly into the aforementioned North Norco Channel. The drainage from 3rd street and Hamner avenue ultimately drain into the North Norco Channel which flows southwesterly and parallel to the project southerly boundary and leave the site at southwesterly corner of the project boundary.

2.3 EXISTING STORM DRAIN FACILITIES

Presently, North Norco Channel, a 40 feet wide concrete lined trapezoidal drainage channel running southwesterly direction along the project southwesterly boundary which ultimately drain into Santa Ana River near Corona Municipal airport. The entire project site and northwesterly off-site area ultimately drain into North Norco Channel.

2.4 EXISTING CONDITIONS

3.0 PROPOSED STORM DRAIN FACILITIES

3.1 UNDERGROUND DETENTION BASINS

Four (4) underground detention basins, with its catch basins, will detain the difference in runoff hydrograph volume between the "developed" condition, and the "pre-developed" condition. for the 24-hour duration event for the 10-year return frequency, per Riverside County Flood Control and Conservation District requirement.

Proprietary Detention Systems has been proposed to be used as the underground detention basins. Result of the sizing calculation can be found in Appendix 5. 100-year storm runoff shall bypass the detention basins and flow into the existing concrete drainage ditch through properly sized storm drain line within the site. Structural details of the design of the proposed detention basins will be address in the final precise grading plans and final hydrology/hydraulic study.

3.2 CATCH BASINS

Several drop inlets catch basins are strategically placed at sump locations along the drive aisle and other locations to capture the runoff for the site. Catch basins will be designed and sized to capture 100-year storm with minimum ponding.

3.3 STORM DRAIN SYSTEM

A separate underground storm drain system has been proposed to capture the offsite runoff draining from westerly and northwesterly property beyond the project boundary. This system will carry the offsite runoff and drain directly into the existing North Norco Channel. This storm drain line will be sized to carry 100-year storm event. There will be other onsite pipes which will convey drainage from the proposed onsite catch basins into the proposed underground detention basins. Details and specifications of the proposed pipes are outside the scope of this preliminary study. These pipes will be sized to able to convey 25-year storm.

4.0 HYDROLOGY STUDY (LOCAL STORM DRAINS)

4.1 STORM FREQUENCY

This study is intended to determine "local" discharges for use in the design of underground detention basins, storm drainpipes. Riverside County Flood Control and Water Conservation District requires that, as part of this preliminary hydrology, analysis will include the 1-hour, 3-hour, 6-hour, and 24-hour duration events for the 2-year, 5-year, and 10-year return frequencies. In addition, detention basins and outlet sizing will ensure that none of these storm events has a higher peak discharge in the post-development condition than in the pre-development condition.

4.2 METHODOLOGY

This study was prepared in conformance with the Riverside County Hydrology Manual. CIVILCADD/CIVILDESIGN Engineering Software, Version 7.1 was utilized to compile the storm discharge generated by the Rational Method. Storm volumes were generated by said software Unit Hydrograph module. Results of the analysis are included in this report as Appendices 1 thru 4.

5.0 HYDRAULIC REPORT (ANALYSIS OF THE STORM DRAINPIPE)

5.1 HYDRAULIC REPORT

The discharges for this analysis were determined by Rational Method analysis included in this report as Appendix 2.

5.2 STORM FREQUENCY

Consistent with the design criteria set forth in Section 3.3 of this report, storm frequency of 100-year was used.

5.3 METHODOLOGY

No separate hydraulic calculation was performed to size these pipes at this preliminary report. However, the preliminary sizing of the proposed pipe system was analyzed as we calculate the Rational Method Analysis for each drainage basins using CIVILCADD/CIVILDESIGN Engineering Software. (See Appendix 2, Rational Method Post-Development)

6.0 CATCH BASIN SIZING

6.1 STORM FREQUENCY

Consistent with the design criteria set forth in Section 3.2 of this report, storm frequency of 100-year would be used.

7.0 RESULTS AND CONCLUSIONS

The purpose of this preliminary drainage analysis is to identify the need of keeping the post-development runoff volume the same as the pre-development condition by utilizing detention basin(s). Riverside County Flood Control District and Water Conservation District, for the purpose of reviewing the preliminary engineering design, requires that the difference in runoff hydrograph volume between the "Post-developed" condition and the "Pre-developed" condition for the 24-hour duration for the 10-year return frequency be detained on-site. The rainfall volume for the pre-developed condition is 104,923 C.F. The rainfall volume for developed condition is 269,716 C.F. Hence the volume which has to be detained on site is 164,793 C.F.

The proposed project will be a mixed-use development with a commercial site, a hotel and a system of apartment complexes. As the management and maintenance of these three uses will be separate, thus it is proposed that these sites will have separate Underground Detention facilities. For simplification it is proposed that the total volume of these detention facilities will be equal to or more than 164,793 CF and each site will store the prorated volume based on the site area and its respective imperviousness. Based on these criteria the detention volume of each site will be as follows:

Commercial site will detain 46,658 CF (#1)

Hotel site will detain 22,833 CF (#2)

Apartment site will have two underground detention system:

40,592 CF (#3) and 54,710 CF (#4)

100-year storm will bypass these underground basins and flow into the existing southerly Concrete Drainage Ditch. The location of these detention basins can be found on the enclosed Unit Hydrograph exhibit in Appendix 8. The sizing calculation can be found in Appendix 5.

The analysis also concludes that drainage for the whole site can be directed effectively into the proposed underground detention basins via drop inlets. Preliminary on-site storm drainpipes and inlets have been identified to capture the runoff for the post-development condition.

8.0 APPENDICES

Appendix 1 Pre-Development Rational Method Results for 100-Year.

Appendix 2 Post-Development Rational Method Results for 100-Year.

Appendix 3 Pre-Development Unit Hydrograph Volume Results

Appendix 4 Post-Development Unit Hydrograph Volume Results

Appendix 5 Detention Basin Sizing Calculation.

Appendix 6 Hydrology Exhibit: Pre-Development

Appendix 7 Hydrology Exhibit: Post-Development

Appendix 8 Unit Hydrograph and Detention Basin Exhibit

Appendix 9 Supporting Data: NOAA precipitation, NRCS Hydrologic Soil Map

APPENDIX 1

RATIONAL METHOD HYDROLOGY CALCULATION (100-YEAR EVENT) PRE-DEVELOPMENT

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 04/10/20 File:1655003RATPRE.out

---

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
100 YEAR
FUSCOE ENGINEERING INC

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6049

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Norco] area used.
10 year storm 10 minute intensity = 1.960(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

++

Process from Point/Station 1.010 to Point/Station 1.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 645.000(Ft.)
Bottom (of initial area) elevation = 607.500(Ft.)
Difference in elevation = 37.500(Ft.)
Slope = 0.03750 s(percent)= 3.75
TC = k(0.390)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.920 min.
Rainfall intensity = 2.692(In/Hr) for a 100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.840
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.850

```
Decimal fraction soil group C = 0.150
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  76.36
Pervious area fraction =  0.500; Impervious fraction =  0.500
Initial subarea runoff =      6.379(CFS)
Total initial stream area =        2.820(Ac.)
Pervious area fraction = 0.500


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.020 to Point/Station        1.030
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     10.965(CFS)
Depth of flow =   0.452(Ft.), Average velocity =   3.280(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.60
        2              0.13              0.00
        3              2.00              0.13
        4             44.00              0.97
Manning's 'N' friction factor =   0.015
------------------------------------------------------------------
Sub-Channel flow  =     10.965(CFS)
  '     '        flow top width =     18.082(Ft.)
  '     '    velocity=    3.280(Ft/s)
  '     '        area =      3.343(Sq.Ft)
  '     '        Froude number =     1.344

Upstream point elevation =   607.500(Ft.)
Downstream point elevation =   601.800(Ft.)
Flow length =   533.000(Ft.)
Travel time  =    2.71 min.
Time of concentration =   14.63 min.
Depth of flow =   0.452(Ft.)
Average velocity =   3.280(Ft/s)
Total irregular channel flow =    10.965(CFS)
Irregular channel normal depth above invert elev. =   0.452(Ft.)
Average velocity of channel(s) =   3.280(Ft/s)
 Adding area flow to channel
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.851
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.340
Decimal fraction soil group C = 0.660
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  81.66
Pervious area fraction =  0.500; Impervious fraction =  0.500
Rainfall intensity =      2.430(In/Hr) for a   100.0 year storm
Subarea runoff =      9.117(CFS) for      4.410(Ac.)
Total runoff =     15.496(CFS)  Total area =       7.230(Ac.)
Depth of flow =   0.504(Ft.), Average velocity =   3.572(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.020 to Point/Station        1.030
**** CONFLUENCE OF MAIN STREAMS ****
```

The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area = 7.230(Ac.)
Runoff from this stream = 15.496(CFS)
Time of concentration = 14.63 min.
Rainfall intensity = 2.430(In/Hr)
Program is now starting with Main Stream No. 2

++
Process from Point/Station 2.010 to Point/Station 2.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 580.000(Ft.)
Top (of initial area) elevation = 647.000(Ft.)
Bottom (of initial area) elevation = 600.800(Ft.)
Difference in elevation = 46.200(Ft.)
Slope = 0.07966 s(percent)= 7.97
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.205 min.
Rainfall intensity = 2.777(In/Hr) for a 100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.858
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.800
Decimal fraction soil group C = 0.200
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 90.76
Pervious area fraction = 1.000; Impervious fraction = 0.000
Initial subarea runoff = 11.294(CFS)
Total initial stream area = 4.740(Ac.)
Pervious area fraction = 1.000

++
Process from Point/Station 2.010 to Point/Station 2.020
**** CONFLUENCE OF MAIN STREAMS ****

The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area = 4.740(Ac.)
Runoff from this stream = 11.294(CFS)
Time of concentration = 11.20 min.
Rainfall intensity = 2.777(In/Hr)
Program is now starting with Main Stream No. 3

++
Process from Point/Station 3.010 to Point/Station 3.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 653.200(Ft.)
Bottom (of initial area) elevation = 604.000(Ft.)
Difference in elevation = 49.200(Ft.)
Slope = 0.04920 s(percent)= 4.92
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.342 min.

```
Rainfall intensity =      2.373(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.843
Decimal fraction soil group A = 0.080
Decimal fraction soil group B = 0.920
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  89.27
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      9.383(CFS)
Total initial stream area =        4.690(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.020 to Point/Station        3.030
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     17.251(CFS)
Depth of flow =   0.249(Ft.), Average velocity =   2.311(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.30
        2             37.00              0.00
        3             72.00              0.30
Manning's 'N' friction factor =   0.011
------------------------------------------------------------------
Sub-Channel flow  =     17.251(CFS)
  '     '        flow top width =     59.865(Ft.)
  '     '    velocity=    2.311(Ft/s)
  '     '        area =      7.466(Sq.Ft)
  '     '        Froude number =     1.153

Upstream point elevation =   604.000(Ft.)
Downstream point elevation =   602.000(Ft.)
Flow length =   426.000(Ft.)
Travel time  =    3.07 min.
Time of concentration =   18.41 min.
Depth of flow =   0.249(Ft.)
Average velocity =   2.311(Ft/s)
Total irregular channel flow =    17.251(CFS)
Irregular channel normal depth above invert elev. =   0.249(Ft.)
Average velocity of channel(s) =   2.311(Ft/s)
 Adding area flow to channel
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.830
Decimal fraction soil group A = 0.280
Decimal fraction soil group B = 0.720
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  87.95
Pervious area fraction =  1.000; Impervious fraction =  0.000
Rainfall intensity =      2.166(In/Hr) for a   100.0 year storm
Subarea runoff =     15.677(CFS) for      8.720(Ac.)
Total runoff =     25.061(CFS)  Total area =      13.410(Ac.)
Depth of flow =   0.287(Ft.), Average velocity =   2.537(Ft/s)
```

++
Process from Point/Station 3.020 to Point/Station 3.030
**** CONFLUENCE OF MAIN STREAMS ****
_____

The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area = 13.410(Ac.)
Runoff from this stream = 25.061(CFS)
Time of concentration = 18.41 min.
Rainfall intensity = 2.166(In/Hr)
Summary of stream data:

Stream No.	Flow rate (CFS)	TC (min)	Rainfall Intensity (In/Hr)
1	15.496	14.63	2.430
2	11.294	11.20	2.777
3	25.061	18.41	2.166

Largest stream flow has longer time of concentration
Qp = 25.061 + sum of

Qb	Ia/Ib	
15.496 *	0.891 =	13.811
Qb	Ia/Ib	
11.294 *	0.780 =	8.810

Qp = 47.681

Total of 3 main streams to confluence:
Flow rates before confluence point:
15.496 11.294 25.061
Area of streams before confluence:
7.230 4.740 13.410

Results of confluence:
Total flow rate = 47.681(CFS)
Time of concentration = 18.415 min.
Effective stream area after confluence = 25.380(Ac.)
End of computations, total study area = 25.38 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.858
Area averaged RI index number = 72.5

APPENDIX 2

RATIONAL METHOD HYDROLOGY CALCULATION (100-YEAR EVENT) POST-DEVELOPMENT

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 04/14/20 File:1655003RATPOST1.out

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NORCO VALLEY SQUARE MIXED USE
POST DEVELOPMENT BASIN 1
100 YEAR
FUSCOE ENGINEERING

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6049

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Norco] area used.
10 year storm 10 minute intensity = 1.960(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

++

Process from Point/Station 1.010 to Point/Station 1.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 1000.000(Ft.)
Top (of initial area) elevation = 645.000(Ft.)
Bottom (of initial area) elevation = 607.500(Ft.)
Difference in elevation = 37.500(Ft.)
Slope = 0.03750 s(percent)= 3.75
TC = k(0.370)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.308 min.
Rainfall intensity = 2.764(In/Hr) for a 100.0 year storm
CONDOMINIUM subarea type
Runoff Coefficient = 0.862
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.700

```
Decimal fraction soil group C = 0.300
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  77.92
Pervious area fraction =  0.350; Impervious fraction =  0.650
Initial subarea runoff =      3.670(CFS)
Total initial stream area =        1.540(Ac.)
Pervious area fraction = 0.350


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.020 to Point/Station        1.030
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      5.383(CFS)
Depth of flow =   0.365(Ft.), Average velocity =   2.757(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.60
        2              0.13              0.00
        3              2.00              0.13
        4             44.00              0.97
Manning's 'N' friction factor =   0.015
------------------------------------------------------------------
Sub-Channel flow  =      5.383(CFS)
  '     '        flow top width =     13.686(Ft.)
  '     '    velocity=    2.757(Ft/s)
  '     '        area =      1.953(Sq.Ft)
  '     '        Froude number =     1.286

Upstream point elevation =   607.500(Ft.)
Downstream point elevation =   601.800(Ft.)
Flow length =   533.000(Ft.)
Travel time  =    3.22 min.
Time of concentration =   14.53 min.
Depth of flow =   0.365(Ft.)
Average velocity =   2.757(Ft/s)
Total irregular channel flow =     5.383(CFS)
Irregular channel normal depth above invert elev. =   0.365(Ft.)
Average velocity of channel(s) =   2.757(Ft/s)
 Adding area flow to channel
CONDOMINIUM subarea type
Runoff Coefficient = 0.870
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.070
Decimal fraction soil group C = 0.930
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  83.85
Pervious area fraction =  0.350; Impervious fraction =  0.650
Rainfall intensity =      2.438(In/Hr) for a   100.0 year storm
Subarea runoff =      3.373(CFS) for      1.590(Ac.)
Total runoff =      7.043(CFS)  Total area =       3.130(Ac.)
Depth of flow =   0.395(Ft.), Average velocity =   2.943(Ft/s)
End of computations, total study area =            3.13 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.350
```

Area averaged RI index number = 64.1

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 04/14/20 File:1655003RATPOST2.out

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NORCO VALLEY SQUARE MIXED USE
POST DEVELOPMENT BASIN 2
100 YEAR
FUSCOE ENGINEERING

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6049

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Norco] area used.
10 year storm 10 minute intensity = 1.960(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

++

Process from Point/Station 2.010 to Point/Station 2.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 687.000(Ft.)
Top (of initial area) elevation = 621.600(Ft.)
Bottom (of initial area) elevation = 613.300(Ft.)
Difference in elevation = 8.300(Ft.)
Slope = 0.01208 s(percent)= 1.21
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.896 min.
Rainfall intensity = 2.955(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000

```
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      6.797(CFS)
Total initial stream area =        2.590(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.010 to Point/Station        2.030
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      2.590(Ac.)
Runoff from this stream =      6.797(CFS)
Time of concentration =    9.90 min.
Rainfall intensity =     2.955(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.020 to Point/Station        2.030
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   582.000(Ft.)
Top (of initial area) elevation =   615.000(Ft.)
Bottom (of initial area) elevation =   609.000(Ft.)
Difference in elevation =     6.000(Ft.)
Slope =    0.01031  s(percent)=       1.03
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.560 min.
Rainfall intensity =      3.006(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.892
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.310
Decimal fraction soil group C = 0.690
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  81.98
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      5.631(CFS)
Total initial stream area =        2.100(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.020 to Point/Station        2.030
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.100(Ac.)
Runoff from this stream =      5.631(CFS)
Time of concentration =    9.56 min.
Rainfall intensity =     3.006(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)
```

```
1        6.797      9.90                2.955
2        5.631      9.56                3.006
Largest stream flow has longer time of concentration
Qp =      6.797 + sum of
          Qb         Ia/Ib
           5.631 *    0.983 =      5.535
Qp =     12.331

Total of 2 main streams to confluence:
Flow rates before confluence point:
       6.797       5.631
Area of streams before confluence:
        2.590        2.100


Results of confluence:
Total flow rate =     12.331(CFS)
Time of concentration =     9.896 min.
Effective stream area after confluence  =      4.690(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.030 to Point/Station        2.070
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   600.000(Ft.)
Downstream point/station elevation =   595.500(Ft.)
Pipe length  =   456.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.331(CFS)
Given pipe size =     18.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     2.916(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      6.282(Ft.)
 Minor friction loss =      1.134(Ft.)  K-factor =   1.50
Pipe flow velocity =      6.98(Ft/s)
Travel time through pipe =    1.09 min.
Time of concentration (TC) =    10.99 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.030 to Point/Station        2.070
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      4.690(Ac.)
Runoff from this stream =     12.331(CFS)
Time of concentration =   10.99 min.
Rainfall intensity =     2.804(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.040 to Point/Station        2.060
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   480.000(Ft.)
```

```
Top (of initial area) elevation =   640.500(Ft.)
Bottom (of initial area) elevation =   607.500(Ft.)
Difference in elevation =    33.000(Ft.)
Slope =    0.06875  s(percent)=       6.88
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   10.698 min.
Rainfall intensity =      2.842(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.839
Decimal fraction soil group A = 0.500
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  86.50
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      4.456(CFS)
Total initial stream area =        1.870(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.040 to Point/Station        2.060
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      1.870(Ac.)
Runoff from this stream =      4.456(CFS)
Time of concentration =   10.70 min.
Rainfall intensity =     2.842(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.050 to Point/Station        2.060
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   710.000(Ft.)
Top (of initial area) elevation =   653.200(Ft.)
Bottom (of initial area) elevation =   607.500(Ft.)
Difference in elevation =    45.700(Ft.)
Slope =    0.06437  s(percent)=       6.44
TC = k(0.530)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.678 min.
Rainfall intensity =      2.611(In/Hr) for a   100.0 year storm
UNDEVELOPED (poor cover) subarea
Runoff Coefficient = 0.847
Decimal fraction soil group A = 0.100
Decimal fraction soil group B = 0.900
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  89.14
Pervious area fraction =  1.000; Impervious fraction =  0.000
Initial subarea runoff =      5.530(CFS)
Total initial stream area =        2.500(Ac.)
Pervious area fraction = 1.000


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.050 to Point/Station        2.060
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
```

```
Along Main Stream number: 2 in normal stream number 2
Stream flow area =      2.500(Ac.)
Runoff from this stream =      5.530(CFS)
Time of concentration =   12.68 min.
Rainfall intensity =     2.611(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        4.456     10.70                2.842
2        5.530     12.68                2.611
Largest stream flow has longer time of concentration
Qp =      5.530 + sum of
          Qb         Ia/Ib
           4.456 *    0.919 =      4.094
Qp =      9.623

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.456       5.530
Area of streams before confluence:
        1.870        2.500
Results of confluence:
Total flow rate =      9.623(CFS)
Time of concentration =    12.678 min.
Effective stream area after confluence =      4.370(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.060 to Point/Station        2.070
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   599.100(Ft.)
Downstream point/station elevation =   595.500(Ft.)
Pipe length  =   363.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.623(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     9.623(CFS)
Normal flow depth in pipe =   13.59(In.)
Flow top width inside pipe =   15.48(In.)
Critical Depth =   14.37(In.)
Pipe flow velocity =      6.72(Ft/s)
Travel time through pipe =    0.90 min.
Time of concentration (TC) =    13.58 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.060 to Point/Station        2.070
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      4.370(Ac.)
Runoff from this stream =      9.623(CFS)
Time of concentration =   13.58 min.
Rainfall intensity =     2.522(In/Hr)
Summary of stream data:
```

```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       12.331     10.99                2.804
2        9.623     13.58                2.522
Largest stream flow has longer or shorter time of concentration
Qp =     12.331 + sum of
          Qa          Tb/Ta
           9.623 *    0.809 =      7.786
Qp =     20.117

Total of 2 main streams to confluence:
Flow rates before confluence point:
      12.331       9.623
Area of streams before confluence:
        4.690        4.370


Results of confluence:
Total flow rate =     20.117(CFS)
Time of concentration =    10.986 min.
Effective stream area after confluence  =      9.060(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.070 to Point/Station        2.090
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   595.500(Ft.)
Downstream point/station elevation =   593.200(Ft.)
Pipe length  =   224.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.117(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    20.117(CFS)
Normal flow depth in pipe =   17.44(In.)
Flow top width inside pipe =   21.39(In.)
Critical Depth =   19.33(In.)
Pipe flow velocity =      8.23(Ft/s)
Travel time through pipe =    0.45 min.
Time of concentration (TC) =    11.44 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.070 to Point/Station        2.090
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      9.060(Ac.)
Runoff from this stream =     20.117(CFS)
Time of concentration =   11.44 min.
Rainfall intensity =     2.748(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.080 to Point/Station        2.090
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
```

```
Initial area flow distance =   782.000(Ft.)
Top (of initial area) elevation =   612.000(Ft.)
Bottom (of initial area) elevation =   606.600(Ft.)
Difference in elevation =     5.400(Ft.)
Slope =    0.00691  s(percent)=       0.69
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   11.656 min.
Rainfall intensity =      2.723(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.700
Decimal fraction soil group C = 0.300
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  77.92
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      5.664(CFS)
Total initial stream area =        2.340(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.080 to Point/Station        2.090
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.340(Ac.)
Runoff from this stream =      5.664(CFS)
Time of concentration =   11.66 min.
Rainfall intensity =     2.723(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       20.117     11.44                2.748
2        5.664     11.66                2.723
Largest stream flow has longer or shorter time of concentration
Qp =     20.117 + sum of
          Qa          Tb/Ta
           5.664 *    0.981 =      5.558
Qp =     25.675

Total of 2 main streams to confluence:
Flow rates before confluence point:
      20.117       5.664
Area of streams before confluence:
        9.060        2.340


Results of confluence:
Total flow rate =     25.675(CFS)
Time of concentration =    11.439 min.
Effective stream area after confluence  =     11.400(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.090 to Point/Station        2.100
```

**** PIPEFLOW TRAVEL TIME (User specified size) ****

Upstream point/station elevation = 593.200(Ft.)
Downstream point/station elevation = 592.800(Ft.)
Pipe length = 42.00(Ft.) Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 25.675(CFS)
Given pipe size = 24.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
1.697(Ft.) at the headworks or inlet of the pipe(s)
Pipe friction loss = 0.541(Ft.)
Minor friction loss = 1.556(Ft.) K-factor = 1.50
Pipe flow velocity = 8.17(Ft/s)
Travel time through pipe = 0.09 min.
Time of concentration (TC) = 11.52 min.
End of computations, total study area = 11.40 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.445
Area averaged RI index number = 65.7

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 04/14/20 File:1655003RATPOST3.out

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NORCO VALLEY SQUARE MIXED USE
POST DEVELOPMENT BASIN 3
100 YEAR
FUSCOE ENGINEERING

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6049

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Norco] area used.
10 year storm 10 minute intensity = 1.960(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

++

Process from Point/Station 3.010 to Point/Station 3.020
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 375.000(Ft.)
Top (of initial area) elevation = 629.800(Ft.)
Bottom (of initial area) elevation = 626.800(Ft.)
Difference in elevation = 3.000(Ft.)
Slope = 0.00800 s(percent)= 0.80
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.082 min.
Rainfall intensity = 3.084(In/Hr) for a 100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.877
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000

```
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      2.624(CFS)
Total initial stream area =        0.970(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.020 to Point/Station        3.040
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      4.223(CFS)
Depth of flow =   0.230(Ft.), Average velocity =   2.673(Ft/s)
        ******* Irregular Channel Data **********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.50
        2             18.50              0.13
        3             20.00              0.00
        4             21.50              0.13
        5             44.00              0.58
Manning's 'N' friction factor =   0.015
----------------------------------------------------------------
Sub-Channel flow  =      2.740(CFS)
  '     '        flow top width =     13.001(Ft.)
  '     '    velocity=    2.754(Ft/s)
  '     '        area =      0.995(Sq.Ft)
  '     '        Froude number =     1.754

Information entered for subchannel number 2 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.50
        2              0.13              0.00
        3              1.50              0.13
        4             24.00              0.45
Manning's 'N' friction factor =   0.015
----------------------------------------------------------------
Sub-Channel flow  =      1.483(CFS)
  '     '        flow top width =      8.462(Ft.)
  '     '    velocity=    2.537(Ft/s)
  '     '        area =      0.585(Sq.Ft)
  '     '        Froude number =     1.701

Upstream point elevation =   626.800(Ft.)
Downstream point elevation =   610.500(Ft.)
Flow length =   682.000(Ft.)
Travel time  =    4.25 min.
Time of concentration =   13.33 min.
Depth of flow =   0.230(Ft.)
Average velocity =   2.673(Ft/s)
Total irregular channel flow =     4.223(CFS)
Irregular channel normal depth above invert elev. =   0.230(Ft.)
Average velocity of channel(s) =   2.673(Ft/s)
 Adding area flow to channel
APARTMENT subarea type
Runoff Coefficient = 0.873
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
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```
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.200; Impervious fraction =  0.800
Rainfall intensity =      2.546(In/Hr) for a   100.0 year storm
Subarea runoff =      3.111(CFS) for      1.400(Ac.)
Total runoff =      5.735(CFS)  Total area =       2.370(Ac.)
Depth of flow =   0.248(Ft.), Average velocity =   2.861(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.020 to Point/Station        3.040
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      2.370(Ac.)
Runoff from this stream =      5.735(CFS)
Time of concentration =   13.33 min.
Rainfall intensity =     2.546(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.030 to Point/Station        3.040
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   637.000(Ft.)
Top (of initial area) elevation =   627.300(Ft.)
Bottom (of initial area) elevation =   610.500(Ft.)
Difference in elevation =    16.800(Ft.)
Slope =    0.02637  s(percent)=       2.64
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.844 min.
Rainfall intensity =      3.126(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.877
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      6.088(CFS)
Total initial stream area =        2.220(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.030 to Point/Station        3.040
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.220(Ac.)
Runoff from this stream =      6.088(CFS)
Time of concentration =    8.84 min.
Rainfall intensity =     3.126(In/Hr)
Summary of stream data:
```

```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        5.735     13.33                2.546
2        6.088      8.84                3.126
Largest stream flow has longer or shorter time of concentration
Qp =      6.088 + sum of
          Qa          Tb/Ta
           5.735 *    0.663 =      3.804
Qp =      9.892

Total of 2 main streams to confluence:
Flow rates before confluence point:
       5.735       6.088
Area of streams before confluence:
        2.370        2.220


Results of confluence:
Total flow rate =      9.892(CFS)
Time of concentration =     8.844 min.
Effective stream area after confluence  =      4.590(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.040 to Point/Station        3.060
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     10.597(CFS)
Depth of flow =   0.383(Ft.), Average velocity =   3.909(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.50
        2              0.13              0.00
        3              1.50              0.13
        4             24.00              0.45
Manning's 'N' friction factor =   0.015
------------------------------------------------------------------
Sub-Channel flow  =     10.597(CFS)
  '     '        flow top width =     19.281(Ft.)
  '     '    velocity=    3.909(Ft/s)
  '     '        area =      2.711(Sq.Ft)
  '     '        Froude number =     1.837

Upstream point elevation =   610.500(Ft.)
Downstream point elevation =   607.000(Ft.)
Flow length =   161.000(Ft.)
Travel time  =    0.69 min.
Time of concentration =    9.53 min.
Depth of flow =   0.383(Ft.)
Average velocity =   3.909(Ft/s)
Total irregular channel flow =    10.597(CFS)
Irregular channel normal depth above invert elev. =   0.383(Ft.)
Average velocity of channel(s) =   3.909(Ft/s)
 Adding area flow to channel
APARTMENT subarea type
Runoff Coefficient = 0.877
```

```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.200; Impervious fraction =  0.800
Rainfall intensity =      3.011(In/Hr) for a   100.0 year storm
Subarea runoff =      1.478(CFS) for      0.560(Ac.)
Total runoff =     11.370(CFS)  Total area =       5.150(Ac.)
Depth of flow =   0.391(Ft.), Average velocity =   3.977(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.040 to Point/Station        3.060
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      5.150(Ac.)
Runoff from this stream =     11.370(CFS)
Time of concentration =    9.53 min.
Rainfall intensity =     3.011(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.050 to Point/Station        3.060
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   676.000(Ft.)
Top (of initial area) elevation =   610.500(Ft.)
Bottom (of initial area) elevation =   607.000(Ft.)
Difference in elevation =     3.500(Ft.)
Slope =    0.00518  s(percent)=       0.52
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =   12.542 min.
Rainfall intensity =      2.625(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.860
Decimal fraction soil group A = 0.500
Decimal fraction soil group B = 0.500
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  64.00
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      4.582(CFS)
Total initial stream area =        2.030(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.050 to Point/Station        3.060
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.030(Ac.)
Runoff from this stream =      4.582(CFS)
Time of concentration =   12.54 min.
Rainfall intensity =     2.625(In/Hr)
```

```
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       11.370      9.53                3.011
2        4.582     12.54                2.625
Largest stream flow has longer or shorter time of concentration
Qp =     11.370 + sum of
          Qa          Tb/Ta
           4.582 *    0.760 =      3.482
Qp =     14.852

Total of 2 main streams to confluence:
Flow rates before confluence point:
      11.370       4.582
Area of streams before confluence:
        5.150        2.030


Results of confluence:
Total flow rate =     14.852(CFS)
Time of concentration =     9.530 min.
Effective stream area after confluence  =      7.180(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.060 to Point/Station        3.110
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   600.500(Ft.)
Downstream point/station elevation =   600.000(Ft.)
Pipe length  =    50.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    14.852(CFS)
Given pipe size =     18.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     2.144(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      0.999(Ft.)
 Minor friction loss =      1.645(Ft.)  K-factor =   1.50
Pipe flow velocity =      8.40(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =     9.63 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.060 to Point/Station        3.110
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      7.180(Ac.)
Runoff from this stream =     14.852(CFS)
Time of concentration =    9.63 min.
Rainfall intensity =     2.995(In/Hr)
Program is now starting with Main Stream No. 2


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Process from Point/Station        3.070 to Point/Station        3.080
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------
Initial area flow distance =   300.000(Ft.)
Top (of initial area) elevation =   613.000(Ft.)
Bottom (of initial area) elevation =   606.700(Ft.)
Difference in elevation =     6.300(Ft.)
Slope =    0.02100  s(percent)=       2.10
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.849 min.
Rainfall intensity =      3.552(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.864
Decimal fraction soil group A = 0.810
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.190
RI index for soil(AMC 3)  =  60.17
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      1.688(CFS)
Total initial stream area =        0.550(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.080 to Point/Station        3.110
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      4.661(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   1.810(Ft/s)
        ******* Irregular Channel Data ***********
---------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.50
        2             18.50              0.13
        3             20.00              0.00
        4             21.50              0.13
        5             44.00              0.58
Manning's 'N' friction factor =   0.015
---------------------------------------------------------------
Sub-Channel flow  =      4.661(CFS)
  '     '        flow top width =     22.025(Ft.)
  '     '    velocity=    1.810(Ft/s)
  '     '        area =      2.576(Sq.Ft)
  '     '        Froude number =     0.933

Upstream point elevation =   604.200(Ft.)
Downstream point elevation =   600.000(Ft.)
Flow length =   719.000(Ft.)
Travel time  =    6.62 min.
Time of concentration =   13.47 min.
Depth of flow =   0.320(Ft.)
Average velocity =   1.810(Ft/s)
Total irregular channel flow =     4.661(CFS)
Irregular channel normal depth above invert elev. =   0.320(Ft.)
Average velocity of channel(s) =   1.810(Ft/s)
 Adding area flow to channel
APARTMENT subarea type
Runoff Coefficient = 0.870
```

```
Decimal fraction soil group A = 0.110
Decimal fraction soil group B = 0.890
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  72.69
Pervious area fraction =  0.200; Impervious fraction =  0.800
Rainfall intensity =      2.533(In/Hr) for a   100.0 year storm
Subarea runoff =      5.863(CFS) for      2.660(Ac.)
Total runoff =      7.551(CFS)  Total area =       3.210(Ac.)
Depth of flow =   0.367(Ft.), Average velocity =   2.032(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.080 to Point/Station        3.110
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      3.210(Ac.)
Runoff from this stream =      7.551(CFS)
Time of concentration =   13.47 min.
Rainfall intensity =     2.533(In/Hr)
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.090 to Point/Station        3.100
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   257.000(Ft.)
Top (of initial area) elevation =   611.500(Ft.)
Bottom (of initial area) elevation =   608.500(Ft.)
Difference in elevation =     3.000(Ft.)
Slope =    0.01167  s(percent)=       1.17
TC = k(0.323)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    7.240 min.
Rainfall intensity =      3.455(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.879
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.80
Pervious area fraction =  0.200; Impervious fraction =  0.800
Initial subarea runoff =      1.428(CFS)
Total initial stream area =        0.470(Ac.)
Pervious area fraction = 0.200


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.100 to Point/Station        3.110
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   602.800(Ft.)
Downstream point/station elevation =   600.000(Ft.)
Pipe length  =   139.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.428(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     1.428(CFS)
```

```
Normal flow depth in pipe =    4.36(In.)
Flow top width inside pipe =   11.54(In.)
Critical Depth =    6.07(In.)
Pipe flow velocity =      5.54(Ft/s)
Travel time through pipe =    0.42 min.
Time of concentration (TC) =     7.66 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.100 to Point/Station        3.110
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =      0.470(Ac.)
Runoff from this stream =      1.428(CFS)
Time of concentration =    7.66 min.
Rainfall intensity =     3.359(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       14.852      9.63                2.995
2        7.551     13.47                2.533
3        1.428      7.66                3.359
Largest stream flow has longer or shorter time of concentration
Qp =     14.852 + sum of
          Qa          Tb/Ta
           7.551 *    0.715 =      5.398
          Qb         Ia/Ib
           1.428 *    0.892 =      1.273
Qp =     21.523

Total of 3 main streams to confluence:
Flow rates before confluence point:
      14.852       7.551       1.428
Area of streams before confluence:
        7.180        3.210        0.470


Results of confluence:
Total flow rate =     21.523(CFS)
Time of concentration =     9.629 min.
Effective stream area after confluence  =     10.860(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.110 to Point/Station        3.120
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   593.200(Ft.)
Downstream point/station elevation =   592.600(Ft.)
Pipe length  =    60.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.523(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    21.523(CFS)
Normal flow depth in pipe =   18.70(In.)
Flow top width inside pipe =   19.91(In.)
```

```
Critical Depth =   19.91(In.)
Pipe flow velocity =      8.20(Ft/s)
Travel time through pipe =    0.12 min.
Time of concentration (TC) =     9.75 min.
End of computations, total study area =           10.86 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.200
Area averaged RI index number =  52.3
```

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
Rational Hydrology Study Date: 04/14/20 File:1655003RATPOSTALL.out

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NORCO VALLEY SQUARE MIXED USE
POST DEVELOPMENT ALL
100 YEAR
FUSCOE ENGINEERING

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 6049

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [Norco] area used.
10 year storm 10 minute intensity = 1.960(In/Hr)
10 year storm 60 minute intensity = 0.800(In/Hr)
100 year storm 10 minute intensity = 2.940(In/Hr)
100 year storm 60 minute intensity = 1.200(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.200(In/Hr)
Slope of intensity duration curve = 0.5000

++

Process from Point/Station 1.020 to Point/Station 1.030
**** USER DEFINED FLOW INFORMATION AT A POINT ****

Rainfall intensity = 2.439(In/Hr) for a 100.0 year storm
SINGLE FAMILY (1/4 Acre Lot)
Runoff Coefficient = 0.849
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.390
Decimal fraction soil group C = 0.610
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3) = 81.14
Pervious area fraction = 0.500; Impervious fraction = 0.500
User specified values are as follows:
TC = 14.53 min. Rain intensity = 2.44(In/Hr)
Total area = 3.13(Ac.) Total runoff = 7.04(CFS)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        1.020 to Point/Station        1.030
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      3.130(Ac.)
Runoff from this stream =      7.043(CFS)
Time of concentration =   14.53 min.
Rainfall intensity =     2.439(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.090 to Point/Station        2.100
**** USER DEFINED FLOW INFORMATION AT A POINT ****
______________________________________________________________________________
Rainfall intensity =      2.739(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.887
Decimal fraction soil group A = 0.120
Decimal fraction soil group B = 0.680
Decimal fraction soil group C = 0.200
Decimal fraction soil group D = 0.000
RI index for soil(AMC 3)  =  74.58
Pervious area fraction =  0.100; Impervious fraction =  0.900
User specified values are as follows:
TC =  11.52 min.  Rain intensity =       2.74(In/Hr)
Total area =        11.40(Ac.)  Total runoff =     25.68(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        2.090 to Point/Station        2.100
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =     11.400(Ac.)
Runoff from this stream =     25.675(CFS)
Time of concentration =   11.52 min.
Rainfall intensity =     2.739(In/Hr)
Program is now starting with Main Stream No. 3


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.110 to Point/Station        3.120
**** USER DEFINED FLOW INFORMATION AT A POINT ****
______________________________________________________________________________
Rainfall intensity =      2.977(In/Hr) for a   100.0 year storm
APARTMENT subarea type
Runoff Coefficient = 0.870
Decimal fraction soil group A = 0.300
Decimal fraction soil group B = 0.670
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.030
RI index for soil(AMC 3)  =  69.37
Pervious area fraction =  0.200; Impervious fraction =  0.800
User specified values are as follows:
TC =   9.75 min.  Rain intensity =       2.98(In/Hr)
```

```
Total area =        10.86(Ac.)  Total runoff =     21.52(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        3.110 to Point/Station        3.120
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 3
Stream flow area =     10.860(Ac.)
Runoff from this stream =     21.523(CFS)
Time of concentration =    9.75 min.
Rainfall intensity =     2.977(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        7.043     14.53                2.439
2       25.675     11.52                2.739
3       21.523      9.75                2.977
Largest stream flow has longer or shorter time of concentration
Qp =     25.675 + sum of
          Qa          Tb/Ta
           7.043 *    0.793 =      5.584
          Qb         Ia/Ib
          21.523 *    0.920 =     19.801
Qp =     51.060

Total of 3 main streams to confluence:
Flow rates before confluence point:
       7.043      25.675      21.523
Area of streams before confluence:
        3.130       11.400       10.860


Results of confluence:
Total flow rate =     51.060(CFS)
Time of concentration =    11.520 min.
Effective stream area after confluence  =     25.390(Ac.)
End of computations, total study area =           25.39 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.192
Area averaged RI index number =  54.0
```

APPENDIX 3

UNIT HYDROGRAPH METHOD
HYDROLOGY CALCULATION
(1-HR, 3-HR, 6-HR & 24-HR DURATION
10-YR, 5-YR & 2-YR FREQUENCY)
PRE-DEVELOPMENT

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
10 YEAR 1 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.844(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.844(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.425	0.290	(0.335)	0.135
2	0.17	4.30	0.436	0.290	(0.343)	0.146
3	0.25	5.00	0.507	0.290	(0.398)	0.217
4	0.33	5.00	0.507	0.290	(0.398)	0.217
5	0.42	5.80	0.588	0.290	(0.462)	0.298
6	0.50	6.50	0.658	0.290	(0.518)	0.368
7	0.58	7.40	0.750	0.290	(0.590)	0.460
8	0.67	8.60	0.871	0.290	(0.685)	0.581

```
 9   0.75    12.30      1.246          0.290    (  0.980)        0.956
10   0.83    29.10      2.948          0.290    (  2.318)        2.658
11   0.92     6.80      0.689          0.290    (  0.542)        0.399
12   1.00     5.00      0.507          0.290    (  0.398)        0.217
               (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     6.7
      Flood volume = Effective rainfall      0.55(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
      Total soil loss =      0.29(In)
      Total soil loss =     0.613(Ac.Ft)
      Total rainfall =      0.84(In)
      Flood volume =       51058.6 Cubic Feet
      Total soil loss =       26718.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     39.364(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
  ---------------------------------------------------------------------
    0+ 5       0.0034      0.49  Q         |         |         |         |
    0+10       0.0178      2.10  V Q       |         |         |         |
    0+15       0.0394      3.14  |V Q      |         |         |         |
    0+20       0.0690      4.29  | V Q     |         |         |         |
    0+25       0.1042      5.12  |  V Q    |         |         |         |
    0+30       0.1495      6.58  |    VQ   |         |         |         |
    0+35       0.2067      8.30  |      VQ |         |         |         |
    0+40       0.2784     10.42  |        VQ         |         |         |
    0+45       0.3745     13.96  |          | VQ     |         |         |
    0+50       0.5499     25.46  |          |       V |    Q    |         |
    0+55       0.8210     39.36  |          |         |       V |        Q|
    1+ 0       0.9716     21.87  |          |         |Q        |  V      |
    1+ 5       1.0548     12.08  |          | Q       |         |    V    |
    1+10       1.0998      6.54  |     Q    |         |         |      V  |
    1+15       1.1268      3.92  |  Q       |         |         |       V |
    1+20       1.1451      2.65  | Q        |         |         |        V|
    1+25       1.1572      1.75  |Q         |         |         |        V|
    1+30       1.1651      1.15  |Q         |         |         |        V|
    1+35       1.1708      0.82  Q          |         |         |        V|
    1+40       1.1718      0.15  Q          |         |         |        V|
    1+45       1.1721      0.05  Q          |         |         |         V
---------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
10 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 1.475(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.475(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.230	(0.290)	0.181	0.049
2	0.17	1.30	0.230	(0.290)	0.181	0.049
3	0.25	1.10	0.195	(0.290)	0.153	0.042
4	0.33	1.50	0.265	(0.290)	0.209	0.057
5	0.42	1.50	0.265	(0.290)	0.209	0.057
6	0.50	1.80	0.319	(0.290)	0.250	0.068
7	0.58	1.50	0.265	(0.290)	0.209	0.057
8	0.67	1.80	0.319	(0.290)	0.250	0.068
9	0.75	1.80	0.319	(0.290)	0.250	0.068
10	0.83	1.50	0.265	(0.290)	0.209	0.057

```
11   0.92     1.60      0.283       (  0.290)       0.223        0.060
12   1.00     1.80      0.319       (  0.290)       0.250        0.068
13   1.08     2.20      0.389          0.290    (  0.306)        0.099
14   1.17     2.20      0.389          0.290    (  0.306)        0.099
15   1.25     2.20      0.389          0.290    (  0.306)        0.099
16   1.33     2.00      0.354       (  0.290)       0.278        0.076
17   1.42     2.60      0.460          0.290    (  0.362)        0.170
18   1.50     2.70      0.478          0.290    (  0.376)        0.188
19   1.58     2.40      0.425          0.290    (  0.334)        0.135
20   1.67     2.70      0.478          0.290    (  0.376)        0.188
21   1.75     3.30      0.584          0.290    (  0.459)        0.294
22   1.83     3.10      0.549          0.290    (  0.431)        0.259
23   1.92     2.90      0.513          0.290    (  0.404)        0.223
24   2.00     3.00      0.531          0.290    (  0.417)        0.241
25   2.08     3.10      0.549          0.290    (  0.431)        0.259
26   2.17     4.20      0.743          0.290    (  0.584)        0.453
27   2.25     5.00      0.885          0.290    (  0.696)        0.595
28   2.33     3.50      0.619          0.290    (  0.487)        0.329
29   2.42     6.80      1.203          0.290    (  0.946)        0.913
30   2.50     7.30      1.292          0.290    (  1.016)        1.002
31   2.58     8.20      1.451          0.290    (  1.141)        1.161
32   2.67     5.90      1.044          0.290    (  0.821)        0.754
33   2.75     2.00      0.354       (  0.290)       0.278        0.076
34   2.83     1.80      0.319       (  0.290)       0.250        0.068
35   2.92     1.80      0.319       (  0.290)       0.250        0.068
36   3.00     0.60      0.106       (  0.290)       0.083        0.023
              (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     8.5
      Flood volume = Effective rainfall      0.71(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.5(Ac.Ft)
      Total soil loss =      0.77(In)
      Total soil loss =     1.626(Ac.Ft)
      Total rainfall =      1.47(In)
      Flood volume =       65027.4 Cubic Feet
      Total soil loss =       70829.4 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     24.313(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0012      0.18  Q         |         |         |         |
  0+10       0.0064      0.75  Q         |         |         |         |
  0+15       0.0130      0.96  VQ        |         |         |         |
  0+20       0.0201      1.03  VQ        |         |         |         |
  0+25       0.0286      1.23  VQ        |         |         |         |
  0+30       0.0380      1.37  |Q        |         |         |         |
  0+35       0.0483      1.51  |VQ       |         |         |         |
  0+40       0.0587      1.50  |VQ       |         |         |         |
  0+45       0.0698      1.62  |VQ       |         |         |         |
  0+50       0.0811      1.64  | Q       |         |         |         |
  0+55       0.0918      1.55  | Q       |         |         |         |
  1+ 0       0.1026      1.58  | Q       |         |         |         |
  1+ 5       0.1149      1.78  | QV      |         |         |         |
```

```
   1+10       0.1299      2.18  | QV      |         |         |         |
   1+15       0.1461      2.35  |  Q      |         |         |         |
   1+20       0.1622      2.33  |  QV     |         |         |         |
   1+25       0.1790      2.45  |  QV     |         |         |         |
   1+30       0.2033      3.52  |   QV    |         |         |         |
   1+35       0.2305      3.96  |    QV   |         |         |         |
   1+40       0.2568      3.80  |    QV   |         |         |         |
   1+45       0.2891      4.69  |     QV  |         |         |         |
   1+50       0.3306      6.03  |       Q |         |         |         |
   1+55       0.3727      6.11  |       QV|         |         |         |
   2+ 0       0.4132      5.88  |      Q  |V        |         |         |
   2+ 5       0.4550      6.07  |       Q | V       |         |         |
   2+10       0.5036      7.07  |        Q|  V      |         |         |
   2+15       0.5722      9.96  |         |  Q V    |         |         |
   2+20       0.6524     11.65  |         |    Q V  |         |         |
   2+25       0.7338     11.81  |         |    Q   V|         |         |
   2+30       0.8590     18.17  |         |         |  VQ     |         |
   2+35       1.0133     22.41  |         |         |     V Q|         |
   2+40       1.1807     24.31  |         |         |         |VQ       |
   2+45       1.3100     18.77  |         |         |    Q    |    V    |
   2+50       1.3769      9.71  |         | Q       |         |     V   |
   2+55       1.4185      6.04  |       Q |         |         |       V |
   3+ 0       1.4481      4.30  |    Q    |         |         |       V |
   3+ 5       1.4668      2.73  |  Q      |         |         |        V|
   3+10       1.4786      1.71  | Q       |         |         |        V|
   3+15       1.4857      1.03  |Q        |         |         |        V|
   3+20       1.4899      0.61  Q         |         |         |        V|
   3+25       1.4918      0.28  Q         |         |         |        V|
   3+30       1.4923      0.07  Q         |         |         |        V|
   3+35       1.4926      0.04  Q         |         |         |        V|
   3+40       1.4928      0.02  Q         |         |         |        V|
   3+45       1.4928      0.01  Q         |         |         |         V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
10 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 2.079(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.079(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

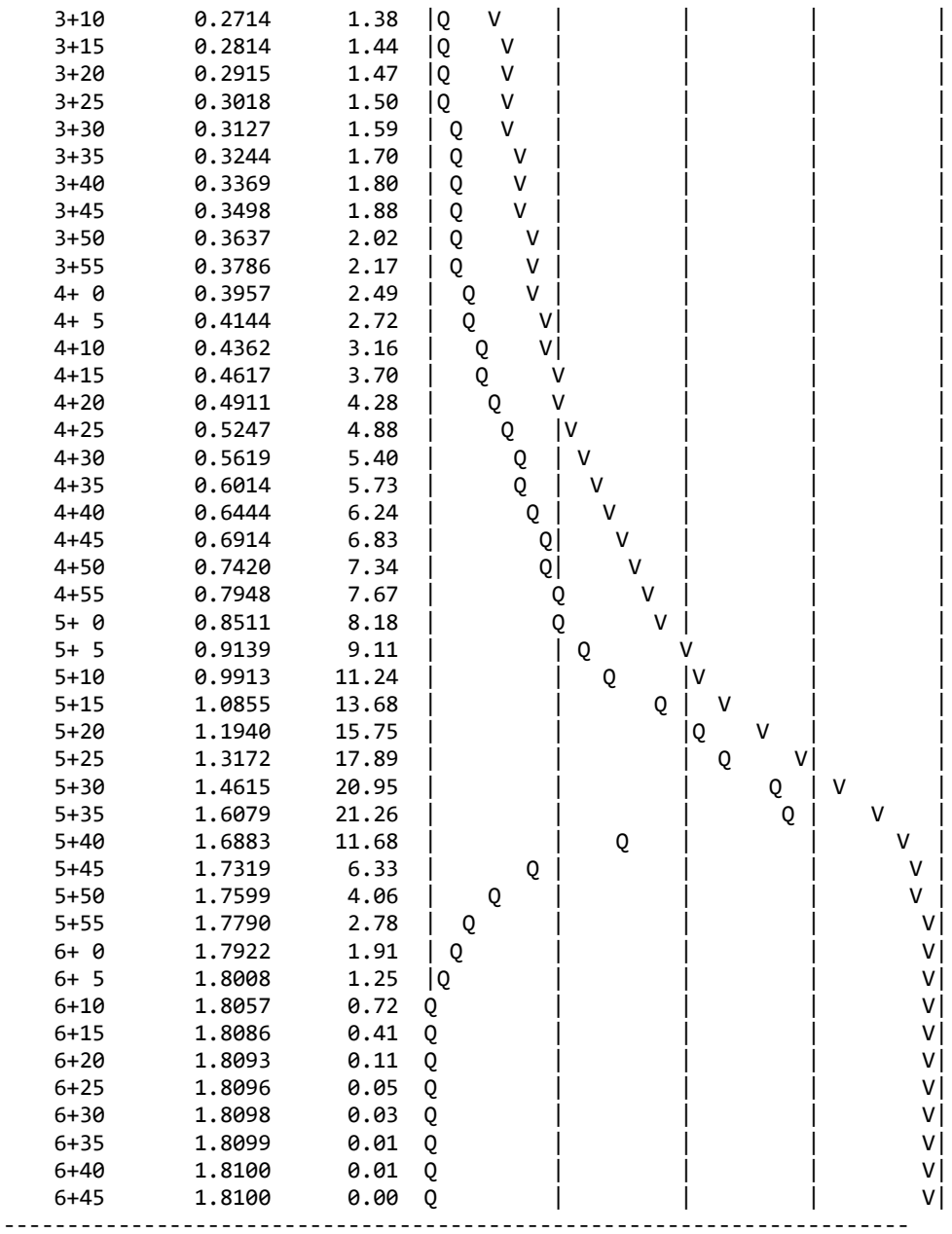
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.125	(0.290)	0.098	0.027
2	0.17	0.60	0.150	(0.290)	0.118	0.032
3	0.25	0.60	0.150	(0.290)	0.118	0.032
4	0.33	0.60	0.150	(0.290)	0.118	0.032
5	0.42	0.60	0.150	(0.290)	0.118	0.032
6	0.50	0.70	0.175	(0.290)	0.137	0.037
7	0.58	0.70	0.175	(0.290)	0.137	0.037
8	0.67	0.70	0.175	(0.290)	0.137	0.037
9	0.75	0.70	0.175	(0.290)	0.137	0.037
10	0.83	0.70	0.175	(0.290)	0.137	0.037

11	0.92	0.70	0.175	(0.290)	0.137	0.037
12	1.00	0.80	0.200	(0.290)	0.157	0.043
13	1.08	0.80	0.200	(0.290)	0.157	0.043
14	1.17	0.80	0.200	(0.290)	0.157	0.043
15	1.25	0.80	0.200	(0.290)	0.157	0.043
16	1.33	0.80	0.200	(0.290)	0.157	0.043
17	1.42	0.80	0.200	(0.290)	0.157	0.043
18	1.50	0.80	0.200	(0.290)	0.157	0.043
19	1.58	0.80	0.200	(0.290)	0.157	0.043
20	1.67	0.80	0.200	(0.290)	0.157	0.043
21	1.75	0.80	0.200	(0.290)	0.157	0.043
22	1.83	0.80	0.200	(0.290)	0.157	0.043
23	1.92	0.80	0.200	(0.290)	0.157	0.043
24	2.00	0.90	0.224	(0.290)	0.177	0.048
25	2.08	0.80	0.200	(0.290)	0.157	0.043
26	2.17	0.90	0.224	(0.290)	0.177	0.048
27	2.25	0.90	0.224	(0.290)	0.177	0.048
28	2.33	0.90	0.224	(0.290)	0.177	0.048
29	2.42	0.90	0.224	(0.290)	0.177	0.048
30	2.50	0.90	0.224	(0.290)	0.177	0.048
31	2.58	0.90	0.224	(0.290)	0.177	0.048
32	2.67	0.90	0.224	(0.290)	0.177	0.048
33	2.75	1.00	0.249	(0.290)	0.196	0.053
34	2.83	1.00	0.249	(0.290)	0.196	0.053
35	2.92	1.00	0.249	(0.290)	0.196	0.053
36	3.00	1.00	0.249	(0.290)	0.196	0.053
37	3.08	1.00	0.249	(0.290)	0.196	0.053
38	3.17	1.10	0.274	(0.290)	0.216	0.059
39	3.25	1.10	0.274	(0.290)	0.216	0.059
40	3.33	1.10	0.274	(0.290)	0.216	0.059
41	3.42	1.20	0.299	(0.290)	0.235	0.064
42	3.50	1.30	0.324	(0.290)	0.255	0.069
43	3.58	1.40	0.349	(0.290)	0.275	0.075
44	3.67	1.40	0.349	(0.290)	0.275	0.075
45	3.75	1.50	0.374	0.290	(0.294)	0.084
46	3.83	1.50	0.374	0.290	(0.294)	0.084
47	3.92	1.60	0.399	0.290	(0.314)	0.109
48	4.00	1.60	0.399	0.290	(0.314)	0.109
49	4.08	1.70	0.424	0.290	(0.333)	0.134
50	4.17	1.80	0.449	0.290	(0.353)	0.159
51	4.25	1.90	0.474	0.290	(0.373)	0.184
52	4.33	2.00	0.499	0.290	(0.392)	0.209
53	4.42	2.10	0.524	0.290	(0.412)	0.234
54	4.50	2.10	0.524	0.290	(0.412)	0.234
55	4.58	2.20	0.549	0.290	(0.432)	0.259
56	4.67	2.30	0.574	0.290	(0.451)	0.284
57	4.75	2.40	0.599	0.290	(0.471)	0.309
58	4.83	2.40	0.599	0.290	(0.471)	0.309
59	4.92	2.50	0.624	0.290	(0.490)	0.334
60	5.00	2.60	0.648	0.290	(0.510)	0.358
61	5.08	3.10	0.773	0.290	(0.608)	0.483
62	5.17	3.60	0.898	0.290	(0.706)	0.608
63	5.25	3.90	0.973	0.290	(0.765)	0.683
64	5.33	4.20	1.048	0.290	(0.824)	0.758
65	5.42	4.70	1.172	0.290	(0.922)	0.882
66	5.50	5.60	1.397	0.290	(1.098)	1.107
67	5.58	1.90	0.474	0.290	(0.373)	0.184
68	5.67	0.90	0.224	(0.290)	0.177	0.048
69	5.75	0.60	0.150	(0.290)	0.118	0.032
70	5.83	0.50	0.125	(0.290)	0.098	0.027

```
71   5.92     0.30      0.075       (  0.290)       0.059        0.016
72   6.00     0.20      0.050       (  0.290)       0.039        0.011
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    10.3
      Flood volume = Effective rainfall      0.86(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.8(Ac.Ft)
      Total soil loss =      1.22(In)
      Total soil loss =     2.586(Ac.Ft)
      Total rainfall =      2.08(In)
      Flood volume =       78842.4 Cubic Feet
      Total soil loss =      112650.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     21.256(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0007      0.10  Q         |          |          |          |
  0+10       0.0036      0.43  Q         |          |          |          |
  0+15       0.0078      0.62  Q         |          |          |          |
  0+20       0.0126      0.70  Q         |          |          |          |
  0+25       0.0178      0.74  Q         |          |          |          |
  0+30       0.0232      0.79  VQ        |          |          |          |
  0+35       0.0292      0.87  VQ        |          |          |          |
  0+40       0.0354      0.91  VQ        |          |          |          |
  0+45       0.0418      0.93  VQ        |          |          |          |
  0+50       0.0483      0.94  |Q        |          |          |          |
  0+55       0.0548      0.95  |Q        |          |          |          |
  1+ 0       0.0615      0.97  |Q        |          |          |          |
  1+ 5       0.0686      1.03  |Q        |          |          |          |
  1+10       0.0759      1.06  |Q        |          |          |          |
  1+15       0.0833      1.07  |Q        |          |          |          |
  1+20       0.0907      1.08  |QV       |          |          |          |
  1+25       0.0982      1.08  |QV       |          |          |          |
  1+30       0.1057      1.09  |QV       |          |          |          |
  1+35       0.1132      1.09  |QV       |          |          |          |
  1+40       0.1207      1.09  |QV       |          |          |          |
  1+45       0.1282      1.09  |QV       |          |          |          |
  1+50       0.1357      1.09  |QV       |          |          |          |
  1+55       0.1432      1.09  |Q V      |          |          |          |
  2+ 0       0.1508      1.11  |Q V      |          |          |          |
  2+ 5       0.1588      1.15  |Q V      |          |          |          |
  2+10       0.1666      1.14  |Q V      |          |          |          |
  2+15       0.1747      1.18  |Q V      |          |          |          |
  2+20       0.1830      1.20  |Q  V     |          |          |          |
  2+25       0.1914      1.21  |Q  V     |          |          |          |
  2+30       0.1998      1.22  |Q  V     |          |          |          |
  2+35       0.2082      1.22  |Q  V     |          |          |          |
  2+40       0.2166      1.22  |Q  V     |          |          |          |
  2+45       0.2252      1.25  |Q  V     |          |          |          |
  2+50       0.2342      1.31  |Q   V    |          |          |          |
  2+55       0.2434      1.33  |Q   V    |          |          |          |
  3+ 0       0.2527      1.35  |Q   V    |          |          |          |
  3+ 5       0.2620      1.35  |Q   V    |          |          |          |
```



3+10	0.2714	1.38	
3+15	0.2814	1.44	
3+20	0.2915	1.47	
3+25	0.3018	1.50	
3+30	0.3127	1.59	
3+35	0.3244	1.70	
3+40	0.3369	1.80	
3+45	0.3498	1.88	
3+50	0.3637	2.02	
3+55	0.3786	2.17	
4+ 0	0.3957	2.49	
4+ 5	0.4144	2.72	
4+10	0.4362	3.16	
4+15	0.4617	3.70	
4+20	0.4911	4.28	
4+25	0.5247	4.88	
4+30	0.5619	5.40	
4+35	0.6014	5.73	
4+40	0.6444	6.24	
4+45	0.6914	6.83	
4+50	0.7420	7.34	
4+55	0.7948	7.67	
5+ 0	0.8511	8.18	
5+ 5	0.9139	9.11	
5+10	0.9913	11.24	
5+15	1.0855	13.68	
5+20	1.1940	15.75	
5+25	1.3172	17.89	
5+30	1.4615	20.95	
5+35	1.6079	21.26	
5+40	1.6883	11.68	
5+45	1.7319	6.33	
5+50	1.7599	4.06	
5+55	1.7790	2.78	
6+ 0	1.7922	1.91	
6+ 5	1.8008	1.25	
6+10	1.8057	0.72	
6+15	1.8086	0.41	
6+20	1.8093	0.11	
6+25	1.8096	0.05	
6+30	1.8098	0.03	
6+35	1.8099	0.01	
6+40	1.8100	0.01	
6+45	1.8100	0.00	

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
10 YEAR 24 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 3.916(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.916(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.031	(0.514)	0.025	0.007
2	0.17	0.07	0.031	(0.512)	0.025	0.007
3	0.25	0.07	0.031	(0.510)	0.025	0.007
4	0.33	0.10	0.047	(0.508)	0.037	0.010
5	0.42	0.10	0.047	(0.506)	0.037	0.010
6	0.50	0.10	0.047	(0.504)	0.037	0.010
7	0.58	0.10	0.047	(0.502)	0.037	0.010
8	0.67	0.10	0.047	(0.500)	0.037	0.010
9	0.75	0.10	0.047	(0.498)	0.037	0.010
10	0.83	0.13	0.063	(0.496)	0.049	0.013

11	0.92	0.13	0.063	(0.494)	0.049	0.013
12	1.00	0.13	0.063	(0.492)	0.049	0.013
13	1.08	0.10	0.047	(0.490)	0.037	0.010
14	1.17	0.10	0.047	(0.489)	0.037	0.010
15	1.25	0.10	0.047	(0.487)	0.037	0.010
16	1.33	0.10	0.047	(0.485)	0.037	0.010
17	1.42	0.10	0.047	(0.483)	0.037	0.010
18	1.50	0.10	0.047	(0.481)	0.037	0.010
19	1.58	0.10	0.047	(0.479)	0.037	0.010
20	1.67	0.10	0.047	(0.477)	0.037	0.010
21	1.75	0.10	0.047	(0.475)	0.037	0.010
22	1.83	0.13	0.063	(0.473)	0.049	0.013
23	1.92	0.13	0.063	(0.471)	0.049	0.013
24	2.00	0.13	0.063	(0.469)	0.049	0.013
25	2.08	0.13	0.063	(0.467)	0.049	0.013
26	2.17	0.13	0.063	(0.466)	0.049	0.013
27	2.25	0.13	0.063	(0.464)	0.049	0.013
28	2.33	0.13	0.063	(0.462)	0.049	0.013
29	2.42	0.13	0.063	(0.460)	0.049	0.013
30	2.50	0.13	0.063	(0.458)	0.049	0.013
31	2.58	0.17	0.078	(0.456)	0.062	0.017
32	2.67	0.17	0.078	(0.454)	0.062	0.017
33	2.75	0.17	0.078	(0.452)	0.062	0.017
34	2.83	0.17	0.078	(0.451)	0.062	0.017
35	2.92	0.17	0.078	(0.449)	0.062	0.017
36	3.00	0.17	0.078	(0.447)	0.062	0.017
37	3.08	0.17	0.078	(0.445)	0.062	0.017
38	3.17	0.17	0.078	(0.443)	0.062	0.017
39	3.25	0.17	0.078	(0.441)	0.062	0.017
40	3.33	0.17	0.078	(0.439)	0.062	0.017
41	3.42	0.17	0.078	(0.438)	0.062	0.017
42	3.50	0.17	0.078	(0.436)	0.062	0.017
43	3.58	0.17	0.078	(0.434)	0.062	0.017
44	3.67	0.17	0.078	(0.432)	0.062	0.017
45	3.75	0.17	0.078	(0.430)	0.062	0.017
46	3.83	0.20	0.094	(0.429)	0.074	0.020
47	3.92	0.20	0.094	(0.427)	0.074	0.020
48	4.00	0.20	0.094	(0.425)	0.074	0.020
49	4.08	0.20	0.094	(0.423)	0.074	0.020
50	4.17	0.20	0.094	(0.421)	0.074	0.020
51	4.25	0.20	0.094	(0.419)	0.074	0.020
52	4.33	0.23	0.110	(0.418)	0.086	0.023
53	4.42	0.23	0.110	(0.416)	0.086	0.023
54	4.50	0.23	0.110	(0.414)	0.086	0.023
55	4.58	0.23	0.110	(0.412)	0.086	0.023
56	4.67	0.23	0.110	(0.411)	0.086	0.023
57	4.75	0.23	0.110	(0.409)	0.086	0.023
58	4.83	0.27	0.125	(0.407)	0.099	0.027
59	4.92	0.27	0.125	(0.405)	0.099	0.027
60	5.00	0.27	0.125	(0.404)	0.099	0.027
61	5.08	0.20	0.094	(0.402)	0.074	0.020
62	5.17	0.20	0.094	(0.400)	0.074	0.020
63	5.25	0.20	0.094	(0.398)	0.074	0.020
64	5.33	0.23	0.110	(0.397)	0.086	0.023
65	5.42	0.23	0.110	(0.395)	0.086	0.023
66	5.50	0.23	0.110	(0.393)	0.086	0.023
67	5.58	0.27	0.125	(0.391)	0.099	0.027
68	5.67	0.27	0.125	(0.390)	0.099	0.027
69	5.75	0.27	0.125	(0.388)	0.099	0.027
70	5.83	0.27	0.125	(0.386)	0.099	0.027

71	5.92	0.27	0.125	(0.385)	0.099	0.027
72	6.00	0.27	0.125	(0.383)	0.099	0.027
73	6.08	0.30	0.141	(0.381)	0.111	0.030
74	6.17	0.30	0.141	(0.379)	0.111	0.030
75	6.25	0.30	0.141	(0.378)	0.111	0.030
76	6.33	0.30	0.141	(0.376)	0.111	0.030
77	6.42	0.30	0.141	(0.374)	0.111	0.030
78	6.50	0.30	0.141	(0.373)	0.111	0.030
79	6.58	0.33	0.157	(0.371)	0.123	0.033
80	6.67	0.33	0.157	(0.369)	0.123	0.033
81	6.75	0.33	0.157	(0.368)	0.123	0.033
82	6.83	0.33	0.157	(0.366)	0.123	0.033
83	6.92	0.33	0.157	(0.364)	0.123	0.033
84	7.00	0.33	0.157	(0.363)	0.123	0.033
85	7.08	0.33	0.157	(0.361)	0.123	0.033
86	7.17	0.33	0.157	(0.359)	0.123	0.033
87	7.25	0.33	0.157	(0.358)	0.123	0.033
88	7.33	0.37	0.172	(0.356)	0.136	0.037
89	7.42	0.37	0.172	(0.354)	0.136	0.037
90	7.50	0.37	0.172	(0.353)	0.136	0.037
91	7.58	0.40	0.188	(0.351)	0.148	0.040
92	7.67	0.40	0.188	(0.350)	0.148	0.040
93	7.75	0.40	0.188	(0.348)	0.148	0.040
94	7.83	0.43	0.204	(0.346)	0.160	0.043
95	7.92	0.43	0.204	(0.345)	0.160	0.043
96	8.00	0.43	0.204	(0.343)	0.160	0.043
97	8.08	0.50	0.235	(0.342)	0.185	0.050
98	8.17	0.50	0.235	(0.340)	0.185	0.050
99	8.25	0.50	0.235	(0.338)	0.185	0.050
100	8.33	0.50	0.235	(0.337)	0.185	0.050
101	8.42	0.50	0.235	(0.335)	0.185	0.050
102	8.50	0.50	0.235	(0.334)	0.185	0.050
103	8.58	0.53	0.251	(0.332)	0.197	0.054
104	8.67	0.53	0.251	(0.331)	0.197	0.054
105	8.75	0.53	0.251	(0.329)	0.197	0.054
106	8.83	0.57	0.266	(0.327)	0.209	0.057
107	8.92	0.57	0.266	(0.326)	0.209	0.057
108	9.00	0.57	0.266	(0.324)	0.209	0.057
109	9.08	0.63	0.298	(0.323)	0.234	0.064
110	9.17	0.63	0.298	(0.321)	0.234	0.064
111	9.25	0.63	0.298	(0.320)	0.234	0.064
112	9.33	0.67	0.313	(0.318)	0.246	0.067
113	9.42	0.67	0.313	(0.317)	0.246	0.067
114	9.50	0.67	0.313	(0.315)	0.246	0.067
115	9.58	0.70	0.329	(0.314)	0.259	0.070
116	9.67	0.70	0.329	(0.312)	0.259	0.070
117	9.75	0.70	0.329	(0.311)	0.259	0.070
118	9.83	0.73	0.345	(0.309)	0.271	0.074
119	9.92	0.73	0.345	(0.308)	0.271	0.074
120	10.00	0.73	0.345	(0.306)	0.271	0.074
121	10.08	0.50	0.235	(0.305)	0.185	0.050
122	10.17	0.50	0.235	(0.303)	0.185	0.050
123	10.25	0.50	0.235	(0.302)	0.185	0.050
124	10.33	0.50	0.235	(0.300)	0.185	0.050
125	10.42	0.50	0.235	(0.299)	0.185	0.050
126	10.50	0.50	0.235	(0.297)	0.185	0.050
127	10.58	0.67	0.313	(0.296)	0.246	0.067
128	10.67	0.67	0.313	(0.295)	0.246	0.067
129	10.75	0.67	0.313	(0.293)	0.246	0.067
130	10.83	0.67	0.313	(0.292)	0.246	0.067

131	10.92	0.67	0.313	(	0.290)	0.246		0.067
132	11.00	0.67	0.313	(	0.289)	0.246		0.067
133	11.08	0.63	0.298	(	0.287)	0.234		0.064
134	11.17	0.63	0.298	(	0.286)	0.234		0.064
135	11.25	0.63	0.298	(	0.285)	0.234		0.064
136	11.33	0.63	0.298	(	0.283)	0.234		0.064
137	11.42	0.63	0.298	(	0.282)	0.234		0.064
138	11.50	0.63	0.298	(	0.280)	0.234		0.064
139	11.58	0.57	0.266	(	0.279)	0.209		0.057
140	11.67	0.57	0.266	(	0.278)	0.209		0.057
141	11.75	0.57	0.266	(	0.276)	0.209		0.057
142	11.83	0.60	0.282	(	0.275)	0.222		0.060
143	11.92	0.60	0.282	(	0.273)	0.222		0.060
144	12.00	0.60	0.282	(	0.272)	0.222		0.060
145	12.08	0.83	0.392		0.271	(	0.308)	0.121
146	12.17	0.83	0.392		0.269	(	0.308)	0.122
147	12.25	0.83	0.392		0.268	(	0.308)	0.124
148	12.33	0.87	0.407		0.267	(	0.320)	0.141
149	12.42	0.87	0.407		0.265	(	0.320)	0.142
150	12.50	0.87	0.407		0.264	(	0.320)	0.143
151	12.58	0.93	0.439		0.263	(	0.345)	0.176
152	12.67	0.93	0.439		0.261	(	0.345)	0.177
153	12.75	0.93	0.439		0.260	(	0.345)	0.179
154	12.83	0.97	0.454		0.259	(	0.357)	0.196
155	12.92	0.97	0.454		0.257	(	0.357)	0.197
156	13.00	0.97	0.454		0.256	(	0.357)	0.198
157	13.08	1.13	0.533		0.255	(	0.419)	0.278
158	13.17	1.13	0.533		0.254	(	0.419)	0.279
159	13.25	1.13	0.533		0.252	(	0.419)	0.280
160	13.33	1.13	0.533		0.251	(	0.419)	0.282
161	13.42	1.13	0.533		0.250	(	0.419)	0.283
162	13.50	1.13	0.533		0.248	(	0.419)	0.284
163	13.58	0.77	0.360		0.247	(	0.283)	0.113
164	13.67	0.77	0.360		0.246	(	0.283)	0.114
165	13.75	0.77	0.360		0.245	(	0.283)	0.116
166	13.83	0.77	0.360		0.243	(	0.283)	0.117
167	13.92	0.77	0.360		0.242	(	0.283)	0.118
168	14.00	0.77	0.360		0.241	(	0.283)	0.119
169	14.08	0.90	0.423		0.240	(	0.333)	0.183
170	14.17	0.90	0.423		0.238	(	0.333)	0.184
171	14.25	0.90	0.423		0.237	(	0.333)	0.186
172	14.33	0.87	0.407		0.236	(	0.320)	0.171
173	14.42	0.87	0.407		0.235	(	0.320)	0.172
174	14.50	0.87	0.407		0.234	(	0.320)	0.174
175	14.58	0.87	0.407		0.232	(	0.320)	0.175
176	14.67	0.87	0.407		0.231	(	0.320)	0.176
177	14.75	0.87	0.407		0.230	(	0.320)	0.177
178	14.83	0.83	0.392		0.229	(	0.308)	0.163
179	14.92	0.83	0.392		0.228	(	0.308)	0.164
180	15.00	0.83	0.392		0.227	(	0.308)	0.165
181	15.08	0.80	0.376		0.225	(	0.296)	0.151
182	15.17	0.80	0.376		0.224	(	0.296)	0.152
183	15.25	0.80	0.376		0.223	(	0.296)	0.153
184	15.33	0.77	0.360		0.222	(	0.283)	0.138
185	15.42	0.77	0.360		0.221	(	0.283)	0.140
186	15.50	0.77	0.360		0.220	(	0.283)	0.141
187	15.58	0.63	0.298		0.219	(	0.234)	0.079
188	15.67	0.63	0.298		0.217	(	0.234)	0.080
189	15.75	0.63	0.298		0.216	(	0.234)	0.081
190	15.83	0.63	0.298		0.215	(	0.234)	0.082

191	15.92	0.63	0.298	0.214	(0.234)	0.084
192	16.00	0.63	0.298	0.213	(0.234)	0.085
193	16.08	0.13	0.063	(0.212)	0.049	0.013
194	16.17	0.13	0.063	(0.211)	0.049	0.013
195	16.25	0.13	0.063	(0.210)	0.049	0.013
196	16.33	0.13	0.063	(0.209)	0.049	0.013
197	16.42	0.13	0.063	(0.208)	0.049	0.013
198	16.50	0.13	0.063	(0.207)	0.049	0.013
199	16.58	0.10	0.047	(0.205)	0.037	0.010
200	16.67	0.10	0.047	(0.204)	0.037	0.010
201	16.75	0.10	0.047	(0.203)	0.037	0.010
202	16.83	0.10	0.047	(0.202)	0.037	0.010
203	16.92	0.10	0.047	(0.201)	0.037	0.010
204	17.00	0.10	0.047	(0.200)	0.037	0.010
205	17.08	0.17	0.078	(0.199)	0.062	0.017
206	17.17	0.17	0.078	(0.198)	0.062	0.017
207	17.25	0.17	0.078	(0.197)	0.062	0.017
208	17.33	0.17	0.078	(0.196)	0.062	0.017
209	17.42	0.17	0.078	(0.195)	0.062	0.017
210	17.50	0.17	0.078	(0.194)	0.062	0.017
211	17.58	0.17	0.078	(0.193)	0.062	0.017
212	17.67	0.17	0.078	(0.192)	0.062	0.017
213	17.75	0.17	0.078	(0.191)	0.062	0.017
214	17.83	0.13	0.063	(0.191)	0.049	0.013
215	17.92	0.13	0.063	(0.190)	0.049	0.013
216	18.00	0.13	0.063	(0.189)	0.049	0.013
217	18.08	0.13	0.063	(0.188)	0.049	0.013
218	18.17	0.13	0.063	(0.187)	0.049	0.013
219	18.25	0.13	0.063	(0.186)	0.049	0.013
220	18.33	0.13	0.063	(0.185)	0.049	0.013
221	18.42	0.13	0.063	(0.184)	0.049	0.013
222	18.50	0.13	0.063	(0.183)	0.049	0.013
223	18.58	0.10	0.047	(0.182)	0.037	0.010
224	18.67	0.10	0.047	(0.181)	0.037	0.010
225	18.75	0.10	0.047	(0.181)	0.037	0.010
226	18.83	0.07	0.031	(0.180)	0.025	0.007
227	18.92	0.07	0.031	(0.179)	0.025	0.007
228	19.00	0.07	0.031	(0.178)	0.025	0.007
229	19.08	0.10	0.047	(0.177)	0.037	0.010
230	19.17	0.10	0.047	(0.176)	0.037	0.010
231	19.25	0.10	0.047	(0.175)	0.037	0.010
232	19.33	0.13	0.063	(0.175)	0.049	0.013
233	19.42	0.13	0.063	(0.174)	0.049	0.013
234	19.50	0.13	0.063	(0.173)	0.049	0.013
235	19.58	0.10	0.047	(0.172)	0.037	0.010
236	19.67	0.10	0.047	(0.171)	0.037	0.010
237	19.75	0.10	0.047	(0.171)	0.037	0.010
238	19.83	0.07	0.031	(0.170)	0.025	0.007
239	19.92	0.07	0.031	(0.169)	0.025	0.007
240	20.00	0.07	0.031	(0.168)	0.025	0.007
241	20.08	0.10	0.047	(0.168)	0.037	0.010
242	20.17	0.10	0.047	(0.167)	0.037	0.010
243	20.25	0.10	0.047	(0.166)	0.037	0.010
244	20.33	0.10	0.047	(0.165)	0.037	0.010
245	20.42	0.10	0.047	(0.165)	0.037	0.010
246	20.50	0.10	0.047	(0.164)	0.037	0.010
247	20.58	0.10	0.047	(0.163)	0.037	0.010
248	20.67	0.10	0.047	(0.163)	0.037	0.010
249	20.75	0.10	0.047	(0.162)	0.037	0.010
250	20.83	0.07	0.031	(0.161)	0.025	0.007

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251  20.92     0.07      0.031       (  0.161)       0.025        0.007
252  21.00     0.07      0.031       (  0.160)       0.025        0.007
253  21.08     0.10      0.047       (  0.159)       0.037        0.010
254  21.17     0.10      0.047       (  0.159)       0.037        0.010
255  21.25     0.10      0.047       (  0.158)       0.037        0.010
256  21.33     0.07      0.031       (  0.158)       0.025        0.007
257  21.42     0.07      0.031       (  0.157)       0.025        0.007
258  21.50     0.07      0.031       (  0.156)       0.025        0.007
259  21.58     0.10      0.047       (  0.156)       0.037        0.010
260  21.67     0.10      0.047       (  0.155)       0.037        0.010
261  21.75     0.10      0.047       (  0.155)       0.037        0.010
262  21.83     0.07      0.031       (  0.154)       0.025        0.007
263  21.92     0.07      0.031       (  0.154)       0.025        0.007
264  22.00     0.07      0.031       (  0.153)       0.025        0.007
265  22.08     0.10      0.047       (  0.153)       0.037        0.010
266  22.17     0.10      0.047       (  0.152)       0.037        0.010
267  22.25     0.10      0.047       (  0.152)       0.037        0.010
268  22.33     0.07      0.031       (  0.151)       0.025        0.007
269  22.42     0.07      0.031       (  0.151)       0.025        0.007
270  22.50     0.07      0.031       (  0.150)       0.025        0.007
271  22.58     0.07      0.031       (  0.150)       0.025        0.007
272  22.67     0.07      0.031       (  0.149)       0.025        0.007
273  22.75     0.07      0.031       (  0.149)       0.025        0.007
274  22.83     0.07      0.031       (  0.149)       0.025        0.007
275  22.92     0.07      0.031       (  0.148)       0.025        0.007
276  23.00     0.07      0.031       (  0.148)       0.025        0.007
277  23.08     0.07      0.031       (  0.148)       0.025        0.007
278  23.17     0.07      0.031       (  0.147)       0.025        0.007
279  23.25     0.07      0.031       (  0.147)       0.025        0.007
280  23.33     0.07      0.031       (  0.147)       0.025        0.007
281  23.42     0.07      0.031       (  0.146)       0.025        0.007
282  23.50     0.07      0.031       (  0.146)       0.025        0.007
283  23.58     0.07      0.031       (  0.146)       0.025        0.007
284  23.67     0.07      0.031       (  0.146)       0.025        0.007
285  23.75     0.07      0.031       (  0.145)       0.025        0.007
286  23.83     0.07      0.031       (  0.145)       0.025        0.007
287  23.92     0.07      0.031       (  0.145)       0.025        0.007
288  24.00     0.07      0.031       (  0.145)       0.025        0.007
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    13.7
       Flood volume = Effective rainfall      1.14(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       2.4(Ac.Ft)
       Total soil loss =      2.78(In)
       Total soil loss =     5.874(Ac.Ft)
       Total rainfall =      3.92(In)
       Flood volume =      104923.3 Cubic Feet
       Total soil loss =      255856.2 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =      7.099(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0002      0.02  Q         |         |         |         |
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0+10	0.0009	0.10	Q				
0+15	0.0018	0.13	Q				
0+20	0.0029	0.16	Q				
0+25	0.0043	0.21	Q				
0+30	0.0059	0.23	Q				
0+35	0.0076	0.24	Q				
0+40	0.0093	0.25	Q				
0+45	0.0110	0.25	VQ				
0+50	0.0128	0.27	VQ				
0+55	0.0149	0.31	VQ				
1+ 0	0.0172	0.32	VQ				
1+ 5	0.0193	0.32	VQ				
1+10	0.0213	0.28	VQ				
1+15	0.0232	0.27	VQ				
1+20	0.0250	0.27	VQ				
1+25	0.0268	0.26	VQ				
1+30	0.0286	0.26	VQ				
1+35	0.0304	0.26	VQ				
1+40	0.0322	0.26	VQ				
1+45	0.0339	0.26	VQ				
1+50	0.0358	0.27	VQ				
1+55	0.0379	0.31	VQ				
2+ 0	0.0401	0.32	VQ				
2+ 5	0.0424	0.33	VQ				
2+10	0.0447	0.34	VQ				
2+15	0.0471	0.34	VQ				
2+20	0.0494	0.34	VQ				
2+25	0.0518	0.34	VQ				
2+30	0.0541	0.34	VQ				
2+35	0.0565	0.35	VQ				
2+40	0.0593	0.39	VQ				
2+45	0.0621	0.41	|Q				
2+50	0.0649	0.42	|Q				
2+55	0.0678	0.42	|Q				
3+ 0	0.0708	0.42	|Q				
3+ 5	0.0737	0.43	|Q				
3+10	0.0766	0.43	|Q				
3+15	0.0796	0.43	|Q				
3+20	0.0825	0.43	|Q				
3+25	0.0855	0.43	|Q				
3+30	0.0884	0.43	|Q				
3+35	0.0914	0.43	|Q				
3+40	0.0943	0.43	|Q				
3+45	0.0973	0.43	|Q				
3+50	0.1003	0.44	|Q				
3+55	0.1036	0.48	|Q				
4+ 0	0.1070	0.50	|Q				
4+ 5	0.1105	0.50	|VQ				
4+10	0.1140	0.51	|VQ				
4+15	0.1175	0.51	|VQ				
4+20	0.1211	0.52	| Q				
4+25	0.1249	0.56	| Q				
4+30	0.1289	0.58	| Q				
4+35	0.1330	0.59	| Q				
4+40	0.1371	0.59	| Q				
4+45	0.1412	0.59	| Q				
4+50	0.1454	0.61	| Q				
4+55	0.1498	0.65	| Q				
5+ 0	0.1544	0.67	| Q				
5+ 5	0.1589	0.65	| Q				

5+10	0.1628	0.58	Q			
5+15	0.1666	0.55	Q			
5+20	0.1704	0.55	Q			
5+25	0.1743	0.58	Q			
5+30	0.1784	0.59	Q			
5+35	0.1826	0.61	QV			
5+40	0.1870	0.65	QV			
5+45	0.1916	0.66	QV			
5+50	0.1962	0.67	QV			
5+55	0.2009	0.68	QV			
6+ 0	0.2055	0.68	QV			
6+ 5	0.2103	0.69	QV			
6+10	0.2154	0.73	QV			
6+15	0.2206	0.75	Q			
6+20	0.2258	0.76	Q			
6+25	0.2310	0.76	Q			
6+30	0.2363	0.77	Q			
6+35	0.2417	0.78	QV			
6+40	0.2473	0.82	QV			
6+45	0.2531	0.84	QV			
6+50	0.2589	0.84	QV			
6+55	0.2648	0.85	QV			
7+ 0	0.2706	0.85	QV			
7+ 5	0.2765	0.85	QV			
7+10	0.2824	0.85	QV			
7+15	0.2883	0.86	QV			
7+20	0.2943	0.87	QV			
7+25	0.3005	0.91	QV			
7+30	0.3069	0.92	Q V			
7+35	0.3134	0.94	Q V			
7+40	0.3202	0.99	Q V			
7+45	0.3271	1.00	QV			
7+50	0.3341	1.03	QV			
7+55	0.3415	1.07	QV			
8+ 0	0.3490	1.09	QV			
8+ 5	0.3567	1.12	QV			
8+10	0.3650	1.21	Q V			
8+15	0.3736	1.24	Q V			
8+20	0.3823	1.26	QV			
8+25	0.3910	1.27	QV			
8+30	0.3998	1.27	QV			
8+35	0.4087	1.29	QV			
8+40	0.4178	1.33	QV			
8+45	0.4271	1.35	Q V			
8+50	0.4366	1.37	Q V			
8+55	0.4463	1.41	Q V			
9+ 0	0.4562	1.43	Q V			
9+ 5	0.4663	1.47	Q V			
9+10	0.4769	1.55	QV			
9+15	0.4879	1.58	Q V			
9+20	0.4990	1.61	Q V			
9+25	0.5104	1.66	Q V			
9+30	0.5220	1.68	Q V			
9+35	0.5338	1.71	Q V			
9+40	0.5458	1.75	Q V			
9+45	0.5581	1.77	Q V			
9+50	0.5704	1.80	Q V			
9+55	0.5831	1.84	Q V			
10+ 0	0.5959	1.86	Q V			
10+ 5	0.6082	1.78	Q V			

10+10	0.6187	1.52	Q V			
10+15	0.6283	1.41	Q V			
10+20	0.6377	1.36	Q V			
10+25	0.6469	1.33	Q V			
10+30	0.6560	1.32	Q V			
10+35	0.6654	1.37	Q |V			
10+40	0.6761	1.55	Q |V			
10+45	0.6873	1.63	Q |V			
10+50	0.6987	1.66	Q |V			
10+55	0.7102	1.68	Q |V			
11+ 0	0.7218	1.69	Q |V			
11+ 5	0.7334	1.69	Q | V			
11+10	0.7448	1.65	Q | V			
11+15	0.7561	1.64	Q | V			
11+20	0.7674	1.64	Q | V			
11+25	0.7787	1.63	Q | V			
11+30	0.7899	1.63	Q | V			
11+35	0.8010	1.61	Q | V			
11+40	0.8115	1.53	Q | V			
11+45	0.8218	1.49	Q | V			
11+50	0.8320	1.49	Q | V			
11+55	0.8425	1.52	Q | V			
12+ 0	0.8531	1.53	Q | V			
12+ 5	0.8651	1.76	Q | V			
12+10	0.8821	2.47	Q| V			
12+15	0.9013	2.78	|Q V			
12+20	0.9219	2.99	|Q V			
12+25	0.9445	3.28	| Q V			
12+30	0.9682	3.44	| Q V			
12+35	0.9933	3.65	| Q V			
12+40	1.0215	4.09	| Q			
12+45	1.0511	4.30	| Q			
12+50	1.0819	4.48	| Q			
12+55	1.1146	4.74	| Q			
13+ 0	1.1481	4.88	| Q|			
13+ 5	1.1843	5.25	| VQ			
13+10	1.2271	6.22	| V Q			
13+15	1.2730	6.66	| |V Q			
13+20	1.3203	6.87	| |V Q			
13+25	1.3685	7.00	| | V Q			
13+30	1.4174	7.10	| | V Q			
13+35	1.4625	6.56	| | V Q			
13+40	1.4943	4.62	| Q | V			
13+45	1.5207	3.82	| Q | V			
13+50	1.5449	3.52	| Q | V			
13+55	1.5679	3.34	| Q | V			
14+ 0	1.5902	3.24	| Q | V			
14+ 5	1.6137	3.40	| Q | V			
14+10	1.6419	4.10	| Q | V			
14+15	1.6722	4.39	| Q | V			
14+20	1.7029	4.46	| Q | V			
14+25	1.7331	4.38	| Q | V			
14+30	1.7633	4.39	| Q | V|			
14+35	1.7937	4.42	| Q | V|			
14+40	1.8244	4.45	| Q | V			
14+45	1.8553	4.49	| Q | V			
14+50	1.8860	4.47	| Q | |V			
14+55	1.9157	4.31	| Q | |V			
15+ 0	1.9451	4.26	| Q | | V			
15+ 5	1.9740	4.20	| Q | | V			

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15+10       2.0017      4.03  |          |     Q    |          |  V       |
15+15       2.0290      3.97  |          |    Q     |          |  V       |
15+20       2.0559      3.90  |          |    Q     |          |   V      |
15+25       2.0815      3.72  |          |   Q      |          |   V      |
15+30       2.1067      3.66  |          |   Q      |          |   V      |
15+35       2.1302      3.42  |          |  Q       |          |    V     |
15+40       2.1488      2.69  |         Q|          |          |    V     |
15+45       2.1653      2.40  |         Q|          |          |    V     |
15+50       2.1810      2.29  |         Q|          |          |     V    |
15+55       2.1964      2.23  |        Q |          |          |     V    |
16+ 0       2.2116      2.21  |        Q |          |          |     V    |
16+ 5       2.2249      1.94  |       Q  |          |          |     V    |
16+10       2.2325      1.10  |   Q      |          |          |      V   |
16+15       2.2375      0.74  | Q        |          |          |      V   |
16+20       2.2415      0.58  | Q        |          |          |      V   |
16+25       2.2449      0.49  |Q         |          |          |      V   |
16+30       2.2480      0.44  |Q         |          |          |      V   |
16+35       2.2507      0.39  |Q         |          |          |      V   |
16+40       2.2529      0.33  |Q         |          |          |      V   |
16+45       2.2549      0.29  |Q         |          |          |      V   |
16+50       2.2568      0.27  |Q         |          |          |      V   |
16+55       2.2586      0.26  |Q         |          |          |      V   |
17+ 0       2.2604      0.26  |Q         |          |          |      V   |
17+ 5       2.2624      0.28  |Q         |          |          |      V   |
17+10       2.2648      0.36  |Q         |          |          |      V   |
17+15       2.2675      0.39  |Q         |          |          |      V   |
17+20       2.2703      0.41  |Q         |          |          |      V   |
17+25       2.2732      0.41  |Q         |          |          |      V   |
17+30       2.2761      0.42  |Q         |          |          |      V   |
17+35       2.2790      0.42  |Q         |          |          |      V   |
17+40       2.2819      0.42  |Q         |          |          |      V   |
17+45       2.2848      0.43  |Q         |          |          |      V   |
17+50       2.2877      0.42  |Q         |          |          |      V   |
17+55       2.2903      0.38  |Q         |          |          |       V  |
18+ 0       2.2928      0.36  |Q         |          |          |       V  |
18+ 5       2.2952      0.35  |Q         |          |          |       V  |
18+10       2.2976      0.35  |Q         |          |          |       V  |
18+15       2.3000      0.35  |Q         |          |          |       V  |
18+20       2.3024      0.35  |Q         |          |          |       V  |
18+25       2.3048      0.34  |Q         |          |          |       V  |
18+30       2.3071      0.34  |Q         |          |          |       V  |
18+35       2.3094      0.33  |Q         |          |          |       V  |
18+40       2.3114      0.29  |Q         |          |          |       V  |
18+45       2.3133      0.28  |Q         |          |          |       V  |
18+50       2.3151      0.26  |Q         |          |          |       V  |
18+55       2.3165      0.21  Q          |          |          |       V  |
19+ 0       2.3179      0.19  Q          |          |          |       V  |
19+ 5       2.3192      0.20  Q          |          |          |       V  |
19+10       2.3208      0.23  Q          |          |          |       V  |
19+15       2.3225      0.24  Q          |          |          |       V  |
19+20       2.3243      0.26  |Q         |          |          |       V  |
19+25       2.3264      0.30  |Q         |          |          |       V  |
19+30       2.3286      0.32  |Q         |          |          |       V  |
19+35       2.3308      0.32  |Q         |          |          |       V  |
19+40       2.3327      0.28  |Q         |          |          |       V  |
19+45       2.3346      0.27  |Q         |          |          |       V  |
19+50       2.3363      0.25  |Q         |          |          |       V  |
19+55       2.3378      0.21  Q          |          |          |       V  |
20+ 0       2.3391      0.19  Q          |          |          |       V  |
20+ 5       2.3405      0.20  Q          |          |          |       V  |
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  20+10       2.3421      0.23  Q        |         |         |       V |
  20+15       2.3437      0.24  Q        |         |         |       V |
  20+20       2.3455      0.25  Q        |         |         |       V |
  20+25       2.3472      0.25  |Q       |         |         |       V |
  20+30       2.3489      0.25  |Q       |         |         |        V|
  20+35       2.3507      0.25  |Q       |         |         |        V|
  20+40       2.3524      0.26  |Q       |         |         |        V|
  20+45       2.3542      0.26  |Q       |         |         |        V|
  20+50       2.3559      0.24  Q        |         |         |        V|
  20+55       2.3573      0.21  Q        |         |         |        V|
  21+ 0       2.3586      0.19  Q        |         |         |        V|
  21+ 5       2.3599      0.19  Q        |         |         |        V|
  21+10       2.3615      0.23  Q        |         |         |        V|
  21+15       2.3632      0.24  Q        |         |         |        V|
  21+20       2.3648      0.24  Q        |         |         |        V|
  21+25       2.3662      0.20  Q        |         |         |        V|
  21+30       2.3675      0.19  Q        |         |         |        V|
  21+35       2.3688      0.19  Q        |         |         |        V|
  21+40       2.3704      0.23  Q        |         |         |        V|
  21+45       2.3720      0.24  Q        |         |         |        V|
  21+50       2.3737      0.24  Q        |         |         |        V|
  21+55       2.3751      0.20  Q        |         |         |        V|
  22+ 0       2.3763      0.19  Q        |         |         |        V|
  22+ 5       2.3777      0.19  Q        |         |         |        V|
  22+10       2.3792      0.23  Q        |         |         |        V|
  22+15       2.3809      0.24  Q        |         |         |        V|
  22+20       2.3825      0.24  Q        |         |         |        V|
  22+25       2.3839      0.20  Q        |         |         |        V|
  22+30       2.3852      0.19  Q        |         |         |        V|
  22+35       2.3864      0.18  Q        |         |         |        V|
  22+40       2.3876      0.18  Q        |         |         |        V|
  22+45       2.3888      0.18  Q        |         |         |        V|
  22+50       2.3900      0.17  Q        |         |         |        V|
  22+55       2.3912      0.17  Q        |         |         |        V|
  23+ 0       2.3924      0.17  Q        |         |         |        V|
  23+ 5       2.3936      0.17  Q        |         |         |        V|
  23+10       2.3948      0.17  Q        |         |         |        V|
  23+15       2.3960      0.17  Q        |         |         |        V|
  23+20       2.3971      0.17  Q        |         |         |        V|
  23+25       2.3983      0.17  Q        |         |         |        V|
  23+30       2.3995      0.17  Q        |         |         |        V|
  23+35       2.4007      0.17  Q        |         |         |        V|
  23+40       2.4019      0.17  Q        |         |         |        V|
  23+45       2.4030      0.17  Q        |         |         |        V|
  23+50       2.4042      0.17  Q        |         |         |        V|
  23+55       2.4054      0.17  Q        |         |         |        V|
  24+ 0       2.4066      0.17  Q        |         |         |        V|
  24+ 5       2.4076      0.15  Q        |         |         |        V|
  24+10       2.4081      0.07  Q        |         |         |        V|
  24+15       2.4083      0.04  Q        |         |         |        V|
  24+20       2.4085      0.02  Q        |         |         |        V|
  24+25       2.4086      0.01  Q        |         |         |        V|
  24+30       2.4086      0.01  Q        |         |         |        V|
  24+35       2.4087      0.01  Q        |         |         |        V|
  24+40       2.4087      0.00  Q        |         |         |        V|
  24+45       2.4087      0.00  Q        |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE15.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 1 HOUR
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.695(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.695(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.350	(0.290)	0.275	0.075
2	0.17	4.30	0.359	(0.290)	0.282	0.077
3	0.25	5.00	0.417	0.290	(0.328)	0.127
4	0.33	5.00	0.417	0.290	(0.328)	0.127
5	0.42	5.80	0.484	0.290	(0.380)	0.194
6	0.50	6.50	0.542	0.290	(0.426)	0.252
7	0.58	7.40	0.617	0.290	(0.485)	0.327
8	0.67	8.60	0.717	0.290	(0.564)	0.427

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 9   0.75    12.30      1.026          0.290    (  0.807)        0.736
10   0.83    29.10      2.427          0.290    (  1.909)        2.137
11   0.92     6.80      0.567          0.290    (  0.446)        0.277
12   1.00     5.00      0.417          0.290    (  0.328)        0.127
               (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     4.9
      Flood volume = Effective rainfall      0.41(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
      Total soil loss =      0.29(In)
      Total soil loss =     0.609(Ac.Ft)
      Total rainfall =      0.70(In)
      Flood volume =       37489.7 Cubic Feet
      Total soil loss =       26545.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     31.100(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
  ---------------------------------------------------------------------
    0+ 5       0.0019      0.27  Q         |         |         |         |
    0+10       0.0098      1.15  VQ        |         |         |         |
    0+15       0.0216      1.72  |Q        |         |         |         |
    0+20       0.0385      2.46  |VQ       |         |         |         |
    0+25       0.0595      3.05  | VQ      |         |         |         |
    0+30       0.0884      4.20  |   Q     |         |         |         |
    0+35       0.1268      5.58  |    Q    |         |         |         |
    0+40       0.1771      7.30  |      QV |         |         |         |
    0+45       0.2474     10.20  |         QV        |         |         |
    0+50       0.3828     19.66  |         |      V Q|         |         |
    0+55       0.5969     31.10  |         |         |      V  |Q        |
    1+ 0       0.7119     16.69  |         |     Q   |         |  V      |
    1+ 5       0.7726      8.82  |       Q |         |         |    V    |
    1+10       0.8061      4.85  |   Q     |         |         |      V  |
    1+15       0.8264      2.95  | Q       |         |         |       V |
    1+20       0.8402      2.01  | Q       |         |         |        V|
    1+25       0.8494      1.33  |Q        |         |         |        V|
    1+30       0.8554      0.87  Q         |         |         |        V|
    1+35       0.8598      0.63  Q         |         |         |        V|
    1+40       0.8604      0.10  Q         |         |         |        V|
    1+45       0.8606      0.03  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 1.226(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.226(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.191	(0.290)	0.150	0.041
2	0.17	1.30	0.191	(0.290)	0.150	0.041
3	0.25	1.10	0.162	(0.290)	0.127	0.035
4	0.33	1.50	0.221	(0.290)	0.174	0.047
5	0.42	1.50	0.221	(0.290)	0.174	0.047
6	0.50	1.80	0.265	(0.290)	0.208	0.057
7	0.58	1.50	0.221	(0.290)	0.174	0.047
8	0.67	1.80	0.265	(0.290)	0.208	0.057
9	0.75	1.80	0.265	(0.290)	0.208	0.057
10	0.83	1.50	0.221	(0.290)	0.174	0.047

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11   0.92     1.60      0.235       (  0.290)       0.185        0.050
12   1.00     1.80      0.265       (  0.290)       0.208        0.057
13   1.08     2.20      0.324       (  0.290)       0.255        0.069
14   1.17     2.20      0.324       (  0.290)       0.255        0.069
15   1.25     2.20      0.324       (  0.290)       0.255        0.069
16   1.33     2.00      0.294       (  0.290)       0.231        0.063
17   1.42     2.60      0.383          0.290    (  0.301)        0.093
18   1.50     2.70      0.397          0.290    (  0.312)        0.107
19   1.58     2.40      0.353       (  0.290)       0.278        0.075
20   1.67     2.70      0.397          0.290    (  0.312)        0.107
21   1.75     3.30      0.486          0.290    (  0.382)        0.196
22   1.83     3.10      0.456          0.290    (  0.359)        0.166
23   1.92     2.90      0.427          0.290    (  0.336)        0.137
24   2.00     3.00      0.441          0.290    (  0.347)        0.151
25   2.08     3.10      0.456          0.290    (  0.359)        0.166
26   2.17     4.20      0.618          0.290    (  0.486)        0.328
27   2.25     5.00      0.736          0.290    (  0.579)        0.446
28   2.33     3.50      0.515          0.290    (  0.405)        0.225
29   2.42     6.80      1.001          0.290    (  0.787)        0.711
30   2.50     7.30      1.074          0.290    (  0.845)        0.784
31   2.58     8.20      1.207          0.290    (  0.949)        0.917
32   2.67     5.90      0.868          0.290    (  0.683)        0.578
33   2.75     2.00      0.294       (  0.290)       0.231        0.063
34   2.83     1.80      0.265       (  0.290)       0.208        0.057
35   2.92     1.80      0.265       (  0.290)       0.208        0.057
36   3.00     0.60      0.088       (  0.290)       0.069        0.019
              (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     6.2
      Flood volume = Effective rainfall      0.52(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.1(Ac.Ft)
      Total soil loss =      0.71(In)
      Total soil loss =     1.495(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =       47859.0 Cubic Feet
      Total soil loss =       65114.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     18.967(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0010      0.15  Q         |         |         |         |
  0+10       0.0053      0.62  VQ        |         |         |         |
  0+15       0.0108      0.80  VQ        |         |         |         |
  0+20       0.0167      0.86  VQ        |         |         |         |
  0+25       0.0237      1.02  V Q       |         |         |         |
  0+30       0.0316      1.14  |VQ       |         |         |         |
  0+35       0.0402      1.25  |VQ       |         |         |         |
  0+40       0.0488      1.25  |VQ       |         |         |         |
  0+45       0.0581      1.35  | Q       |         |         |         |
  0+50       0.0675      1.37  | Q       |         |         |         |
  0+55       0.0763      1.29  | Q       |         |         |         |
  1+ 0       0.0854      1.31  | QV      |         |         |         |
  1+ 5       0.0952      1.43  | QV      |         |         |         |
```

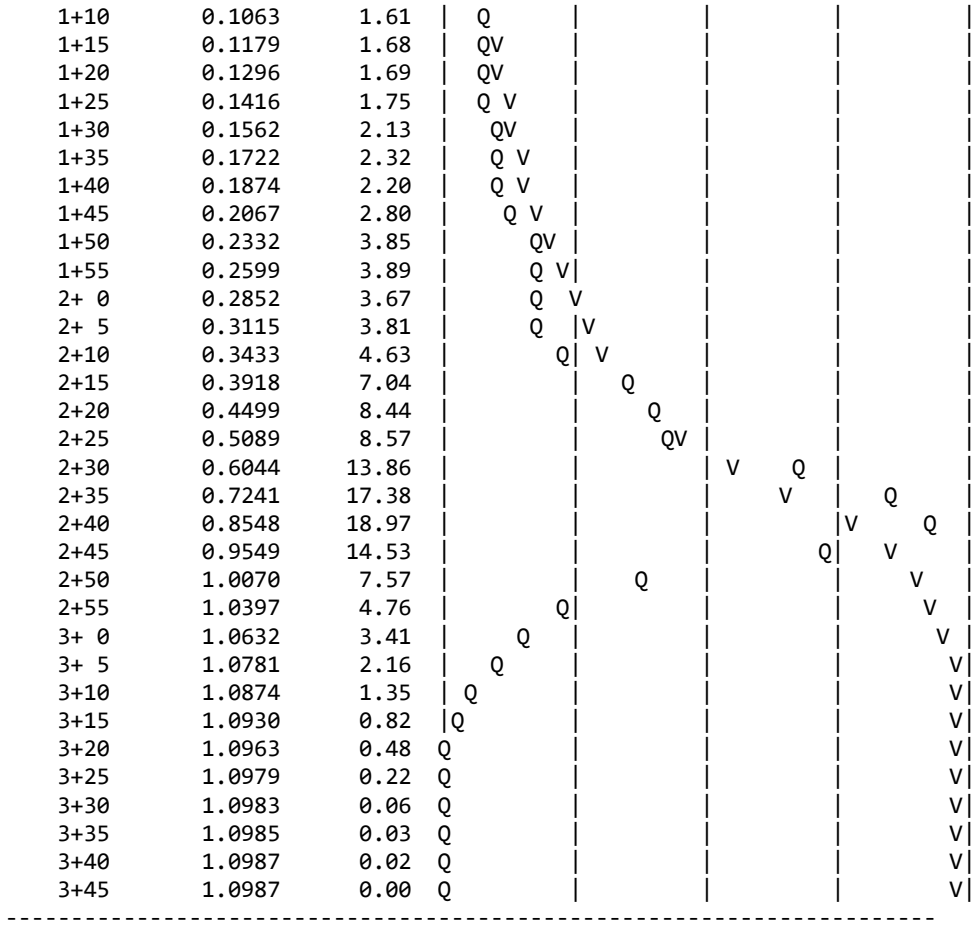

1+10	0.1063	1.61	Q				
1+15	0.1179	1.68	QV				
1+20	0.1296	1.69	QV				
1+25	0.1416	1.75	Q V				
1+30	0.1562	2.13	QV				
1+35	0.1722	2.32	Q V				
1+40	0.1874	2.20	Q V				
1+45	0.2067	2.80	Q V				
1+50	0.2332	3.85	QV				
1+55	0.2599	3.89	Q V				
2+ 0	0.2852	3.67	Q V				
2+ 5	0.3115	3.81	Q V				
2+10	0.3433	4.63	Q V				
2+15	0.3918	7.04	Q				
2+20	0.4499	8.44	Q				
2+25	0.5089	8.57	QV				
2+30	0.6044	13.86	V Q				
2+35	0.7241	17.38	V Q				
2+40	0.8548	18.97	V Q				
2+45	0.9549	14.53	Q V				
2+50	1.0070	7.57	Q V				
2+55	1.0397	4.76	Q V				
3+ 0	1.0632	3.41	Q V				
3+ 5	1.0781	2.16	Q V				
3+10	1.0874	1.35	Q V				
3+15	1.0930	0.82	Q V				
3+20	1.0963	0.48	Q V				
3+25	1.0979	0.22	Q V				
3+30	1.0983	0.06	Q V				
3+35	1.0985	0.03	Q V				
3+40	1.0987	0.02	Q V				
3+45	1.0987	0.00	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 1.726(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.726(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

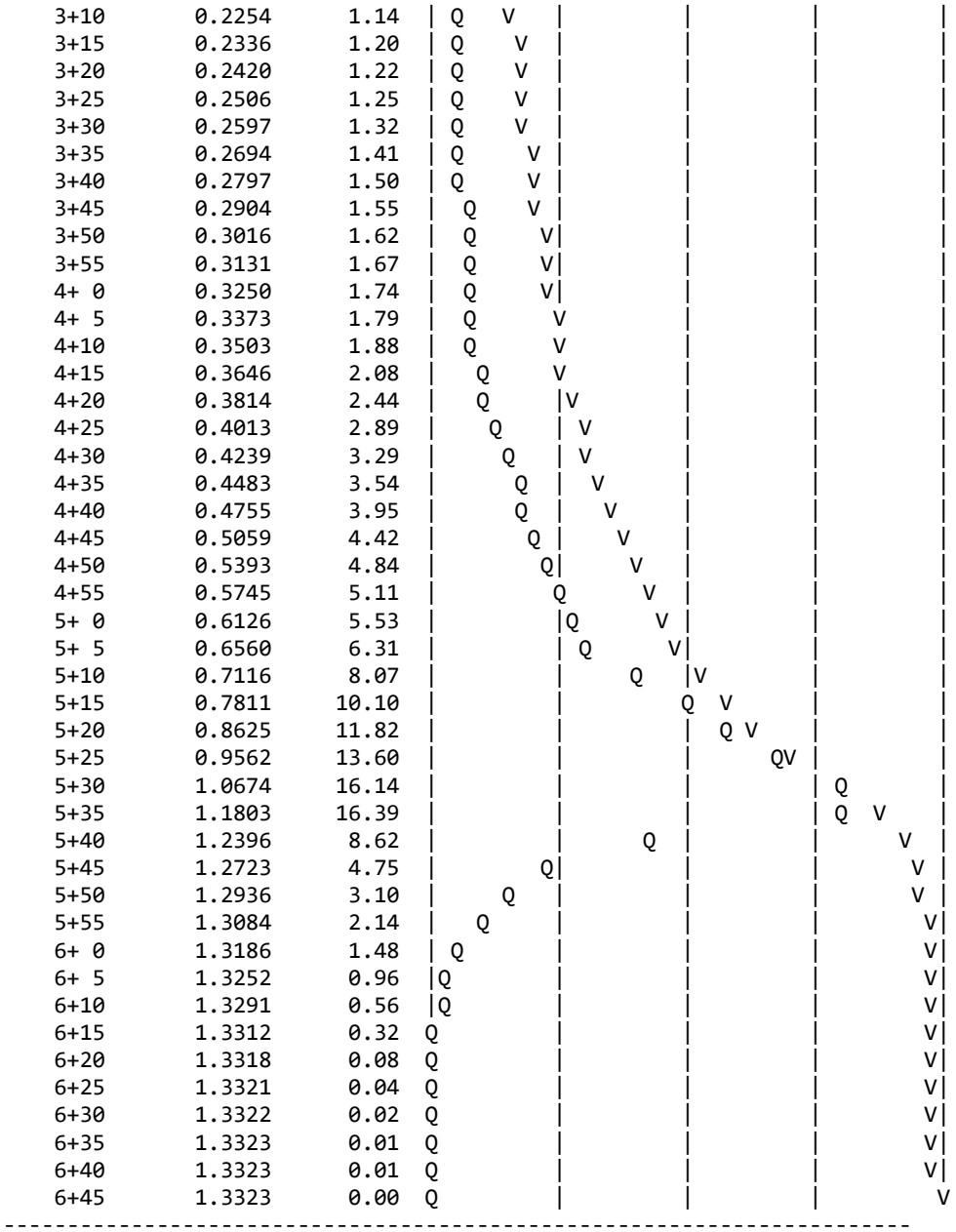
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.104	(0.290)	0.081	0.022
2	0.17	0.60	0.124	(0.290)	0.098	0.027
3	0.25	0.60	0.124	(0.290)	0.098	0.027
4	0.33	0.60	0.124	(0.290)	0.098	0.027
5	0.42	0.60	0.124	(0.290)	0.098	0.027
6	0.50	0.70	0.145	(0.290)	0.114	0.031
7	0.58	0.70	0.145	(0.290)	0.114	0.031
8	0.67	0.70	0.145	(0.290)	0.114	0.031
9	0.75	0.70	0.145	(0.290)	0.114	0.031
10	0.83	0.70	0.145	(0.290)	0.114	0.031

11	0.92	0.70	0.145	(	0.290)		0.114		0.031
12	1.00	0.80	0.166	(	0.290)		0.130		0.035
13	1.08	0.80	0.166	(	0.290)		0.130		0.035
14	1.17	0.80	0.166	(	0.290)		0.130		0.035
15	1.25	0.80	0.166	(	0.290)		0.130		0.035
16	1.33	0.80	0.166	(	0.290)		0.130		0.035
17	1.42	0.80	0.166	(	0.290)		0.130		0.035
18	1.50	0.80	0.166	(	0.290)		0.130		0.035
19	1.58	0.80	0.166	(	0.290)		0.130		0.035
20	1.67	0.80	0.166	(	0.290)		0.130		0.035
21	1.75	0.80	0.166	(	0.290)		0.130		0.035
22	1.83	0.80	0.166	(	0.290)		0.130		0.035
23	1.92	0.80	0.166	(	0.290)		0.130		0.035
24	2.00	0.90	0.186	(	0.290)		0.147		0.040
25	2.08	0.80	0.166	(	0.290)		0.130		0.035
26	2.17	0.90	0.186	(	0.290)		0.147		0.040
27	2.25	0.90	0.186	(	0.290)		0.147		0.040
28	2.33	0.90	0.186	(	0.290)		0.147		0.040
29	2.42	0.90	0.186	(	0.290)		0.147		0.040
30	2.50	0.90	0.186	(	0.290)		0.147		0.040
31	2.58	0.90	0.186	(	0.290)		0.147		0.040
32	2.67	0.90	0.186	(	0.290)		0.147		0.040
33	2.75	1.00	0.207	(	0.290)		0.163		0.044
34	2.83	1.00	0.207	(	0.290)		0.163		0.044
35	2.92	1.00	0.207	(	0.290)		0.163		0.044
36	3.00	1.00	0.207	(	0.290)		0.163		0.044
37	3.08	1.00	0.207	(	0.290)		0.163		0.044
38	3.17	1.10	0.228	(	0.290)		0.179		0.049
39	3.25	1.10	0.228	(	0.290)		0.179		0.049
40	3.33	1.10	0.228	(	0.290)		0.179		0.049
41	3.42	1.20	0.249	(	0.290)		0.195		0.053
42	3.50	1.30	0.269	(	0.290)		0.212		0.058
43	3.58	1.40	0.290	(	0.290)		0.228		0.062
44	3.67	1.40	0.290	(	0.290)		0.228		0.062
45	3.75	1.50	0.311	(	0.290)		0.244		0.066
46	3.83	1.50	0.311	(	0.290)		0.244		0.066
47	3.92	1.60	0.331	(	0.290)		0.261		0.071
48	4.00	1.60	0.331	(	0.290)		0.261		0.071
49	4.08	1.70	0.352	(	0.290)		0.277		0.075
50	4.17	1.80	0.373		0.290	(	0.293)		0.083
51	4.25	1.90	0.394		0.290	(	0.309)		0.104
52	4.33	2.00	0.414		0.290	(	0.326)		0.124
53	4.42	2.10	0.435		0.290	(	0.342)		0.145
54	4.50	2.10	0.435		0.290	(	0.342)		0.145
55	4.58	2.20	0.456		0.290	(	0.358)		0.166
56	4.67	2.30	0.476		0.290	(	0.375)		0.186
57	4.75	2.40	0.497		0.290	(	0.391)		0.207
58	4.83	2.40	0.497		0.290	(	0.391)		0.207
59	4.92	2.50	0.518		0.290	(	0.407)		0.228
60	5.00	2.60	0.538		0.290	(	0.423)		0.248
61	5.08	3.10	0.642		0.290	(	0.505)		0.352
62	5.17	3.60	0.746		0.290	(	0.586)		0.456
63	5.25	3.90	0.808		0.290	(	0.635)		0.518
64	5.33	4.20	0.870		0.290	(	0.684)		0.580
65	5.42	4.70	0.973		0.290	(	0.766)		0.683
66	5.50	5.60	1.160		0.290	(	0.912)		0.870
67	5.58	1.90	0.394		0.290	(	0.309)		0.104
68	5.67	0.90	0.186	(	0.290)		0.147		0.040
69	5.75	0.60	0.124	(	0.290)		0.098		0.027
70	5.83	0.50	0.104	(	0.290)		0.081		0.022

```
71   5.92     0.30      0.062       (  0.290)       0.049        0.013
72   6.00     0.20      0.041       (  0.290)       0.033        0.009
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     7.6
      Flood volume = Effective rainfall      0.63(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.3(Ac.Ft)
      Total soil loss =      1.10(In)
      Total soil loss =     2.318(Ac.Ft)
      Total rainfall =      1.73(In)
      Flood volume =       58036.5 Cubic Feet
      Total soil loss =      100974.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     16.392(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0006      0.08  Q         |          |          |          |
  0+10       0.0030      0.35  Q         |          |          |          |
  0+15       0.0065      0.51  VQ        |          |          |          |
  0+20       0.0105      0.58  VQ        |          |          |          |
  0+25       0.0147      0.62  VQ        |          |          |          |
  0+30       0.0193      0.65  VQ        |          |          |          |
  0+35       0.0242      0.72  VQ        |          |          |          |
  0+40       0.0294      0.75  VQ        |          |          |          |
  0+45       0.0347      0.77  |Q        |          |          |          |
  0+50       0.0401      0.78  |Q        |          |          |          |
  0+55       0.0455      0.79  |Q        |          |          |          |
  1+ 0       0.0511      0.80  |Q        |          |          |          |
  1+ 5       0.0570      0.86  |Q        |          |          |          |
  1+10       0.0630      0.88  |Q        |          |          |          |
  1+15       0.0692      0.89  |QV       |          |          |          |
  1+20       0.0753      0.90  |QV       |          |          |          |
  1+25       0.0815      0.90  |QV       |          |          |          |
  1+30       0.0877      0.90  |QV       |          |          |          |
  1+35       0.0940      0.90  |QV       |          |          |          |
  1+40       0.1002      0.90  |Q V      |          |          |          |
  1+45       0.1064      0.91  |Q V      |          |          |          |
  1+50       0.1127      0.91  |Q V      |          |          |          |
  1+55       0.1189      0.91  |Q V      |          |          |          |
  2+ 0       0.1253      0.92  |Q V      |          |          |          |
  2+ 5       0.1318      0.96  |Q V      |          |          |          |
  2+10       0.1383      0.94  |Q  V     |          |          |          |
  2+15       0.1451      0.98  |Q  V     |          |          |          |
  2+20       0.1520      1.00  | Q V     |          |          |          |
  2+25       0.1589      1.01  | Q V     |          |          |          |
  2+30       0.1659      1.01  | Q V     |          |          |          |
  2+35       0.1729      1.01  | Q  V    |          |          |          |
  2+40       0.1799      1.02  | Q  V    |          |          |          |
  2+45       0.1870      1.03  | Q  V    |          |          |          |
  2+50       0.1945      1.09  | Q  V    |          |          |          |
  2+55       0.2021      1.11  | Q   V   |          |          |          |
  3+ 0       0.2098      1.12  | Q   V   |          |          |          |
  3+ 5       0.2175      1.12  | Q   V   |          |          |          |
```


3+10 0.2254 1.14
3+15 0.2336 1.20
3+20 0.2420 1.22
3+25 0.2506 1.25
3+30 0.2597 1.32
3+35 0.2694 1.41
3+40 0.2797 1.50
3+45 0.2904 1.55
3+50 0.3016 1.62
3+55 0.3131 1.67
4+ 0 0.3250 1.74
4+ 5 0.3373 1.79
4+10 0.3503 1.88
4+15 0.3646 2.08
4+20 0.3814 2.44
4+25 0.4013 2.89
4+30 0.4239 3.29
4+35 0.4483 3.54
4+40 0.4755 3.95
4+45 0.5059 4.42
4+50 0.5393 4.84
4+55 0.5745 5.11
5+ 0 0.6126 5.53
5+ 5 0.6560 6.31
5+10 0.7116 8.07
5+15 0.7811 10.10
5+20 0.8625 11.82
5+25 0.9562 13.60
5+30 1.0674 16.14
5+35 1.1803 16.39
5+40 1.2396 8.62
5+45 1.2723 4.75
5+50 1.2936 3.10
5+55 1.3084 2.14
6+ 0 1.3186 1.48
6+ 5 1.3252 0.96
6+10 1.3291 0.56
6+15 1.3312 0.32
6+20 1.3318 0.08
6+25 1.3321 0.04
6+30 1.3322 0.02
6+35 1.3323 0.01
6+40 1.3323 0.01
6+45 1.3323 0.00

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 24 HOUR
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 3.199(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.198(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.026	(0.514)	0.020	0.005
2	0.17	0.07	0.026	(0.512)	0.020	0.005
3	0.25	0.07	0.026	(0.510)	0.020	0.005
4	0.33	0.10	0.038	(0.508)	0.030	0.008
5	0.42	0.10	0.038	(0.506)	0.030	0.008
6	0.50	0.10	0.038	(0.504)	0.030	0.008
7	0.58	0.10	0.038	(0.502)	0.030	0.008
8	0.67	0.10	0.038	(0.500)	0.030	0.008
9	0.75	0.10	0.038	(0.498)	0.030	0.008
10	0.83	0.13	0.051	(0.496)	0.040	0.011

11	0.92	0.13	0.051	(0.494)	0.040	0.011
12	1.00	0.13	0.051	(0.492)	0.040	0.011
13	1.08	0.10	0.038	(0.490)	0.030	0.008
14	1.17	0.10	0.038	(0.489)	0.030	0.008
15	1.25	0.10	0.038	(0.487)	0.030	0.008
16	1.33	0.10	0.038	(0.485)	0.030	0.008
17	1.42	0.10	0.038	(0.483)	0.030	0.008
18	1.50	0.10	0.038	(0.481)	0.030	0.008
19	1.58	0.10	0.038	(0.479)	0.030	0.008
20	1.67	0.10	0.038	(0.477)	0.030	0.008
21	1.75	0.10	0.038	(0.475)	0.030	0.008
22	1.83	0.13	0.051	(0.473)	0.040	0.011
23	1.92	0.13	0.051	(0.471)	0.040	0.011
24	2.00	0.13	0.051	(0.469)	0.040	0.011
25	2.08	0.13	0.051	(0.467)	0.040	0.011
26	2.17	0.13	0.051	(0.466)	0.040	0.011
27	2.25	0.13	0.051	(0.464)	0.040	0.011
28	2.33	0.13	0.051	(0.462)	0.040	0.011
29	2.42	0.13	0.051	(0.460)	0.040	0.011
30	2.50	0.13	0.051	(0.458)	0.040	0.011
31	2.58	0.17	0.064	(0.456)	0.050	0.014
32	2.67	0.17	0.064	(0.454)	0.050	0.014
33	2.75	0.17	0.064	(0.452)	0.050	0.014
34	2.83	0.17	0.064	(0.451)	0.050	0.014
35	2.92	0.17	0.064	(0.449)	0.050	0.014
36	3.00	0.17	0.064	(0.447)	0.050	0.014
37	3.08	0.17	0.064	(0.445)	0.050	0.014
38	3.17	0.17	0.064	(0.443)	0.050	0.014
39	3.25	0.17	0.064	(0.441)	0.050	0.014
40	3.33	0.17	0.064	(0.439)	0.050	0.014
41	3.42	0.17	0.064	(0.438)	0.050	0.014
42	3.50	0.17	0.064	(0.436)	0.050	0.014
43	3.58	0.17	0.064	(0.434)	0.050	0.014
44	3.67	0.17	0.064	(0.432)	0.050	0.014
45	3.75	0.17	0.064	(0.430)	0.050	0.014
46	3.83	0.20	0.077	(0.429)	0.060	0.016
47	3.92	0.20	0.077	(0.427)	0.060	0.016
48	4.00	0.20	0.077	(0.425)	0.060	0.016
49	4.08	0.20	0.077	(0.423)	0.060	0.016
50	4.17	0.20	0.077	(0.421)	0.060	0.016
51	4.25	0.20	0.077	(0.419)	0.060	0.016
52	4.33	0.23	0.090	(0.418)	0.070	0.019
53	4.42	0.23	0.090	(0.416)	0.070	0.019
54	4.50	0.23	0.090	(0.414)	0.070	0.019
55	4.58	0.23	0.090	(0.412)	0.070	0.019
56	4.67	0.23	0.090	(0.411)	0.070	0.019
57	4.75	0.23	0.090	(0.409)	0.070	0.019
58	4.83	0.27	0.102	(0.407)	0.080	0.022
59	4.92	0.27	0.102	(0.405)	0.080	0.022
60	5.00	0.27	0.102	(0.404)	0.080	0.022
61	5.08	0.20	0.077	(0.402)	0.060	0.016
62	5.17	0.20	0.077	(0.400)	0.060	0.016
63	5.25	0.20	0.077	(0.398)	0.060	0.016
64	5.33	0.23	0.090	(0.397)	0.070	0.019
65	5.42	0.23	0.090	(0.395)	0.070	0.019
66	5.50	0.23	0.090	(0.393)	0.070	0.019
67	5.58	0.27	0.102	(0.391)	0.080	0.022
68	5.67	0.27	0.102	(0.390)	0.080	0.022
69	5.75	0.27	0.102	(0.388)	0.080	0.022
70	5.83	0.27	0.102	(0.386)	0.080	0.022

71	5.92	0.27	0.102	(0.385)	0.080	0.022
72	6.00	0.27	0.102	(0.383)	0.080	0.022
73	6.08	0.30	0.115	(0.381)	0.091	0.025
74	6.17	0.30	0.115	(0.379)	0.091	0.025
75	6.25	0.30	0.115	(0.378)	0.091	0.025
76	6.33	0.30	0.115	(0.376)	0.091	0.025
77	6.42	0.30	0.115	(0.374)	0.091	0.025
78	6.50	0.30	0.115	(0.373)	0.091	0.025
79	6.58	0.33	0.128	(0.371)	0.101	0.027
80	6.67	0.33	0.128	(0.369)	0.101	0.027
81	6.75	0.33	0.128	(0.368)	0.101	0.027
82	6.83	0.33	0.128	(0.366)	0.101	0.027
83	6.92	0.33	0.128	(0.364)	0.101	0.027
84	7.00	0.33	0.128	(0.363)	0.101	0.027
85	7.08	0.33	0.128	(0.361)	0.101	0.027
86	7.17	0.33	0.128	(0.359)	0.101	0.027
87	7.25	0.33	0.128	(0.358)	0.101	0.027
88	7.33	0.37	0.141	(0.356)	0.111	0.030
89	7.42	0.37	0.141	(0.354)	0.111	0.030
90	7.50	0.37	0.141	(0.353)	0.111	0.030
91	7.58	0.40	0.154	(0.351)	0.121	0.033
92	7.67	0.40	0.154	(0.350)	0.121	0.033
93	7.75	0.40	0.154	(0.348)	0.121	0.033
94	7.83	0.43	0.166	(0.346)	0.131	0.036
95	7.92	0.43	0.166	(0.345)	0.131	0.036
96	8.00	0.43	0.166	(0.343)	0.131	0.036
97	8.08	0.50	0.192	(0.342)	0.151	0.041
98	8.17	0.50	0.192	(0.340)	0.151	0.041
99	8.25	0.50	0.192	(0.338)	0.151	0.041
100	8.33	0.50	0.192	(0.337)	0.151	0.041
101	8.42	0.50	0.192	(0.335)	0.151	0.041
102	8.50	0.50	0.192	(0.334)	0.151	0.041
103	8.58	0.53	0.205	(0.332)	0.161	0.044
104	8.67	0.53	0.205	(0.331)	0.161	0.044
105	8.75	0.53	0.205	(0.329)	0.161	0.044
106	8.83	0.57	0.217	(0.327)	0.171	0.046
107	8.92	0.57	0.217	(0.326)	0.171	0.046
108	9.00	0.57	0.217	(0.324)	0.171	0.046
109	9.08	0.63	0.243	(0.323)	0.191	0.052
110	9.17	0.63	0.243	(0.321)	0.191	0.052
111	9.25	0.63	0.243	(0.320)	0.191	0.052
112	9.33	0.67	0.256	(0.318)	0.201	0.055
113	9.42	0.67	0.256	(0.317)	0.201	0.055
114	9.50	0.67	0.256	(0.315)	0.201	0.055
115	9.58	0.70	0.269	(0.314)	0.211	0.057
116	9.67	0.70	0.269	(0.312)	0.211	0.057
117	9.75	0.70	0.269	(0.311)	0.211	0.057
118	9.83	0.73	0.281	(0.309)	0.221	0.060
119	9.92	0.73	0.281	(0.308)	0.221	0.060
120	10.00	0.73	0.281	(0.306)	0.221	0.060
121	10.08	0.50	0.192	(0.305)	0.151	0.041
122	10.17	0.50	0.192	(0.303)	0.151	0.041
123	10.25	0.50	0.192	(0.302)	0.151	0.041
124	10.33	0.50	0.192	(0.300)	0.151	0.041
125	10.42	0.50	0.192	(0.299)	0.151	0.041
126	10.50	0.50	0.192	(0.297)	0.151	0.041
127	10.58	0.67	0.256	(0.296)	0.201	0.055
128	10.67	0.67	0.256	(0.295)	0.201	0.055
129	10.75	0.67	0.256	(0.293)	0.201	0.055
130	10.83	0.67	0.256	(0.292)	0.201	0.055

131	10.92	0.67	0.256	(0.290)	0.201	0.055
132	11.00	0.67	0.256	(0.289)	0.201	0.055
133	11.08	0.63	0.243	(0.287)	0.191	0.052
134	11.17	0.63	0.243	(0.286)	0.191	0.052
135	11.25	0.63	0.243	(0.285)	0.191	0.052
136	11.33	0.63	0.243	(0.283)	0.191	0.052
137	11.42	0.63	0.243	(0.282)	0.191	0.052
138	11.50	0.63	0.243	(0.280)	0.191	0.052
139	11.58	0.57	0.217	(0.279)	0.171	0.046
140	11.67	0.57	0.217	(0.278)	0.171	0.046
141	11.75	0.57	0.217	(0.276)	0.171	0.046
142	11.83	0.60	0.230	(0.275)	0.181	0.049
143	11.92	0.60	0.230	(0.273)	0.181	0.049
144	12.00	0.60	0.230	(0.272)	0.181	0.049
145	12.08	0.83	0.320	(0.271)	0.252	0.068
146	12.17	0.83	0.320	(0.269)	0.252	0.068
147	12.25	0.83	0.320	(0.268)	0.252	0.068
148	12.33	0.87	0.333	(0.267)	0.262	0.071
149	12.42	0.87	0.333	(0.265)	0.262	0.071
150	12.50	0.87	0.333	(0.264)	0.262	0.071
151	12.58	0.93	0.358	0.263	(0.282)	0.096
152	12.67	0.93	0.358	0.261	(0.282)	0.097
153	12.75	0.93	0.358	0.260	(0.282)	0.098
154	12.83	0.97	0.371	0.259	(0.292)	0.112
155	12.92	0.97	0.371	0.257	(0.292)	0.114
156	13.00	0.97	0.371	0.256	(0.292)	0.115
157	13.08	1.13	0.435	0.255	(0.342)	0.180
158	13.17	1.13	0.435	0.254	(0.342)	0.181
159	13.25	1.13	0.435	0.252	(0.342)	0.183
160	13.33	1.13	0.435	0.251	(0.342)	0.184
161	13.42	1.13	0.435	0.250	(0.342)	0.185
162	13.50	1.13	0.435	0.248	(0.342)	0.187
163	13.58	0.77	0.294	(0.247)	0.231	0.063
164	13.67	0.77	0.294	(0.246)	0.231	0.063
165	13.75	0.77	0.294	(0.245)	0.231	0.063
166	13.83	0.77	0.294	(0.243)	0.231	0.063
167	13.92	0.77	0.294	(0.242)	0.231	0.063
168	14.00	0.77	0.294	(0.241)	0.231	0.063
169	14.08	0.90	0.345	0.240	(0.272)	0.106
170	14.17	0.90	0.345	0.238	(0.272)	0.107
171	14.25	0.90	0.345	0.237	(0.272)	0.108
172	14.33	0.87	0.333	0.236	(0.262)	0.097
173	14.42	0.87	0.333	0.235	(0.262)	0.098
174	14.50	0.87	0.333	0.234	(0.262)	0.099
175	14.58	0.87	0.333	0.232	(0.262)	0.100
176	14.67	0.87	0.333	0.231	(0.262)	0.101
177	14.75	0.87	0.333	0.230	(0.262)	0.103
178	14.83	0.83	0.320	0.229	(0.252)	0.091
179	14.92	0.83	0.320	0.228	(0.252)	0.092
180	15.00	0.83	0.320	0.227	(0.252)	0.093
181	15.08	0.80	0.307	0.225	(0.241)	0.082
182	15.17	0.80	0.307	0.224	(0.241)	0.083
183	15.25	0.80	0.307	0.223	(0.241)	0.084
184	15.33	0.77	0.294	0.222	(0.231)	0.072
185	15.42	0.77	0.294	0.221	(0.231)	0.073
186	15.50	0.77	0.294	0.220	(0.231)	0.075
187	15.58	0.63	0.243	(0.219)	0.191	0.052
188	15.67	0.63	0.243	(0.217)	0.191	0.052
189	15.75	0.63	0.243	(0.216)	0.191	0.052
190	15.83	0.63	0.243	(0.215)	0.191	0.052

191	15.92	0.63	0.243	(0.214)	0.191	0.052
192	16.00	0.63	0.243	(0.213)	0.191	0.052
193	16.08	0.13	0.051	(0.212)	0.040	0.011
194	16.17	0.13	0.051	(0.211)	0.040	0.011
195	16.25	0.13	0.051	(0.210)	0.040	0.011
196	16.33	0.13	0.051	(0.209)	0.040	0.011
197	16.42	0.13	0.051	(0.208)	0.040	0.011
198	16.50	0.13	0.051	(0.207)	0.040	0.011
199	16.58	0.10	0.038	(0.205)	0.030	0.008
200	16.67	0.10	0.038	(0.204)	0.030	0.008
201	16.75	0.10	0.038	(0.203)	0.030	0.008
202	16.83	0.10	0.038	(0.202)	0.030	0.008
203	16.92	0.10	0.038	(0.201)	0.030	0.008
204	17.00	0.10	0.038	(0.200)	0.030	0.008
205	17.08	0.17	0.064	(0.199)	0.050	0.014
206	17.17	0.17	0.064	(0.198)	0.050	0.014
207	17.25	0.17	0.064	(0.197)	0.050	0.014
208	17.33	0.17	0.064	(0.196)	0.050	0.014
209	17.42	0.17	0.064	(0.195)	0.050	0.014
210	17.50	0.17	0.064	(0.194)	0.050	0.014
211	17.58	0.17	0.064	(0.193)	0.050	0.014
212	17.67	0.17	0.064	(0.192)	0.050	0.014
213	17.75	0.17	0.064	(0.191)	0.050	0.014
214	17.83	0.13	0.051	(0.191)	0.040	0.011
215	17.92	0.13	0.051	(0.190)	0.040	0.011
216	18.00	0.13	0.051	(0.189)	0.040	0.011
217	18.08	0.13	0.051	(0.188)	0.040	0.011
218	18.17	0.13	0.051	(0.187)	0.040	0.011
219	18.25	0.13	0.051	(0.186)	0.040	0.011
220	18.33	0.13	0.051	(0.185)	0.040	0.011
221	18.42	0.13	0.051	(0.184)	0.040	0.011
222	18.50	0.13	0.051	(0.183)	0.040	0.011
223	18.58	0.10	0.038	(0.182)	0.030	0.008
224	18.67	0.10	0.038	(0.181)	0.030	0.008
225	18.75	0.10	0.038	(0.181)	0.030	0.008
226	18.83	0.07	0.026	(0.180)	0.020	0.005
227	18.92	0.07	0.026	(0.179)	0.020	0.005
228	19.00	0.07	0.026	(0.178)	0.020	0.005
229	19.08	0.10	0.038	(0.177)	0.030	0.008
230	19.17	0.10	0.038	(0.176)	0.030	0.008
231	19.25	0.10	0.038	(0.175)	0.030	0.008
232	19.33	0.13	0.051	(0.175)	0.040	0.011
233	19.42	0.13	0.051	(0.174)	0.040	0.011
234	19.50	0.13	0.051	(0.173)	0.040	0.011
235	19.58	0.10	0.038	(0.172)	0.030	0.008
236	19.67	0.10	0.038	(0.171)	0.030	0.008
237	19.75	0.10	0.038	(0.171)	0.030	0.008
238	19.83	0.07	0.026	(0.170)	0.020	0.005
239	19.92	0.07	0.026	(0.169)	0.020	0.005
240	20.00	0.07	0.026	(0.168)	0.020	0.005
241	20.08	0.10	0.038	(0.168)	0.030	0.008
242	20.17	0.10	0.038	(0.167)	0.030	0.008
243	20.25	0.10	0.038	(0.166)	0.030	0.008
244	20.33	0.10	0.038	(0.165)	0.030	0.008
245	20.42	0.10	0.038	(0.165)	0.030	0.008
246	20.50	0.10	0.038	(0.164)	0.030	0.008
247	20.58	0.10	0.038	(0.163)	0.030	0.008
248	20.67	0.10	0.038	(0.163)	0.030	0.008
249	20.75	0.10	0.038	(0.162)	0.030	0.008
250	20.83	0.07	0.026	(0.161)	0.020	0.005

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251  20.92     0.07      0.026       (  0.161)       0.020        0.005
252  21.00     0.07      0.026       (  0.160)       0.020        0.005
253  21.08     0.10      0.038       (  0.159)       0.030        0.008
254  21.17     0.10      0.038       (  0.159)       0.030        0.008
255  21.25     0.10      0.038       (  0.158)       0.030        0.008
256  21.33     0.07      0.026       (  0.158)       0.020        0.005
257  21.42     0.07      0.026       (  0.157)       0.020        0.005
258  21.50     0.07      0.026       (  0.156)       0.020        0.005
259  21.58     0.10      0.038       (  0.156)       0.030        0.008
260  21.67     0.10      0.038       (  0.155)       0.030        0.008
261  21.75     0.10      0.038       (  0.155)       0.030        0.008
262  21.83     0.07      0.026       (  0.154)       0.020        0.005
263  21.92     0.07      0.026       (  0.154)       0.020        0.005
264  22.00     0.07      0.026       (  0.153)       0.020        0.005
265  22.08     0.10      0.038       (  0.153)       0.030        0.008
266  22.17     0.10      0.038       (  0.152)       0.030        0.008
267  22.25     0.10      0.038       (  0.152)       0.030        0.008
268  22.33     0.07      0.026       (  0.151)       0.020        0.005
269  22.42     0.07      0.026       (  0.151)       0.020        0.005
270  22.50     0.07      0.026       (  0.150)       0.020        0.005
271  22.58     0.07      0.026       (  0.150)       0.020        0.005
272  22.67     0.07      0.026       (  0.149)       0.020        0.005
273  22.75     0.07      0.026       (  0.149)       0.020        0.005
274  22.83     0.07      0.026       (  0.149)       0.020        0.005
275  22.92     0.07      0.026       (  0.148)       0.020        0.005
276  23.00     0.07      0.026       (  0.148)       0.020        0.005
277  23.08     0.07      0.026       (  0.148)       0.020        0.005
278  23.17     0.07      0.026       (  0.147)       0.020        0.005
279  23.25     0.07      0.026       (  0.147)       0.020        0.005
280  23.33     0.07      0.026       (  0.147)       0.020        0.005
281  23.42     0.07      0.026       (  0.146)       0.020        0.005
282  23.50     0.07      0.026       (  0.146)       0.020        0.005
283  23.58     0.07      0.026       (  0.146)       0.020        0.005
284  23.67     0.07      0.026       (  0.146)       0.020        0.005
285  23.75     0.07      0.026       (  0.145)       0.020        0.005
286  23.83     0.07      0.026       (  0.145)       0.020        0.005
287  23.92     0.07      0.026       (  0.145)       0.020        0.005
288  24.00     0.07      0.026       (  0.145)       0.020        0.005
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     9.3
       Flood volume = Effective rainfall      0.78(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       1.6(Ac.Ft)
       Total soil loss =      2.42(In)
       Total soil loss =     5.120(Ac.Ft)
       Total rainfall =      3.20(In)
       Flood volume =       71644.6 Cubic Feet
       Total soil loss =      223026.7 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =      4.622(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0001      0.02  Q         |         |         |         |
```

0+10	0.0007	0.08	Q				
0+15	0.0015	0.11	Q				
0+20	0.0024	0.13	Q				
0+25	0.0035	0.17	Q				
0+30	0.0048	0.19	Q				
0+35	0.0062	0.20	Q				
0+40	0.0076	0.20	Q				
0+45	0.0090	0.20	Q				
0+50	0.0105	0.22	Q				
0+55	0.0122	0.25	VQ				
1+ 0	0.0140	0.26	VQ				
1+ 5	0.0158	0.26	VQ				
1+10	0.0174	0.23	Q				
1+15	0.0189	0.22	Q				
1+20	0.0204	0.22	Q				
1+25	0.0219	0.21	Q				
1+30	0.0234	0.21	Q				
1+35	0.0248	0.21	Q				
1+40	0.0263	0.21	Q				
1+45	0.0277	0.21	Q				
1+50	0.0292	0.22	Q				
1+55	0.0310	0.25	VQ				
2+ 0	0.0328	0.26	VQ				
2+ 5	0.0347	0.27	VQ				
2+10	0.0365	0.27	VQ				
2+15	0.0384	0.28	VQ				
2+20	0.0404	0.28	VQ				
2+25	0.0423	0.28	|Q				
2+30	0.0442	0.28	|Q				
2+35	0.0462	0.29	|Q				
2+40	0.0484	0.32	|Q				
2+45	0.0507	0.33	|Q				
2+50	0.0530	0.34	|Q				
2+55	0.0554	0.34	|Q				
3+ 0	0.0578	0.35	|Q				
3+ 5	0.0602	0.35	|Q				
3+10	0.0626	0.35	|Q				
3+15	0.0650	0.35	|Q				
3+20	0.0674	0.35	|Q				
3+25	0.0698	0.35	|Q				
3+30	0.0722	0.35	|Q				
3+35	0.0746	0.35	|Q				
3+40	0.0770	0.35	|Q				
3+45	0.0794	0.35	|Q				
3+50	0.0819	0.36	|Q				
3+55	0.0846	0.39	|QV				
4+ 0	0.0874	0.40	|QV				
4+ 5	0.0902	0.41	|QV				
4+10	0.0931	0.41	|QV				
4+15	0.0959	0.42	|QV				
4+20	0.0989	0.43	|QV				
4+25	0.1020	0.46	|QV				
4+30	0.1053	0.47	|QV				
4+35	0.1086	0.48	|QV				
4+40	0.1119	0.48	|QV				
4+45	0.1153	0.49	|QV				
4+50	0.1187	0.50	|QV				
4+55	0.1224	0.53	| Q				
5+ 0	0.1261	0.54	| QV				
5+ 5	0.1298	0.53	| QV				

5+10	0.1330	0.47	|Q V	|	|	|	|
5+15	0.1361	0.45	|Q V	|	|	|	|
5+20	0.1391	0.45	|Q V	|	|	|	|
5+25	0.1424	0.47	|Q V	|	|	|	|
5+30	0.1457	0.48	|Q V	|	|	|	|
5+35	0.1491	0.49	|Q V	|	|	|	|
5+40	0.1528	0.53	| QV	|	|	|	|
5+45	0.1565	0.54	| QV	|	|	|	|
5+50	0.1603	0.55	| QV	|	|	|	|
5+55	0.1641	0.55	| QV	|	|	|	|
6+ 0	0.1679	0.55	| Q V	|	|	|	|
6+ 5	0.1718	0.57	| Q V	|	|	|	|
6+10	0.1759	0.60	| Q V	|	|	|	|
6+15	0.1801	0.61	| Q V	|	|	|	|
6+20	0.1844	0.62	| Q V	|	|	|	|
6+25	0.1887	0.62	| Q V	|	|	|	|
6+30	0.1930	0.63	| Q V	|	|	|	|
6+35	0.1974	0.64	| Q V	|	|	|	|
6+40	0.2020	0.67	| Q V	|	|	|	|
6+45	0.2067	0.68	| Q V	|	|	|	|
6+50	0.2115	0.69	| Q V	|	|	|	|
6+55	0.2163	0.69	| Q V	|	|	|	|
7+ 0	0.2210	0.70	| Q V	|	|	|	|
7+ 5	0.2258	0.70	| Q V	|	|	|	|
7+10	0.2307	0.70	| Q V	|	|	|	|
7+15	0.2355	0.70	| Q V	|	|	|	|
7+20	0.2403	0.71	| Q V	|	|	|	|
7+25	0.2455	0.74	| Q V	|	|	|	|
7+30	0.2506	0.75	| Q V	|	|	|	|
7+35	0.2559	0.77	| Q V	|	|	|	|
7+40	0.2615	0.80	| Q V	|	|	|	|
7+45	0.2671	0.82	| Q V	|	|	|	|
7+50	0.2729	0.84	| Q V	|	|	|	|
7+55	0.2789	0.87	| Q V	|	|	|	|
8+ 0	0.2851	0.89	| Q V	|	|	|	|
8+ 5	0.2914	0.92	| Q V	|	|	|	|
8+10	0.2982	0.99	| Q V	|	|	|	|
8+15	0.3051	1.01	| Q V	|	|	|	|
8+20	0.3122	1.03	| Q V	|	|	|	|
8+25	0.3194	1.04	| Q V	|	|	|	|
8+30	0.3265	1.04	| Q V	|	|	|	|
8+35	0.3338	1.05	| Q V	|	|	|	|
8+40	0.3413	1.09	| Q V	|	|	|	|
8+45	0.3489	1.10	| Q V	|	|	|	|
8+50	0.3566	1.12	| Q V	|	|	|	|
8+55	0.3645	1.15	| Q V	|	|	|	|
9+ 0	0.3726	1.17	| Q V|	|	|	|	|
9+ 5	0.3808	1.20	| Q V|	|	|	|	|
9+10	0.3895	1.26	| Q V|	|	|	|	|
9+15	0.3985	1.29	| Q V|	|	|	|	|
9+20	0.4075	1.32	| Q V|	|	|	|	|
9+25	0.4169	1.36	| Q V	|	|	|	|
9+30	0.4264	1.38	| Q V	|	|	|	|
9+35	0.4360	1.39	| Q V	|	|	|	|
9+40	0.4458	1.43	| Q V	|	|	|	|
9+45	0.4558	1.45	| Q |V	|	|	|	|
9+50	0.4659	1.47	| Q |V	|	|	|	|
9+55	0.4763	1.50	| Q |V	|	|	|	|
10+ 0	0.4867	1.52	| Q |V	|	|	|	|
10+ 5	0.4968	1.46	| Q | V	|	|	|	|

10+10	0.5053	1.24	Q	V			
10+15	0.5132	1.15	Q	V			
10+20	0.5209	1.11	Q	V			
10+25	0.5284	1.09	Q	V			
10+30	0.5358	1.08	Q	V			
10+35	0.5435	1.11	Q	V			
10+40	0.5522	1.27	Q	V			
10+45	0.5613	1.33	Q	V			
10+50	0.5706	1.35	Q	V			
10+55	0.5801	1.37	Q	V			
11+ 0	0.5896	1.38	Q	V			
11+ 5	0.5990	1.38	Q	V			
11+10	0.6083	1.35	Q	V			
11+15	0.6176	1.34	Q	V			
11+20	0.6268	1.34	Q	V			
11+25	0.6360	1.33	Q	V			
11+30	0.6452	1.33	Q	V			
11+35	0.6542	1.31	Q	V			
11+40	0.6628	1.25	Q	V			
11+45	0.6712	1.22	Q	V			
11+50	0.6796	1.22	Q	V			
11+55	0.6881	1.24	Q	V			
12+ 0	0.6967	1.25	Q	V			
12+ 5	0.7059	1.32	Q	V			
12+10	0.7165	1.55	Q	V			
12+15	0.7278	1.64	Q	V			
12+20	0.7395	1.69	Q	V			
12+25	0.7515	1.75	Q	V			
12+30	0.7637	1.78	Q	V			
12+35	0.7767	1.88	Q	V			
12+40	0.7917	2.18	Q	V			
12+45	0.8077	2.33	Q	V			
12+50	0.8247	2.46	Q	V			
12+55	0.8430	2.67	Q	V			
13+ 0	0.8622	2.78	Q	V			
13+ 5	0.8834	3.08	Q	V			
13+10	0.9101	3.88	Q	V			
13+15	0.9394	4.24	Q	V			
13+20	0.9698	4.42	Q	V			
13+25	1.0011	4.54	Q	V			
13+30	1.0329	4.62	Q	V			
13+35	1.0621	4.24	Q	V			
13+40	1.0817	2.84	Q	V			
13+45	1.0972	2.26	Q	V			
13+50	1.1112	2.02	Q	V			
13+55	1.1241	1.87	Q	V			
14+ 0	1.1363	1.78	Q	V			
14+ 5	1.1492	1.87	Q	V			
14+10	1.1652	2.33	Q	V			
14+15	1.1826	2.53	Q	V			
14+20	1.2003	2.56	Q	V			
14+25	1.2174	2.49	Q	V			
14+30	1.2346	2.49	Q	V			
14+35	1.2519	2.52	Q	V			
14+40	1.2695	2.55	Q	V			
14+45	1.2873	2.58	Q	V			
14+50	1.3049	2.57	Q	V			
14+55	1.3217	2.44	Q	V			
15+ 0	1.3383	2.41	Q	V			
15+ 5	1.3546	2.36	Q	V			

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15+10       1.3699      2.23  |       Q |         |         |  V      |
15+15       1.3850      2.18  |       Q |         |         |  V      |
15+20       1.3997      2.13  |       Q |         |         |   V     |
15+25       1.4134      1.99  |      Q  |         |         |   V     |
15+30       1.4268      1.95  |      Q  |         |         |   V     |
15+35       1.4396      1.85  |      Q  |         |         |    V    |
15+40       1.4505      1.58  |     Q   |         |         |    V    |
15+45       1.4606      1.46  |    Q    |         |         |    V    |
15+50       1.4703      1.41  |    Q    |         |         |    V    |
15+55       1.4798      1.38  |    Q    |         |         |    V    |
16+ 0       1.4892      1.36  |    Q    |         |         |     V   |
16+ 5       1.4974      1.20  |   Q     |         |         |     V   |
16+10       1.5024      0.72  | Q       |         |         |     V   |
16+15       1.5059      0.51  | Q       |         |         |     V   |
16+20       1.5088      0.42  |Q        |         |         |     V   |
16+25       1.5113      0.37  |Q        |         |         |     V   |
16+30       1.5136      0.34  |Q        |         |         |     V   |
16+35       1.5157      0.31  |Q        |         |         |     V   |
16+40       1.5175      0.26  |Q        |         |         |     V   |
16+45       1.5191      0.23  Q         |         |         |     V   |
16+50       1.5206      0.22  Q         |         |         |     V   |
16+55       1.5221      0.22  Q         |         |         |      V  |
17+ 0       1.5236      0.21  Q         |         |         |      V  |
17+ 5       1.5252      0.23  Q         |         |         |      V  |
17+10       1.5272      0.29  |Q        |         |         |      V  |
17+15       1.5294      0.32  |Q        |         |         |      V  |
17+20       1.5317      0.33  |Q        |         |         |      V  |
17+25       1.5340      0.34  |Q        |         |         |      V  |
17+30       1.5364      0.34  |Q        |         |         |      V  |
17+35       1.5388      0.34  |Q        |         |         |      V  |
17+40       1.5412      0.35  |Q        |         |         |      V  |
17+45       1.5436      0.35  |Q        |         |         |      V  |
17+50       1.5459      0.34  |Q        |         |         |      V  |
17+55       1.5480      0.31  |Q        |         |         |      V  |
18+ 0       1.5500      0.29  |Q        |         |         |      V  |
18+ 5       1.5520      0.29  |Q        |         |         |      V  |
18+10       1.5540      0.29  |Q        |         |         |      V  |
18+15       1.5560      0.28  |Q        |         |         |      V  |
18+20       1.5579      0.28  |Q        |         |         |      V  |
18+25       1.5598      0.28  |Q        |         |         |      V  |
18+30       1.5618      0.28  |Q        |         |         |      V  |
18+35       1.5636      0.27  |Q        |         |         |       V |
18+40       1.5653      0.24  Q         |         |         |       V |
18+45       1.5668      0.22  Q         |         |         |       V |
18+50       1.5683      0.21  Q         |         |         |       V |
18+55       1.5695      0.17  Q         |         |         |       V |
19+ 0       1.5705      0.16  Q         |         |         |       V |
19+ 5       1.5717      0.16  Q         |         |         |       V |
19+10       1.5730      0.19  Q         |         |         |       V |
19+15       1.5743      0.20  Q         |         |         |       V |
19+20       1.5758      0.21  Q         |         |         |       V |
19+25       1.5775      0.25  Q         |         |         |       V |
19+30       1.5793      0.26  |Q        |         |         |       V |
19+35       1.5811      0.26  |Q        |         |         |       V |
19+40       1.5827      0.23  Q         |         |         |       V |
19+45       1.5842      0.22  Q         |         |         |       V |
19+50       1.5856      0.21  Q         |         |         |       V |
19+55       1.5868      0.17  Q         |         |         |       V |
20+ 0       1.5879      0.16  Q         |         |         |       V |
20+ 5       1.5890      0.16  Q         |         |         |       V |
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20+10	1.5903	0.19	Q	|	|	|	V |
20+15	1.5917	0.20	Q	|	|	|	V |
20+20	1.5931	0.20	Q	|	|	|	V |
20+25	1.5945	0.21	Q	|	|	|	V |
20+30	1.5959	0.21	Q	|	|	|	V |
20+35	1.5973	0.21	Q	|	|	|	V |
20+40	1.5988	0.21	Q	|	|	|	V |
20+45	1.6002	0.21	Q	|	|	|	V |
20+50	1.6016	0.20	Q	|	|	|	V |
20+55	1.6027	0.17	Q	|	|	|	V |
21+ 0	1.6038	0.15	Q	|	|	|	V|
21+ 5	1.6049	0.16	Q	|	|	|	V|
21+10	1.6062	0.19	Q	|	|	|	V|
21+15	1.6076	0.20	Q	|	|	|	V|
21+20	1.6089	0.19	Q	|	|	|	V|
21+25	1.6100	0.16	Q	|	|	|	V|
21+30	1.6111	0.15	Q	|	|	|	V|
21+35	1.6121	0.16	Q	|	|	|	V|
21+40	1.6134	0.19	Q	|	|	|	V|
21+45	1.6148	0.20	Q	|	|	|	V|
21+50	1.6161	0.19	Q	|	|	|	V|
21+55	1.6172	0.16	Q	|	|	|	V|
22+ 0	1.6183	0.15	Q	|	|	|	V|
22+ 5	1.6194	0.16	Q	|	|	|	V|
22+10	1.6207	0.19	Q	|	|	|	V|
22+15	1.6220	0.20	Q	|	|	|	V|
22+20	1.6233	0.19	Q	|	|	|	V|
22+25	1.6245	0.16	Q	|	|	|	V|
22+30	1.6255	0.15	Q	|	|	|	V|
22+35	1.6265	0.15	Q	|	|	|	V|
22+40	1.6275	0.14	Q	|	|	|	V|
22+45	1.6285	0.14	Q	|	|	|	V|
22+50	1.6295	0.14	Q	|	|	|	V|
22+55	1.6305	0.14	Q	|	|	|	V|
23+ 0	1.6314	0.14	Q	|	|	|	V|
23+ 5	1.6324	0.14	Q	|	|	|	V|
23+10	1.6334	0.14	Q	|	|	|	V|
23+15	1.6343	0.14	Q	|	|	|	V|
23+20	1.6353	0.14	Q	|	|	|	V|
23+25	1.6362	0.14	Q	|	|	|	V|
23+30	1.6372	0.14	Q	|	|	|	V|
23+35	1.6382	0.14	Q	|	|	|	V|
23+40	1.6391	0.14	Q	|	|	|	V|
23+45	1.6401	0.14	Q	|	|	|	V|
23+50	1.6411	0.14	Q	|	|	|	V|
23+55	1.6420	0.14	Q	|	|	|	V|
24+ 0	1.6430	0.14	Q	|	|	|	V|
24+ 5	1.6438	0.12	Q	|	|	|	V|
24+10	1.6442	0.06	Q	|	|	|	V|
24+15	1.6444	0.03	Q	|	|	|	V|
24+20	1.6445	0.02	Q	|	|	|	V|
24+25	1.6446	0.01	Q	|	|	|	V|
24+30	1.6447	0.01	Q	|	|	|	V|
24+35	1.6447	0.00	Q	|	|	|	V|
24+40	1.6447	0.00	Q	|	|	|	V|
24+45	1.6447	0.00	Q	|	|	|	V|

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE12.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
2 YEAR 1 HOUR STORM
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.498(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.498(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	54.0	0.531	0.142	0.463	1.000	0.463
					Sum (F) =	0.463

Area averaged mean soil loss (F) (In/Hr) = 0.463
Minimum soil loss rate ((In/Hr)) = 0.232
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.251	(0.463)	0.197	0.054
2	0.17	4.30	0.257	(0.463)	0.202	0.055
3	0.25	5.00	0.299	(0.463)	0.235	0.064
4	0.33	5.00	0.299	(0.463)	0.235	0.064
5	0.42	5.80	0.347	(0.463)	0.273	0.074
6	0.50	6.50	0.388	(0.463)	0.305	0.083
7	0.58	7.40	0.442	(0.463)	0.348	0.094
8	0.67	8.60	0.514	(0.463)	0.404	0.110

```
 9   0.75    12.30      0.735          0.463    (  0.578)        0.272
10   0.83    29.10      1.739          0.463    (  1.367)        1.275
11   0.92     6.80      0.406       (  0.463)       0.319        0.087
12   1.00     5.00      0.299       (  0.463)       0.235        0.064
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =     2.3
      Flood volume = Effective rainfall      0.19(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       0.4(Ac.Ft)
      Total soil loss =      0.31(In)
      Total soil loss =     0.649(Ac.Ft)
      Total rainfall =      0.50(In)
      Flood volume =       17617.5 Cubic Feet
      Total soil loss =       28252.4 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     16.952(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
  ---------------------------------------------------------------------
    0+ 5       0.0013      0.19  Q         |         |         |         |
    0+10       0.0070      0.82  VQ        |         |         |         |
    0+15       0.0148      1.13  |VQ       |         |         |         |
    0+20       0.0241      1.35  | Q       |         |         |         |
    0+25       0.0344      1.50  | QV      |         |         |         |
    0+30       0.0462      1.71  |  QV     |         |         |         |
    0+35       0.0596      1.95  |  Q V    |         |         |         |
    0+40       0.0750      2.23  |   Q  V  |         |         |         |
    0+45       0.0963      3.10  |     Q  V|         |         |         |
    0+50       0.1565      8.75  |         |    V Q  |         |         |
    0+55       0.2733     16.95  |         |         |      V  |  Q      |
    1+ 0       0.3308      8.34  |         |     Q   |         | V       |
    1+ 5       0.3606      4.33  |       Q |         |         |    V    |
    1+10       0.3771      2.40  |   Q     |         |         |      V  |
    1+15       0.3871      1.45  | Q       |         |         |       V |
    1+20       0.3940      1.00  | Q       |         |         |       V |
    1+25       0.3986      0.67  |Q        |         |         |        V|
    1+30       0.4017      0.44  Q         |         |         |        V|
    1+35       0.4041      0.35  Q         |         |         |        V|
    1+40       0.4043      0.04  Q         |         |         |        V|
    1+45       0.4044      0.02  Q         |         |         |         V
---------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 1.226(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.226(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.191	(0.290)	0.150	0.041
2	0.17	1.30	0.191	(0.290)	0.150	0.041
3	0.25	1.10	0.162	(0.290)	0.127	0.035
4	0.33	1.50	0.221	(0.290)	0.174	0.047
5	0.42	1.50	0.221	(0.290)	0.174	0.047
6	0.50	1.80	0.265	(0.290)	0.208	0.057
7	0.58	1.50	0.221	(0.290)	0.174	0.047
8	0.67	1.80	0.265	(0.290)	0.208	0.057
9	0.75	1.80	0.265	(0.290)	0.208	0.057
10	0.83	1.50	0.221	(0.290)	0.174	0.047

```
11   0.92     1.60      0.235       (  0.290)       0.185        0.050
12   1.00     1.80      0.265       (  0.290)       0.208        0.057
13   1.08     2.20      0.324       (  0.290)       0.255        0.069
14   1.17     2.20      0.324       (  0.290)       0.255        0.069
15   1.25     2.20      0.324       (  0.290)       0.255        0.069
16   1.33     2.00      0.294       (  0.290)       0.231        0.063
17   1.42     2.60      0.383          0.290    (  0.301)        0.093
18   1.50     2.70      0.397          0.290    (  0.312)        0.107
19   1.58     2.40      0.353       (  0.290)       0.278        0.075
20   1.67     2.70      0.397          0.290    (  0.312)        0.107
21   1.75     3.30      0.486          0.290    (  0.382)        0.196
22   1.83     3.10      0.456          0.290    (  0.359)        0.166
23   1.92     2.90      0.427          0.290    (  0.336)        0.137
24   2.00     3.00      0.441          0.290    (  0.347)        0.151
25   2.08     3.10      0.456          0.290    (  0.359)        0.166
26   2.17     4.20      0.618          0.290    (  0.486)        0.328
27   2.25     5.00      0.736          0.290    (  0.579)        0.446
28   2.33     3.50      0.515          0.290    (  0.405)        0.225
29   2.42     6.80      1.001          0.290    (  0.787)        0.711
30   2.50     7.30      1.074          0.290    (  0.845)        0.784
31   2.58     8.20      1.207          0.290    (  0.949)        0.917
32   2.67     5.90      0.868          0.290    (  0.683)        0.578
33   2.75     2.00      0.294       (  0.290)       0.231        0.063
34   2.83     1.80      0.265       (  0.290)       0.208        0.057
35   2.92     1.80      0.265       (  0.290)       0.208        0.057
36   3.00     0.60      0.088       (  0.290)       0.069        0.019
              (Loss Rate Not Used)
   Sum =     100.0                                  Sum =     6.2
      Flood volume = Effective rainfall      0.52(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.1(Ac.Ft)
      Total soil loss =      0.71(In)
      Total soil loss =     1.495(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =       47859.0 Cubic Feet
      Total soil loss =       65114.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     18.967(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0010      0.15  Q         |         |         |         |
  0+10       0.0053      0.62  VQ        |         |         |         |
  0+15       0.0108      0.80  VQ        |         |         |         |
  0+20       0.0167      0.86  VQ        |         |         |         |
  0+25       0.0237      1.02  V Q       |         |         |         |
  0+30       0.0316      1.14  |VQ       |         |         |         |
  0+35       0.0402      1.25  |VQ       |         |         |         |
  0+40       0.0488      1.25  |VQ       |         |         |         |
  0+45       0.0581      1.35  | Q       |         |         |         |
  0+50       0.0675      1.37  | Q       |         |         |         |
  0+55       0.0763      1.29  | Q       |         |         |         |
  1+ 0       0.0854      1.31  | QV      |         |         |         |
  1+ 5       0.0952      1.43  | QV      |         |         |         |
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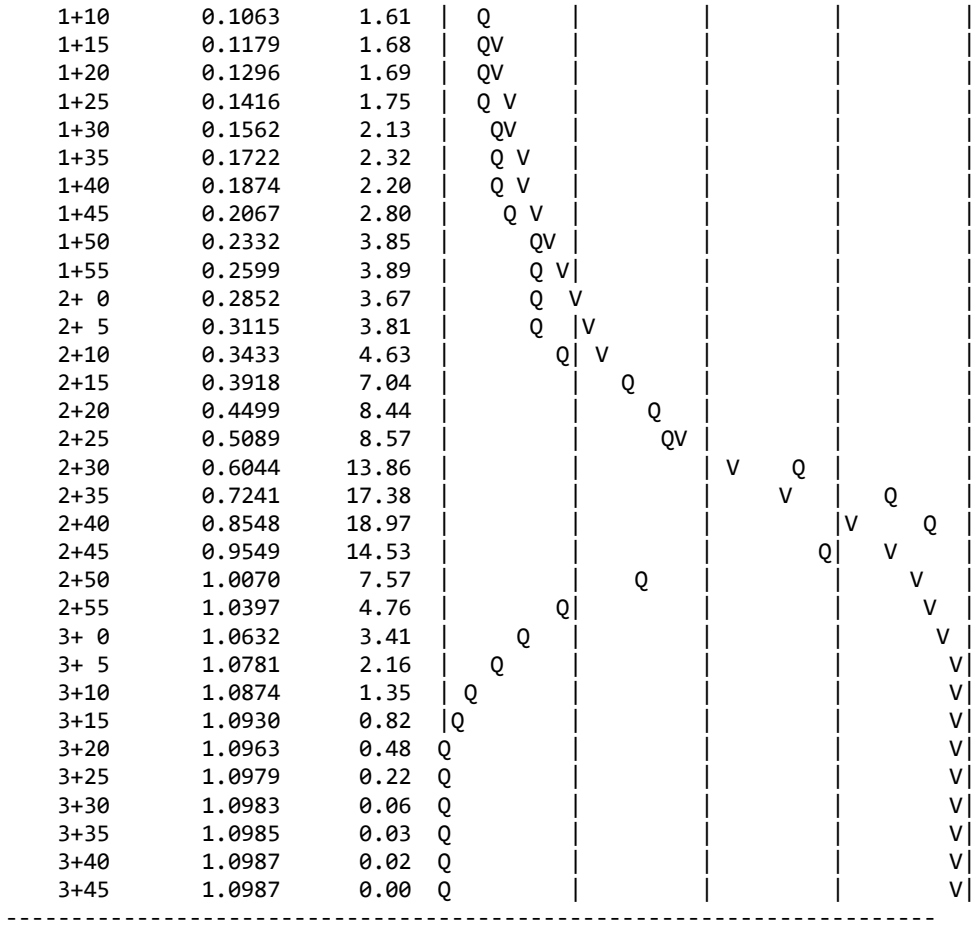

1+10	0.1063	1.61	Q				
1+15	0.1179	1.68	QV				
1+20	0.1296	1.69	QV				
1+25	0.1416	1.75	Q V				
1+30	0.1562	2.13	QV				
1+35	0.1722	2.32	Q V				
1+40	0.1874	2.20	Q V				
1+45	0.2067	2.80	Q V				
1+50	0.2332	3.85	QV				
1+55	0.2599	3.89	Q V				
2+ 0	0.2852	3.67	Q V				
2+ 5	0.3115	3.81	Q V				
2+10	0.3433	4.63	Q V				
2+15	0.3918	7.04	Q				
2+20	0.4499	8.44	Q				
2+25	0.5089	8.57	QV				
2+30	0.6044	13.86	V Q				
2+35	0.7241	17.38	V Q				
2+40	0.8548	18.97	V Q				
2+45	0.9549	14.53	Q V				
2+50	1.0070	7.57	Q V				
2+55	1.0397	4.76	Q V				
3+ 0	1.0632	3.41	Q V				
3+ 5	1.0781	2.16	Q V				
3+10	1.0874	1.35	Q V				
3+15	1.0930	0.82	Q V				
3+20	1.0963	0.48	Q V				
3+25	1.0979	0.22	Q V				
3+30	1.0983	0.06	Q V				
3+35	1.0985	0.03	Q V				
3+40	1.0987	0.02	Q V				
3+45	1.0987	0.00	Q V				

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 1.726(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.726(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

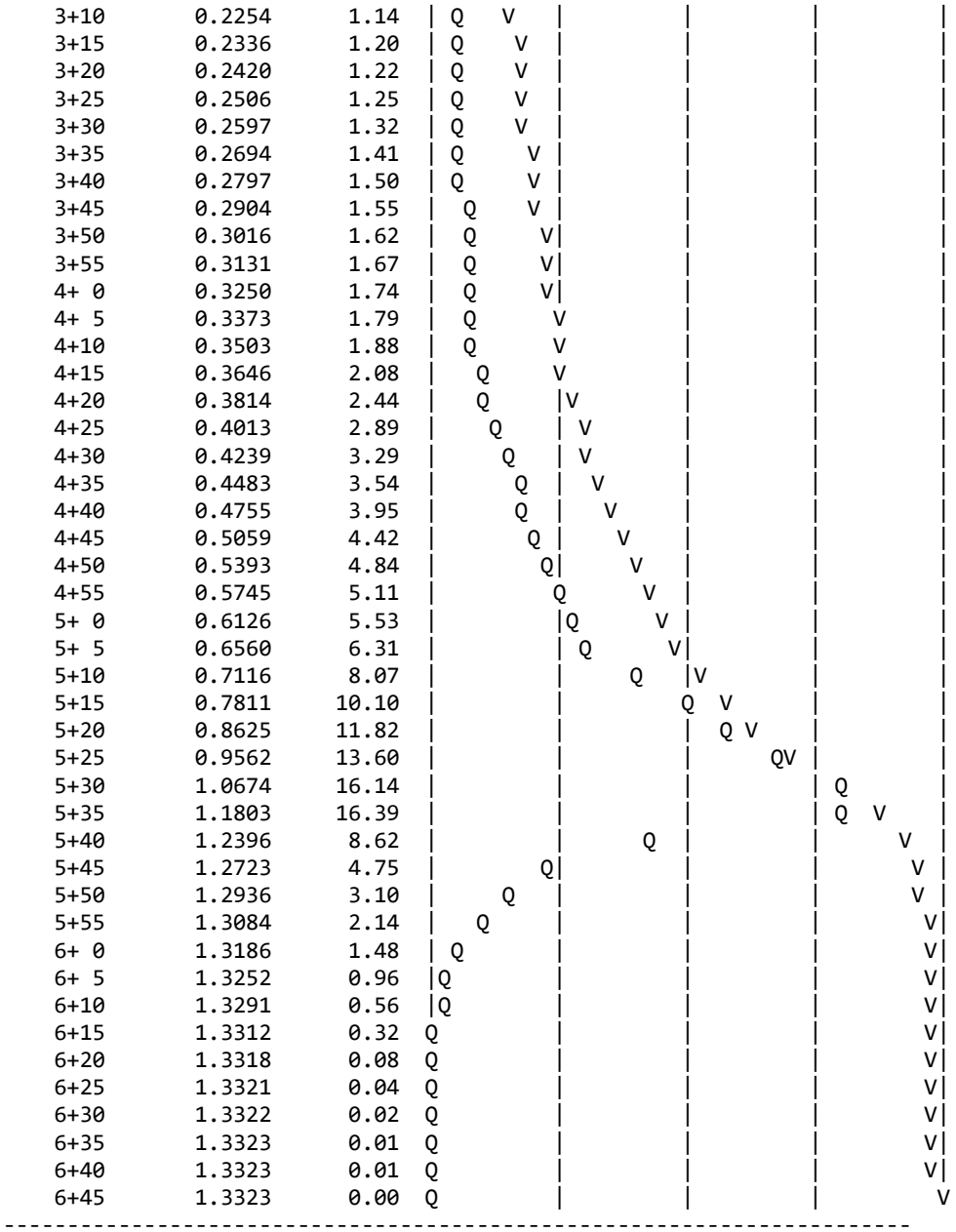
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.104	(0.290)	0.081	0.022
2	0.17	0.60	0.124	(0.290)	0.098	0.027
3	0.25	0.60	0.124	(0.290)	0.098	0.027
4	0.33	0.60	0.124	(0.290)	0.098	0.027
5	0.42	0.60	0.124	(0.290)	0.098	0.027
6	0.50	0.70	0.145	(0.290)	0.114	0.031
7	0.58	0.70	0.145	(0.290)	0.114	0.031
8	0.67	0.70	0.145	(0.290)	0.114	0.031
9	0.75	0.70	0.145	(0.290)	0.114	0.031
10	0.83	0.70	0.145	(0.290)	0.114	0.031

11	0.92	0.70	0.145	(	0.290)		0.114		0.031
12	1.00	0.80	0.166	(	0.290)		0.130		0.035
13	1.08	0.80	0.166	(	0.290)		0.130		0.035
14	1.17	0.80	0.166	(	0.290)		0.130		0.035
15	1.25	0.80	0.166	(	0.290)		0.130		0.035
16	1.33	0.80	0.166	(	0.290)		0.130		0.035
17	1.42	0.80	0.166	(	0.290)		0.130		0.035
18	1.50	0.80	0.166	(	0.290)		0.130		0.035
19	1.58	0.80	0.166	(	0.290)		0.130		0.035
20	1.67	0.80	0.166	(	0.290)		0.130		0.035
21	1.75	0.80	0.166	(	0.290)		0.130		0.035
22	1.83	0.80	0.166	(	0.290)		0.130		0.035
23	1.92	0.80	0.166	(	0.290)		0.130		0.035
24	2.00	0.90	0.186	(	0.290)		0.147		0.040
25	2.08	0.80	0.166	(	0.290)		0.130		0.035
26	2.17	0.90	0.186	(	0.290)		0.147		0.040
27	2.25	0.90	0.186	(	0.290)		0.147		0.040
28	2.33	0.90	0.186	(	0.290)		0.147		0.040
29	2.42	0.90	0.186	(	0.290)		0.147		0.040
30	2.50	0.90	0.186	(	0.290)		0.147		0.040
31	2.58	0.90	0.186	(	0.290)		0.147		0.040
32	2.67	0.90	0.186	(	0.290)		0.147		0.040
33	2.75	1.00	0.207	(	0.290)		0.163		0.044
34	2.83	1.00	0.207	(	0.290)		0.163		0.044
35	2.92	1.00	0.207	(	0.290)		0.163		0.044
36	3.00	1.00	0.207	(	0.290)		0.163		0.044
37	3.08	1.00	0.207	(	0.290)		0.163		0.044
38	3.17	1.10	0.228	(	0.290)		0.179		0.049
39	3.25	1.10	0.228	(	0.290)		0.179		0.049
40	3.33	1.10	0.228	(	0.290)		0.179		0.049
41	3.42	1.20	0.249	(	0.290)		0.195		0.053
42	3.50	1.30	0.269	(	0.290)		0.212		0.058
43	3.58	1.40	0.290	(	0.290)		0.228		0.062
44	3.67	1.40	0.290	(	0.290)		0.228		0.062
45	3.75	1.50	0.311	(	0.290)		0.244		0.066
46	3.83	1.50	0.311	(	0.290)		0.244		0.066
47	3.92	1.60	0.331	(	0.290)		0.261		0.071
48	4.00	1.60	0.331	(	0.290)		0.261		0.071
49	4.08	1.70	0.352	(	0.290)		0.277		0.075
50	4.17	1.80	0.373		0.290	(	0.293)		0.083
51	4.25	1.90	0.394		0.290	(	0.309)		0.104
52	4.33	2.00	0.414		0.290	(	0.326)		0.124
53	4.42	2.10	0.435		0.290	(	0.342)		0.145
54	4.50	2.10	0.435		0.290	(	0.342)		0.145
55	4.58	2.20	0.456		0.290	(	0.358)		0.166
56	4.67	2.30	0.476		0.290	(	0.375)		0.186
57	4.75	2.40	0.497		0.290	(	0.391)		0.207
58	4.83	2.40	0.497		0.290	(	0.391)		0.207
59	4.92	2.50	0.518		0.290	(	0.407)		0.228
60	5.00	2.60	0.538		0.290	(	0.423)		0.248
61	5.08	3.10	0.642		0.290	(	0.505)		0.352
62	5.17	3.60	0.746		0.290	(	0.586)		0.456
63	5.25	3.90	0.808		0.290	(	0.635)		0.518
64	5.33	4.20	0.870		0.290	(	0.684)		0.580
65	5.42	4.70	0.973		0.290	(	0.766)		0.683
66	5.50	5.60	1.160		0.290	(	0.912)		0.870
67	5.58	1.90	0.394		0.290	(	0.309)		0.104
68	5.67	0.90	0.186	(	0.290)		0.147		0.040
69	5.75	0.60	0.124	(	0.290)		0.098		0.027
70	5.83	0.50	0.104	(	0.290)		0.081		0.022

```
71   5.92     0.30      0.062       (  0.290)       0.049        0.013
72   6.00     0.20      0.041       (  0.290)       0.033        0.009
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     7.6
      Flood volume = Effective rainfall      0.63(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.3(Ac.Ft)
      Total soil loss =      1.10(In)
      Total soil loss =     2.318(Ac.Ft)
      Total rainfall =      1.73(In)
      Flood volume =       58036.5 Cubic Feet
      Total soil loss =      100974.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     16.392(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0006      0.08  Q         |          |          |          |
  0+10       0.0030      0.35  Q         |          |          |          |
  0+15       0.0065      0.51  VQ        |          |          |          |
  0+20       0.0105      0.58  VQ        |          |          |          |
  0+25       0.0147      0.62  VQ        |          |          |          |
  0+30       0.0193      0.65  VQ        |          |          |          |
  0+35       0.0242      0.72  VQ        |          |          |          |
  0+40       0.0294      0.75  VQ        |          |          |          |
  0+45       0.0347      0.77  |Q        |          |          |          |
  0+50       0.0401      0.78  |Q        |          |          |          |
  0+55       0.0455      0.79  |Q        |          |          |          |
  1+ 0       0.0511      0.80  |Q        |          |          |          |
  1+ 5       0.0570      0.86  |Q        |          |          |          |
  1+10       0.0630      0.88  |Q        |          |          |          |
  1+15       0.0692      0.89  |QV       |          |          |          |
  1+20       0.0753      0.90  |QV       |          |          |          |
  1+25       0.0815      0.90  |QV       |          |          |          |
  1+30       0.0877      0.90  |QV       |          |          |          |
  1+35       0.0940      0.90  |QV       |          |          |          |
  1+40       0.1002      0.90  |Q V      |          |          |          |
  1+45       0.1064      0.91  |Q V      |          |          |          |
  1+50       0.1127      0.91  |Q V      |          |          |          |
  1+55       0.1189      0.91  |Q V      |          |          |          |
  2+ 0       0.1253      0.92  |Q V      |          |          |          |
  2+ 5       0.1318      0.96  |Q V      |          |          |          |
  2+10       0.1383      0.94  |Q  V     |          |          |          |
  2+15       0.1451      0.98  |Q  V     |          |          |          |
  2+20       0.1520      1.00  | Q V     |          |          |          |
  2+25       0.1589      1.01  | Q V     |          |          |          |
  2+30       0.1659      1.01  | Q V     |          |          |          |
  2+35       0.1729      1.01  | Q  V    |          |          |          |
  2+40       0.1799      1.02  | Q  V    |          |          |          |
  2+45       0.1870      1.03  | Q  V    |          |          |          |
  2+50       0.1945      1.09  | Q  V    |          |          |          |
  2+55       0.2021      1.11  | Q   V   |          |          |          |
  3+ 0       0.2098      1.12  | Q   V   |          |          |          |
  3+ 5       0.2175      1.12  | Q   V   |          |          |          |
```


3+10 0.2254 1.14
3+15 0.2336 1.20
3+20 0.2420 1.22
3+25 0.2506 1.25
3+30 0.2597 1.32
3+35 0.2694 1.41
3+40 0.2797 1.50
3+45 0.2904 1.55
3+50 0.3016 1.62
3+55 0.3131 1.67
4+ 0 0.3250 1.74
4+ 5 0.3373 1.79
4+10 0.3503 1.88
4+15 0.3646 2.08
4+20 0.3814 2.44
4+25 0.4013 2.89
4+30 0.4239 3.29
4+35 0.4483 3.54
4+40 0.4755 3.95
4+45 0.5059 4.42
4+50 0.5393 4.84
4+55 0.5745 5.11
5+ 0 0.6126 5.53
5+ 5 0.6560 6.31
5+10 0.7116 8.07
5+15 0.7811 10.10
5+20 0.8625 11.82
5+25 0.9562 13.60
5+30 1.0674 16.14
5+35 1.1803 16.39
5+40 1.2396 8.62
5+45 1.2723 4.75
5+50 1.2936 3.10
5+55 1.3084 2.14
6+ 0 1.3186 1.48
6+ 5 1.3252 0.96
6+10 1.3291 0.56
6+15 1.3312 0.32
6+20 1.3318 0.08
6+25 1.3321 0.04
6+30 1.3322 0.02
6+35 1.3323 0.01
6+40 1.3323 0.01
6+45 1.3323 0.00

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/10/20 File: 1655003UHPRE245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
PRE DEVELOPMENT
5 YEAR 24 HOUR
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 3.199(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.198(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	72.50	0.142

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
72.5	72.5	0.333	0.142	0.290	1.000	0.290
					Sum (F) =	0.290

Area averaged mean soil loss (F) (In/Hr) = 0.290
Minimum soil loss rate ((In/Hr)) = 0.145
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.786

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.026	(0.514)	0.020	0.005
2	0.17	0.07	0.026	(0.512)	0.020	0.005
3	0.25	0.07	0.026	(0.510)	0.020	0.005
4	0.33	0.10	0.038	(0.508)	0.030	0.008
5	0.42	0.10	0.038	(0.506)	0.030	0.008
6	0.50	0.10	0.038	(0.504)	0.030	0.008
7	0.58	0.10	0.038	(0.502)	0.030	0.008
8	0.67	0.10	0.038	(0.500)	0.030	0.008
9	0.75	0.10	0.038	(0.498)	0.030	0.008
10	0.83	0.13	0.051	(0.496)	0.040	0.011

11	0.92	0.13	0.051	(0.494)	0.040	0.011
12	1.00	0.13	0.051	(0.492)	0.040	0.011
13	1.08	0.10	0.038	(0.490)	0.030	0.008
14	1.17	0.10	0.038	(0.489)	0.030	0.008
15	1.25	0.10	0.038	(0.487)	0.030	0.008
16	1.33	0.10	0.038	(0.485)	0.030	0.008
17	1.42	0.10	0.038	(0.483)	0.030	0.008
18	1.50	0.10	0.038	(0.481)	0.030	0.008
19	1.58	0.10	0.038	(0.479)	0.030	0.008
20	1.67	0.10	0.038	(0.477)	0.030	0.008
21	1.75	0.10	0.038	(0.475)	0.030	0.008
22	1.83	0.13	0.051	(0.473)	0.040	0.011
23	1.92	0.13	0.051	(0.471)	0.040	0.011
24	2.00	0.13	0.051	(0.469)	0.040	0.011
25	2.08	0.13	0.051	(0.467)	0.040	0.011
26	2.17	0.13	0.051	(0.466)	0.040	0.011
27	2.25	0.13	0.051	(0.464)	0.040	0.011
28	2.33	0.13	0.051	(0.462)	0.040	0.011
29	2.42	0.13	0.051	(0.460)	0.040	0.011
30	2.50	0.13	0.051	(0.458)	0.040	0.011
31	2.58	0.17	0.064	(0.456)	0.050	0.014
32	2.67	0.17	0.064	(0.454)	0.050	0.014
33	2.75	0.17	0.064	(0.452)	0.050	0.014
34	2.83	0.17	0.064	(0.451)	0.050	0.014
35	2.92	0.17	0.064	(0.449)	0.050	0.014
36	3.00	0.17	0.064	(0.447)	0.050	0.014
37	3.08	0.17	0.064	(0.445)	0.050	0.014
38	3.17	0.17	0.064	(0.443)	0.050	0.014
39	3.25	0.17	0.064	(0.441)	0.050	0.014
40	3.33	0.17	0.064	(0.439)	0.050	0.014
41	3.42	0.17	0.064	(0.438)	0.050	0.014
42	3.50	0.17	0.064	(0.436)	0.050	0.014
43	3.58	0.17	0.064	(0.434)	0.050	0.014
44	3.67	0.17	0.064	(0.432)	0.050	0.014
45	3.75	0.17	0.064	(0.430)	0.050	0.014
46	3.83	0.20	0.077	(0.429)	0.060	0.016
47	3.92	0.20	0.077	(0.427)	0.060	0.016
48	4.00	0.20	0.077	(0.425)	0.060	0.016
49	4.08	0.20	0.077	(0.423)	0.060	0.016
50	4.17	0.20	0.077	(0.421)	0.060	0.016
51	4.25	0.20	0.077	(0.419)	0.060	0.016
52	4.33	0.23	0.090	(0.418)	0.070	0.019
53	4.42	0.23	0.090	(0.416)	0.070	0.019
54	4.50	0.23	0.090	(0.414)	0.070	0.019
55	4.58	0.23	0.090	(0.412)	0.070	0.019
56	4.67	0.23	0.090	(0.411)	0.070	0.019
57	4.75	0.23	0.090	(0.409)	0.070	0.019
58	4.83	0.27	0.102	(0.407)	0.080	0.022
59	4.92	0.27	0.102	(0.405)	0.080	0.022
60	5.00	0.27	0.102	(0.404)	0.080	0.022
61	5.08	0.20	0.077	(0.402)	0.060	0.016
62	5.17	0.20	0.077	(0.400)	0.060	0.016
63	5.25	0.20	0.077	(0.398)	0.060	0.016
64	5.33	0.23	0.090	(0.397)	0.070	0.019
65	5.42	0.23	0.090	(0.395)	0.070	0.019
66	5.50	0.23	0.090	(0.393)	0.070	0.019
67	5.58	0.27	0.102	(0.391)	0.080	0.022
68	5.67	0.27	0.102	(0.390)	0.080	0.022
69	5.75	0.27	0.102	(0.388)	0.080	0.022
70	5.83	0.27	0.102	(0.386)	0.080	0.022

71	5.92	0.27	0.102	(0.385)	0.080	0.022
72	6.00	0.27	0.102	(0.383)	0.080	0.022
73	6.08	0.30	0.115	(0.381)	0.091	0.025
74	6.17	0.30	0.115	(0.379)	0.091	0.025
75	6.25	0.30	0.115	(0.378)	0.091	0.025
76	6.33	0.30	0.115	(0.376)	0.091	0.025
77	6.42	0.30	0.115	(0.374)	0.091	0.025
78	6.50	0.30	0.115	(0.373)	0.091	0.025
79	6.58	0.33	0.128	(0.371)	0.101	0.027
80	6.67	0.33	0.128	(0.369)	0.101	0.027
81	6.75	0.33	0.128	(0.368)	0.101	0.027
82	6.83	0.33	0.128	(0.366)	0.101	0.027
83	6.92	0.33	0.128	(0.364)	0.101	0.027
84	7.00	0.33	0.128	(0.363)	0.101	0.027
85	7.08	0.33	0.128	(0.361)	0.101	0.027
86	7.17	0.33	0.128	(0.359)	0.101	0.027
87	7.25	0.33	0.128	(0.358)	0.101	0.027
88	7.33	0.37	0.141	(0.356)	0.111	0.030
89	7.42	0.37	0.141	(0.354)	0.111	0.030
90	7.50	0.37	0.141	(0.353)	0.111	0.030
91	7.58	0.40	0.154	(0.351)	0.121	0.033
92	7.67	0.40	0.154	(0.350)	0.121	0.033
93	7.75	0.40	0.154	(0.348)	0.121	0.033
94	7.83	0.43	0.166	(0.346)	0.131	0.036
95	7.92	0.43	0.166	(0.345)	0.131	0.036
96	8.00	0.43	0.166	(0.343)	0.131	0.036
97	8.08	0.50	0.192	(0.342)	0.151	0.041
98	8.17	0.50	0.192	(0.340)	0.151	0.041
99	8.25	0.50	0.192	(0.338)	0.151	0.041
100	8.33	0.50	0.192	(0.337)	0.151	0.041
101	8.42	0.50	0.192	(0.335)	0.151	0.041
102	8.50	0.50	0.192	(0.334)	0.151	0.041
103	8.58	0.53	0.205	(0.332)	0.161	0.044
104	8.67	0.53	0.205	(0.331)	0.161	0.044
105	8.75	0.53	0.205	(0.329)	0.161	0.044
106	8.83	0.57	0.217	(0.327)	0.171	0.046
107	8.92	0.57	0.217	(0.326)	0.171	0.046
108	9.00	0.57	0.217	(0.324)	0.171	0.046
109	9.08	0.63	0.243	(0.323)	0.191	0.052
110	9.17	0.63	0.243	(0.321)	0.191	0.052
111	9.25	0.63	0.243	(0.320)	0.191	0.052
112	9.33	0.67	0.256	(0.318)	0.201	0.055
113	9.42	0.67	0.256	(0.317)	0.201	0.055
114	9.50	0.67	0.256	(0.315)	0.201	0.055
115	9.58	0.70	0.269	(0.314)	0.211	0.057
116	9.67	0.70	0.269	(0.312)	0.211	0.057
117	9.75	0.70	0.269	(0.311)	0.211	0.057
118	9.83	0.73	0.281	(0.309)	0.221	0.060
119	9.92	0.73	0.281	(0.308)	0.221	0.060
120	10.00	0.73	0.281	(0.306)	0.221	0.060
121	10.08	0.50	0.192	(0.305)	0.151	0.041
122	10.17	0.50	0.192	(0.303)	0.151	0.041
123	10.25	0.50	0.192	(0.302)	0.151	0.041
124	10.33	0.50	0.192	(0.300)	0.151	0.041
125	10.42	0.50	0.192	(0.299)	0.151	0.041
126	10.50	0.50	0.192	(0.297)	0.151	0.041
127	10.58	0.67	0.256	(0.296)	0.201	0.055
128	10.67	0.67	0.256	(0.295)	0.201	0.055
129	10.75	0.67	0.256	(0.293)	0.201	0.055
130	10.83	0.67	0.256	(0.292)	0.201	0.055

131	10.92	0.67	0.256	(0.290)	0.201	0.055
132	11.00	0.67	0.256	(0.289)	0.201	0.055
133	11.08	0.63	0.243	(0.287)	0.191	0.052
134	11.17	0.63	0.243	(0.286)	0.191	0.052
135	11.25	0.63	0.243	(0.285)	0.191	0.052
136	11.33	0.63	0.243	(0.283)	0.191	0.052
137	11.42	0.63	0.243	(0.282)	0.191	0.052
138	11.50	0.63	0.243	(0.280)	0.191	0.052
139	11.58	0.57	0.217	(0.279)	0.171	0.046
140	11.67	0.57	0.217	(0.278)	0.171	0.046
141	11.75	0.57	0.217	(0.276)	0.171	0.046
142	11.83	0.60	0.230	(0.275)	0.181	0.049
143	11.92	0.60	0.230	(0.273)	0.181	0.049
144	12.00	0.60	0.230	(0.272)	0.181	0.049
145	12.08	0.83	0.320	(0.271)	0.252	0.068
146	12.17	0.83	0.320	(0.269)	0.252	0.068
147	12.25	0.83	0.320	(0.268)	0.252	0.068
148	12.33	0.87	0.333	(0.267)	0.262	0.071
149	12.42	0.87	0.333	(0.265)	0.262	0.071
150	12.50	0.87	0.333	(0.264)	0.262	0.071
151	12.58	0.93	0.358	0.263	(0.282)	0.096
152	12.67	0.93	0.358	0.261	(0.282)	0.097
153	12.75	0.93	0.358	0.260	(0.282)	0.098
154	12.83	0.97	0.371	0.259	(0.292)	0.112
155	12.92	0.97	0.371	0.257	(0.292)	0.114
156	13.00	0.97	0.371	0.256	(0.292)	0.115
157	13.08	1.13	0.435	0.255	(0.342)	0.180
158	13.17	1.13	0.435	0.254	(0.342)	0.181
159	13.25	1.13	0.435	0.252	(0.342)	0.183
160	13.33	1.13	0.435	0.251	(0.342)	0.184
161	13.42	1.13	0.435	0.250	(0.342)	0.185
162	13.50	1.13	0.435	0.248	(0.342)	0.187
163	13.58	0.77	0.294	(0.247)	0.231	0.063
164	13.67	0.77	0.294	(0.246)	0.231	0.063
165	13.75	0.77	0.294	(0.245)	0.231	0.063
166	13.83	0.77	0.294	(0.243)	0.231	0.063
167	13.92	0.77	0.294	(0.242)	0.231	0.063
168	14.00	0.77	0.294	(0.241)	0.231	0.063
169	14.08	0.90	0.345	0.240	(0.272)	0.106
170	14.17	0.90	0.345	0.238	(0.272)	0.107
171	14.25	0.90	0.345	0.237	(0.272)	0.108
172	14.33	0.87	0.333	0.236	(0.262)	0.097
173	14.42	0.87	0.333	0.235	(0.262)	0.098
174	14.50	0.87	0.333	0.234	(0.262)	0.099
175	14.58	0.87	0.333	0.232	(0.262)	0.100
176	14.67	0.87	0.333	0.231	(0.262)	0.101
177	14.75	0.87	0.333	0.230	(0.262)	0.103
178	14.83	0.83	0.320	0.229	(0.252)	0.091
179	14.92	0.83	0.320	0.228	(0.252)	0.092
180	15.00	0.83	0.320	0.227	(0.252)	0.093
181	15.08	0.80	0.307	0.225	(0.241)	0.082
182	15.17	0.80	0.307	0.224	(0.241)	0.083
183	15.25	0.80	0.307	0.223	(0.241)	0.084
184	15.33	0.77	0.294	0.222	(0.231)	0.072
185	15.42	0.77	0.294	0.221	(0.231)	0.073
186	15.50	0.77	0.294	0.220	(0.231)	0.075
187	15.58	0.63	0.243	(0.219)	0.191	0.052
188	15.67	0.63	0.243	(0.217)	0.191	0.052
189	15.75	0.63	0.243	(0.216)	0.191	0.052
190	15.83	0.63	0.243	(0.215)	0.191	0.052

191	15.92	0.63	0.243	(0.214)	0.191	0.052
192	16.00	0.63	0.243	(0.213)	0.191	0.052
193	16.08	0.13	0.051	(0.212)	0.040	0.011
194	16.17	0.13	0.051	(0.211)	0.040	0.011
195	16.25	0.13	0.051	(0.210)	0.040	0.011
196	16.33	0.13	0.051	(0.209)	0.040	0.011
197	16.42	0.13	0.051	(0.208)	0.040	0.011
198	16.50	0.13	0.051	(0.207)	0.040	0.011
199	16.58	0.10	0.038	(0.205)	0.030	0.008
200	16.67	0.10	0.038	(0.204)	0.030	0.008
201	16.75	0.10	0.038	(0.203)	0.030	0.008
202	16.83	0.10	0.038	(0.202)	0.030	0.008
203	16.92	0.10	0.038	(0.201)	0.030	0.008
204	17.00	0.10	0.038	(0.200)	0.030	0.008
205	17.08	0.17	0.064	(0.199)	0.050	0.014
206	17.17	0.17	0.064	(0.198)	0.050	0.014
207	17.25	0.17	0.064	(0.197)	0.050	0.014
208	17.33	0.17	0.064	(0.196)	0.050	0.014
209	17.42	0.17	0.064	(0.195)	0.050	0.014
210	17.50	0.17	0.064	(0.194)	0.050	0.014
211	17.58	0.17	0.064	(0.193)	0.050	0.014
212	17.67	0.17	0.064	(0.192)	0.050	0.014
213	17.75	0.17	0.064	(0.191)	0.050	0.014
214	17.83	0.13	0.051	(0.191)	0.040	0.011
215	17.92	0.13	0.051	(0.190)	0.040	0.011
216	18.00	0.13	0.051	(0.189)	0.040	0.011
217	18.08	0.13	0.051	(0.188)	0.040	0.011
218	18.17	0.13	0.051	(0.187)	0.040	0.011
219	18.25	0.13	0.051	(0.186)	0.040	0.011
220	18.33	0.13	0.051	(0.185)	0.040	0.011
221	18.42	0.13	0.051	(0.184)	0.040	0.011
222	18.50	0.13	0.051	(0.183)	0.040	0.011
223	18.58	0.10	0.038	(0.182)	0.030	0.008
224	18.67	0.10	0.038	(0.181)	0.030	0.008
225	18.75	0.10	0.038	(0.181)	0.030	0.008
226	18.83	0.07	0.026	(0.180)	0.020	0.005
227	18.92	0.07	0.026	(0.179)	0.020	0.005
228	19.00	0.07	0.026	(0.178)	0.020	0.005
229	19.08	0.10	0.038	(0.177)	0.030	0.008
230	19.17	0.10	0.038	(0.176)	0.030	0.008
231	19.25	0.10	0.038	(0.175)	0.030	0.008
232	19.33	0.13	0.051	(0.175)	0.040	0.011
233	19.42	0.13	0.051	(0.174)	0.040	0.011
234	19.50	0.13	0.051	(0.173)	0.040	0.011
235	19.58	0.10	0.038	(0.172)	0.030	0.008
236	19.67	0.10	0.038	(0.171)	0.030	0.008
237	19.75	0.10	0.038	(0.171)	0.030	0.008
238	19.83	0.07	0.026	(0.170)	0.020	0.005
239	19.92	0.07	0.026	(0.169)	0.020	0.005
240	20.00	0.07	0.026	(0.168)	0.020	0.005
241	20.08	0.10	0.038	(0.168)	0.030	0.008
242	20.17	0.10	0.038	(0.167)	0.030	0.008
243	20.25	0.10	0.038	(0.166)	0.030	0.008
244	20.33	0.10	0.038	(0.165)	0.030	0.008
245	20.42	0.10	0.038	(0.165)	0.030	0.008
246	20.50	0.10	0.038	(0.164)	0.030	0.008
247	20.58	0.10	0.038	(0.163)	0.030	0.008
248	20.67	0.10	0.038	(0.163)	0.030	0.008
249	20.75	0.10	0.038	(0.162)	0.030	0.008
250	20.83	0.07	0.026	(0.161)	0.020	0.005

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251  20.92     0.07      0.026       (  0.161)       0.020        0.005
252  21.00     0.07      0.026       (  0.160)       0.020        0.005
253  21.08     0.10      0.038       (  0.159)       0.030        0.008
254  21.17     0.10      0.038       (  0.159)       0.030        0.008
255  21.25     0.10      0.038       (  0.158)       0.030        0.008
256  21.33     0.07      0.026       (  0.158)       0.020        0.005
257  21.42     0.07      0.026       (  0.157)       0.020        0.005
258  21.50     0.07      0.026       (  0.156)       0.020        0.005
259  21.58     0.10      0.038       (  0.156)       0.030        0.008
260  21.67     0.10      0.038       (  0.155)       0.030        0.008
261  21.75     0.10      0.038       (  0.155)       0.030        0.008
262  21.83     0.07      0.026       (  0.154)       0.020        0.005
263  21.92     0.07      0.026       (  0.154)       0.020        0.005
264  22.00     0.07      0.026       (  0.153)       0.020        0.005
265  22.08     0.10      0.038       (  0.153)       0.030        0.008
266  22.17     0.10      0.038       (  0.152)       0.030        0.008
267  22.25     0.10      0.038       (  0.152)       0.030        0.008
268  22.33     0.07      0.026       (  0.151)       0.020        0.005
269  22.42     0.07      0.026       (  0.151)       0.020        0.005
270  22.50     0.07      0.026       (  0.150)       0.020        0.005
271  22.58     0.07      0.026       (  0.150)       0.020        0.005
272  22.67     0.07      0.026       (  0.149)       0.020        0.005
273  22.75     0.07      0.026       (  0.149)       0.020        0.005
274  22.83     0.07      0.026       (  0.149)       0.020        0.005
275  22.92     0.07      0.026       (  0.148)       0.020        0.005
276  23.00     0.07      0.026       (  0.148)       0.020        0.005
277  23.08     0.07      0.026       (  0.148)       0.020        0.005
278  23.17     0.07      0.026       (  0.147)       0.020        0.005
279  23.25     0.07      0.026       (  0.147)       0.020        0.005
280  23.33     0.07      0.026       (  0.147)       0.020        0.005
281  23.42     0.07      0.026       (  0.146)       0.020        0.005
282  23.50     0.07      0.026       (  0.146)       0.020        0.005
283  23.58     0.07      0.026       (  0.146)       0.020        0.005
284  23.67     0.07      0.026       (  0.146)       0.020        0.005
285  23.75     0.07      0.026       (  0.145)       0.020        0.005
286  23.83     0.07      0.026       (  0.145)       0.020        0.005
287  23.92     0.07      0.026       (  0.145)       0.020        0.005
288  24.00     0.07      0.026       (  0.145)       0.020        0.005
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =     9.3
       Flood volume = Effective rainfall      0.78(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       1.6(Ac.Ft)
       Total soil loss =      2.42(In)
       Total soil loss =     5.120(Ac.Ft)
       Total rainfall =      3.20(In)
       Flood volume =       71644.6 Cubic Feet
       Total soil loss =      223026.7 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =      4.622(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0001      0.02  Q         |         |         |         |
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0+10	0.0007	0.08	Q				
0+15	0.0015	0.11	Q				
0+20	0.0024	0.13	Q				
0+25	0.0035	0.17	Q				
0+30	0.0048	0.19	Q				
0+35	0.0062	0.20	Q				
0+40	0.0076	0.20	Q				
0+45	0.0090	0.20	Q				
0+50	0.0105	0.22	Q				
0+55	0.0122	0.25	VQ				
1+ 0	0.0140	0.26	VQ				
1+ 5	0.0158	0.26	VQ				
1+10	0.0174	0.23	Q				
1+15	0.0189	0.22	Q				
1+20	0.0204	0.22	Q				
1+25	0.0219	0.21	Q				
1+30	0.0234	0.21	Q				
1+35	0.0248	0.21	Q				
1+40	0.0263	0.21	Q				
1+45	0.0277	0.21	Q				
1+50	0.0292	0.22	Q				
1+55	0.0310	0.25	VQ				
2+ 0	0.0328	0.26	VQ				
2+ 5	0.0347	0.27	VQ				
2+10	0.0365	0.27	VQ				
2+15	0.0384	0.28	VQ				
2+20	0.0404	0.28	VQ				
2+25	0.0423	0.28	|Q				
2+30	0.0442	0.28	|Q				
2+35	0.0462	0.29	|Q				
2+40	0.0484	0.32	|Q				
2+45	0.0507	0.33	|Q				
2+50	0.0530	0.34	|Q				
2+55	0.0554	0.34	|Q				
3+ 0	0.0578	0.35	|Q				
3+ 5	0.0602	0.35	|Q				
3+10	0.0626	0.35	|Q				
3+15	0.0650	0.35	|Q				
3+20	0.0674	0.35	|Q				
3+25	0.0698	0.35	|Q				
3+30	0.0722	0.35	|Q				
3+35	0.0746	0.35	|Q				
3+40	0.0770	0.35	|Q				
3+45	0.0794	0.35	|Q				
3+50	0.0819	0.36	|Q				
3+55	0.0846	0.39	|QV				
4+ 0	0.0874	0.40	|QV				
4+ 5	0.0902	0.41	|QV				
4+10	0.0931	0.41	|QV				
4+15	0.0959	0.42	|QV				
4+20	0.0989	0.43	|QV				
4+25	0.1020	0.46	|QV				
4+30	0.1053	0.47	|QV				
4+35	0.1086	0.48	|QV				
4+40	0.1119	0.48	|QV				
4+45	0.1153	0.49	|QV				
4+50	0.1187	0.50	|QV				
4+55	0.1224	0.53	| Q				
5+ 0	0.1261	0.54	| QV				
5+ 5	0.1298	0.53	| QV				

5+10	0.1330	0.47	|Q V	|	|	|	|
5+15	0.1361	0.45	|Q V	|	|	|	|
5+20	0.1391	0.45	|Q V	|	|	|	|
5+25	0.1424	0.47	|Q V	|	|	|	|
5+30	0.1457	0.48	|Q V	|	|	|	|
5+35	0.1491	0.49	|Q V	|	|	|	|
5+40	0.1528	0.53	| QV	|	|	|	|
5+45	0.1565	0.54	| QV	|	|	|	|
5+50	0.1603	0.55	| QV	|	|	|	|
5+55	0.1641	0.55	| QV	|	|	|	|
6+ 0	0.1679	0.55	| Q V	|	|	|	|
6+ 5	0.1718	0.57	| Q V	|	|	|	|
6+10	0.1759	0.60	| Q V	|	|	|	|
6+15	0.1801	0.61	| Q V	|	|	|	|
6+20	0.1844	0.62	| Q V	|	|	|	|
6+25	0.1887	0.62	| Q V	|	|	|	|
6+30	0.1930	0.63	| Q V	|	|	|	|
6+35	0.1974	0.64	| Q V	|	|	|	|
6+40	0.2020	0.67	| Q V	|	|	|	|
6+45	0.2067	0.68	| Q V	|	|	|	|
6+50	0.2115	0.69	| Q V	|	|	|	|
6+55	0.2163	0.69	| Q V	|	|	|	|
7+ 0	0.2210	0.70	| Q V	|	|	|	|
7+ 5	0.2258	0.70	| Q V	|	|	|	|
7+10	0.2307	0.70	| Q V	|	|	|	|
7+15	0.2355	0.70	| Q V	|	|	|	|
7+20	0.2403	0.71	| Q V	|	|	|	|
7+25	0.2455	0.74	| Q V	|	|	|	|
7+30	0.2506	0.75	| Q V	|	|	|	|
7+35	0.2559	0.77	| Q V	|	|	|	|
7+40	0.2615	0.80	| Q V	|	|	|	|
7+45	0.2671	0.82	| Q V	|	|	|	|
7+50	0.2729	0.84	| Q V	|	|	|	|
7+55	0.2789	0.87	| Q V	|	|	|	|
8+ 0	0.2851	0.89	| Q V	|	|	|	|
8+ 5	0.2914	0.92	| Q V	|	|	|	|
8+10	0.2982	0.99	| Q V	|	|	|	|
8+15	0.3051	1.01	| Q V	|	|	|	|
8+20	0.3122	1.03	| Q V	|	|	|	|
8+25	0.3194	1.04	| Q V	|	|	|	|
8+30	0.3265	1.04	| Q V	|	|	|	|
8+35	0.3338	1.05	| Q V	|	|	|	|
8+40	0.3413	1.09	| Q V	|	|	|	|
8+45	0.3489	1.10	| Q V	|	|	|	|
8+50	0.3566	1.12	| Q V	|	|	|	|
8+55	0.3645	1.15	| Q V	|	|	|	|
9+ 0	0.3726	1.17	| Q V|	|	|	|	|
9+ 5	0.3808	1.20	| Q V|	|	|	|	|
9+10	0.3895	1.26	| Q V|	|	|	|	|
9+15	0.3985	1.29	| Q V|	|	|	|	|
9+20	0.4075	1.32	| Q V|	|	|	|	|
9+25	0.4169	1.36	| Q V	|	|	|	|
9+30	0.4264	1.38	| Q V	|	|	|	|
9+35	0.4360	1.39	| Q V	|	|	|	|
9+40	0.4458	1.43	| Q V	|	|	|	|
9+45	0.4558	1.45	| Q |V	|	|	|	|
9+50	0.4659	1.47	| Q |V	|	|	|	|
9+55	0.4763	1.50	| Q |V	|	|	|	|
10+ 0	0.4867	1.52	| Q |V	|	|	|	|
10+ 5	0.4968	1.46	| Q | V	|	|	|	|

10+10	0.5053	1.24	Q	V			
10+15	0.5132	1.15	Q	V			
10+20	0.5209	1.11	Q	V			
10+25	0.5284	1.09	Q	V			
10+30	0.5358	1.08	Q	V			
10+35	0.5435	1.11	Q	V			
10+40	0.5522	1.27	Q	V			
10+45	0.5613	1.33	Q	V			
10+50	0.5706	1.35	Q	V			
10+55	0.5801	1.37	Q	V			
11+ 0	0.5896	1.38	Q	V			
11+ 5	0.5990	1.38	Q	V			
11+10	0.6083	1.35	Q	V			
11+15	0.6176	1.34	Q	V			
11+20	0.6268	1.34	Q	V			
11+25	0.6360	1.33	Q	V			
11+30	0.6452	1.33	Q	V			
11+35	0.6542	1.31	Q	V			
11+40	0.6628	1.25	Q	V			
11+45	0.6712	1.22	Q	V			
11+50	0.6796	1.22	Q	V			
11+55	0.6881	1.24	Q	V			
12+ 0	0.6967	1.25	Q	V			
12+ 5	0.7059	1.32	Q	V			
12+10	0.7165	1.55	Q	V			
12+15	0.7278	1.64	Q	V			
12+20	0.7395	1.69	Q	V			
12+25	0.7515	1.75	Q	V			
12+30	0.7637	1.78	Q	V			
12+35	0.7767	1.88	Q	V			
12+40	0.7917	2.18	Q	V			
12+45	0.8077	2.33	Q	V			
12+50	0.8247	2.46	Q	V			
12+55	0.8430	2.67	Q	V			
13+ 0	0.8622	2.78	Q	V			
13+ 5	0.8834	3.08	Q	V			
13+10	0.9101	3.88	Q	V			
13+15	0.9394	4.24	Q	V			
13+20	0.9698	4.42	Q	V			
13+25	1.0011	4.54	Q	V			
13+30	1.0329	4.62	Q	V			
13+35	1.0621	4.24	Q	V			
13+40	1.0817	2.84	Q	V			
13+45	1.0972	2.26	Q	V			
13+50	1.1112	2.02	Q	V			
13+55	1.1241	1.87	Q	V			
14+ 0	1.1363	1.78	Q	V			
14+ 5	1.1492	1.87	Q	V			
14+10	1.1652	2.33	Q	V			
14+15	1.1826	2.53	Q	V			
14+20	1.2003	2.56	Q	V			
14+25	1.2174	2.49	Q	V			
14+30	1.2346	2.49	Q	V			
14+35	1.2519	2.52	Q	V			
14+40	1.2695	2.55	Q	V			
14+45	1.2873	2.58	Q	V			
14+50	1.3049	2.57	Q	V			
14+55	1.3217	2.44	Q	V			
15+ 0	1.3383	2.41	Q	V			
15+ 5	1.3546	2.36	Q	V			

```
15+10       1.3699      2.23  |       Q |         |         |  V      |
15+15       1.3850      2.18  |       Q |         |         |  V      |
15+20       1.3997      2.13  |       Q |         |         |   V     |
15+25       1.4134      1.99  |      Q  |         |         |   V     |
15+30       1.4268      1.95  |      Q  |         |         |   V     |
15+35       1.4396      1.85  |      Q  |         |         |    V    |
15+40       1.4505      1.58  |     Q   |         |         |    V    |
15+45       1.4606      1.46  |    Q    |         |         |    V    |
15+50       1.4703      1.41  |    Q    |         |         |    V    |
15+55       1.4798      1.38  |    Q    |         |         |    V    |
16+ 0       1.4892      1.36  |    Q    |         |         |     V   |
16+ 5       1.4974      1.20  |   Q     |         |         |     V   |
16+10       1.5024      0.72  | Q       |         |         |     V   |
16+15       1.5059      0.51  | Q       |         |         |     V   |
16+20       1.5088      0.42  |Q        |         |         |     V   |
16+25       1.5113      0.37  |Q        |         |         |     V   |
16+30       1.5136      0.34  |Q        |         |         |     V   |
16+35       1.5157      0.31  |Q        |         |         |     V   |
16+40       1.5175      0.26  |Q        |         |         |     V   |
16+45       1.5191      0.23  Q         |         |         |     V   |
16+50       1.5206      0.22  Q         |         |         |     V   |
16+55       1.5221      0.22  Q         |         |         |      V  |
17+ 0       1.5236      0.21  Q         |         |         |      V  |
17+ 5       1.5252      0.23  Q         |         |         |      V  |
17+10       1.5272      0.29  |Q        |         |         |      V  |
17+15       1.5294      0.32  |Q        |         |         |      V  |
17+20       1.5317      0.33  |Q        |         |         |      V  |
17+25       1.5340      0.34  |Q        |         |         |      V  |
17+30       1.5364      0.34  |Q        |         |         |      V  |
17+35       1.5388      0.34  |Q        |         |         |      V  |
17+40       1.5412      0.35  |Q        |         |         |      V  |
17+45       1.5436      0.35  |Q        |         |         |      V  |
17+50       1.5459      0.34  |Q        |         |         |      V  |
17+55       1.5480      0.31  |Q        |         |         |      V  |
18+ 0       1.5500      0.29  |Q        |         |         |      V  |
18+ 5       1.5520      0.29  |Q        |         |         |      V  |
18+10       1.5540      0.29  |Q        |         |         |      V  |
18+15       1.5560      0.28  |Q        |         |         |      V  |
18+20       1.5579      0.28  |Q        |         |         |      V  |
18+25       1.5598      0.28  |Q        |         |         |      V  |
18+30       1.5618      0.28  |Q        |         |         |      V  |
18+35       1.5636      0.27  |Q        |         |         |       V |
18+40       1.5653      0.24  Q         |         |         |       V |
18+45       1.5668      0.22  Q         |         |         |       V |
18+50       1.5683      0.21  Q         |         |         |       V |
18+55       1.5695      0.17  Q         |         |         |       V |
19+ 0       1.5705      0.16  Q         |         |         |       V |
19+ 5       1.5717      0.16  Q         |         |         |       V |
19+10       1.5730      0.19  Q         |         |         |       V |
19+15       1.5743      0.20  Q         |         |         |       V |
19+20       1.5758      0.21  Q         |         |         |       V |
19+25       1.5775      0.25  Q         |         |         |       V |
19+30       1.5793      0.26  |Q        |         |         |       V |
19+35       1.5811      0.26  |Q        |         |         |       V |
19+40       1.5827      0.23  Q         |         |         |       V |
19+45       1.5842      0.22  Q         |         |         |       V |
19+50       1.5856      0.21  Q         |         |         |       V |
19+55       1.5868      0.17  Q         |         |         |       V |
20+ 0       1.5879      0.16  Q         |         |         |       V |
20+ 5       1.5890      0.16  Q         |         |         |       V |
```

20+10	1.5903	0.19	Q	|	|	|	V |
20+15	1.5917	0.20	Q	|	|	|	V |
20+20	1.5931	0.20	Q	|	|	|	V |
20+25	1.5945	0.21	Q	|	|	|	V |
20+30	1.5959	0.21	Q	|	|	|	V |
20+35	1.5973	0.21	Q	|	|	|	V |
20+40	1.5988	0.21	Q	|	|	|	V |
20+45	1.6002	0.21	Q	|	|	|	V |
20+50	1.6016	0.20	Q	|	|	|	V |
20+55	1.6027	0.17	Q	|	|	|	V |
21+ 0	1.6038	0.15	Q	|	|	|	V|
21+ 5	1.6049	0.16	Q	|	|	|	V|
21+10	1.6062	0.19	Q	|	|	|	V|
21+15	1.6076	0.20	Q	|	|	|	V|
21+20	1.6089	0.19	Q	|	|	|	V|
21+25	1.6100	0.16	Q	|	|	|	V|
21+30	1.6111	0.15	Q	|	|	|	V|
21+35	1.6121	0.16	Q	|	|	|	V|
21+40	1.6134	0.19	Q	|	|	|	V|
21+45	1.6148	0.20	Q	|	|	|	V|
21+50	1.6161	0.19	Q	|	|	|	V|
21+55	1.6172	0.16	Q	|	|	|	V|
22+ 0	1.6183	0.15	Q	|	|	|	V|
22+ 5	1.6194	0.16	Q	|	|	|	V|
22+10	1.6207	0.19	Q	|	|	|	V|
22+15	1.6220	0.20	Q	|	|	|	V|
22+20	1.6233	0.19	Q	|	|	|	V|
22+25	1.6245	0.16	Q	|	|	|	V|
22+30	1.6255	0.15	Q	|	|	|	V|
22+35	1.6265	0.15	Q	|	|	|	V|
22+40	1.6275	0.14	Q	|	|	|	V|
22+45	1.6285	0.14	Q	|	|	|	V|
22+50	1.6295	0.14	Q	|	|	|	V|
22+55	1.6305	0.14	Q	|	|	|	V|
23+ 0	1.6314	0.14	Q	|	|	|	V|
23+ 5	1.6324	0.14	Q	|	|	|	V|
23+10	1.6334	0.14	Q	|	|	|	V|
23+15	1.6343	0.14	Q	|	|	|	V|
23+20	1.6353	0.14	Q	|	|	|	V|
23+25	1.6362	0.14	Q	|	|	|	V|
23+30	1.6372	0.14	Q	|	|	|	V|
23+35	1.6382	0.14	Q	|	|	|	V|
23+40	1.6391	0.14	Q	|	|	|	V|
23+45	1.6401	0.14	Q	|	|	|	V|
23+50	1.6411	0.14	Q	|	|	|	V|
23+55	1.6420	0.14	Q	|	|	|	V|
24+ 0	1.6430	0.14	Q	|	|	|	V|
24+ 5	1.6438	0.12	Q	|	|	|	V|
24+10	1.6442	0.06	Q	|	|	|	V|
24+15	1.6444	0.03	Q	|	|	|	V|
24+20	1.6445	0.02	Q	|	|	|	V|
24+25	1.6446	0.01	Q	|	|	|	V|
24+30	1.6447	0.01	Q	|	|	|	V|
24+35	1.6447	0.00	Q	|	|	|	V|
24+40	1.6447	0.00	Q	|	|	|	V|
24+45	1.6447	0.00	Q	|	|	|	V|

APPENDIX 4

UNIT HYDROGRAPH METHOD
HYDROLOGY CALCULATION
(1-HR, 3-HR, 6-HR & 24-HR DURATION
10-YR, 5-YR & 2-YR FREQUENCY)
POST-DEVELOPMENT

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST110.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
10 YEAR 1 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.844(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.844(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.425	(0.145)	0.108	0.318
2	0.17	4.30	0.436	(0.145)	0.110	0.325
3	0.25	5.00	0.507	(0.145)	0.128	0.378
4	0.33	5.00	0.507	(0.145)	0.128	0.378
5	0.42	5.80	0.588	0.145	(0.149)	0.443
6	0.50	6.50	0.658	0.145	(0.167)	0.514
7	0.58	7.40	0.750	0.145	(0.190)	0.605
8	0.67	8.60	0.871	0.145	(0.221)	0.726

```
 9   0.75    12.30      1.246          0.145    (  0.316)        1.101
10   0.83    29.10      2.948          0.145    (  0.748)        2.803
11   0.92     6.80      0.689          0.145    (  0.175)        0.544
12   1.00     5.00      0.507       (  0.145)       0.128        0.378
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =     8.5
      Flood volume = Effective rainfall      0.71(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.5(Ac.Ft)
      Total soil loss =      0.13(In)
      Total soil loss =     0.285(Ac.Ft)
      Total rainfall =      0.84(In)
      Flood volume =       65353.7 Cubic Feet
      Total soil loss =       12423.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     43.096(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          1 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       12.5      25.0      37.5      50.0
  ---------------------------------------------------------------------
    0+ 5       0.0079      1.15  Q         |         |         |         |
    0+10       0.0414      4.87  |V Q      |         |         |         |
    0+15       0.0875      6.70  | V  Q    |         |         |         |
    0+20       0.1427      8.00  |  V  Q   |         |         |         |
    0+25       0.2040      8.90  |    V Q  |         |         |         |
    0+30       0.2747     10.27  |      VQ |         |         |         |
    0+35       0.3573     11.99  |        Q|         |         |         |
    0+40       0.4546     14.13  |         |QV       |         |         |
    0+45       0.5763     17.68  |         |   QV    |         |         |
    0+50       0.7775     29.21  |         |         V  Q      |         |
    0+55       1.0743     43.10  |         |         |       V |   Q     |
    1+ 0       1.2509     25.65  |         |         Q         |  V      |
    1+ 5       1.3574     15.46  |         | Q       |         |     V   |
    1+10       1.4133      8.12  |     Q   |         |         |      V  |
    1+15       1.4460      4.75  |  Q      |         |         |       V |
    1+20       1.4679      3.17  | Q       |         |         |        V|
    1+25       1.4822      2.08  |Q        |         |         |        V|
    1+30       1.4916      1.36  |Q        |         |         |        V|
    1+35       1.4981      0.95  Q         |         |         |        V|
    1+40       1.4997      0.22  Q         |         |         |        V|
    1+45       1.5003      0.09  Q         |         |         |        V|
---------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST310.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
10 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 1.475(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.475(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

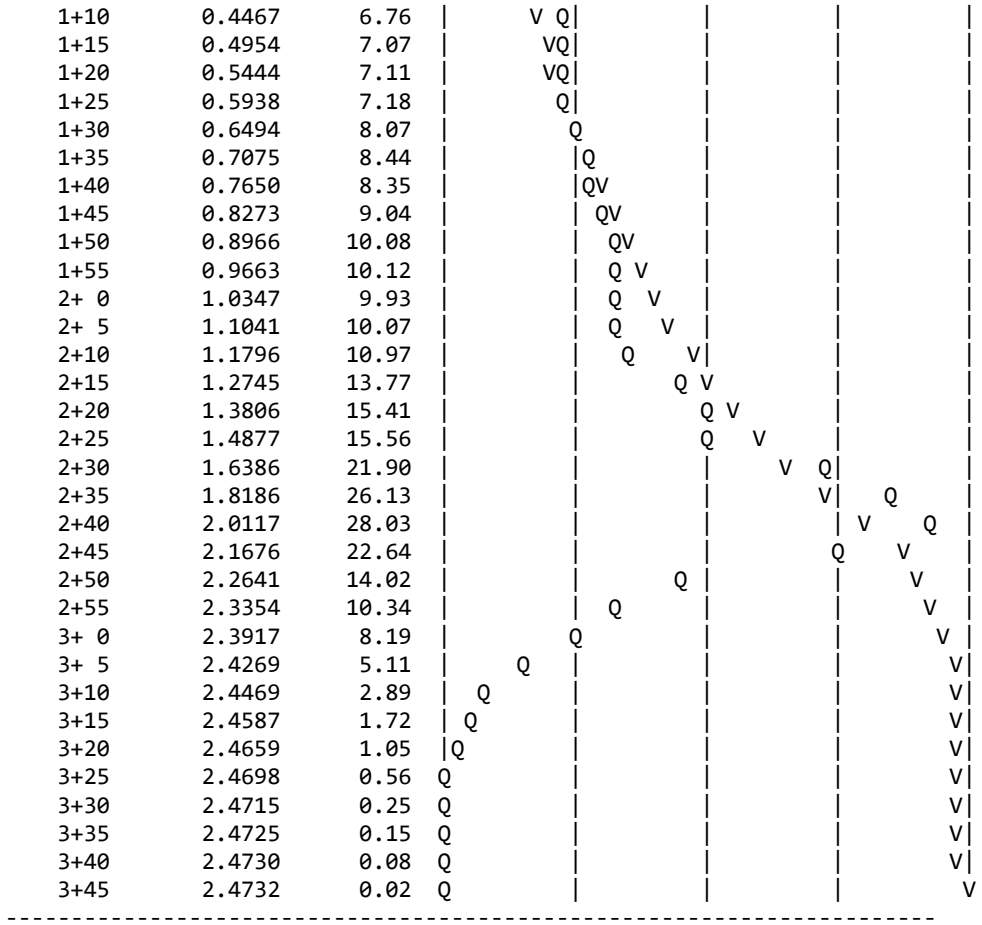
Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.230	(0.145)	0.058	0.172
2	0.17	1.30	0.230	(0.145)	0.058	0.172
3	0.25	1.10	0.195	(0.145)	0.049	0.145
4	0.33	1.50	0.265	(0.145)	0.067	0.198
5	0.42	1.50	0.265	(0.145)	0.067	0.198
6	0.50	1.80	0.319	(0.145)	0.081	0.238
7	0.58	1.50	0.265	(0.145)	0.067	0.198
8	0.67	1.80	0.319	(0.145)	0.081	0.238
9	0.75	1.80	0.319	(0.145)	0.081	0.238
10	0.83	1.50	0.265	(0.145)	0.067	0.198

```
11   0.92     1.60      0.283       (  0.145)       0.072        0.211
12   1.00     1.80      0.319       (  0.145)       0.081        0.238
13   1.08     2.20      0.389       (  0.145)       0.099        0.291
14   1.17     2.20      0.389       (  0.145)       0.099        0.291
15   1.25     2.20      0.389       (  0.145)       0.099        0.291
16   1.33     2.00      0.354       (  0.145)       0.090        0.264
17   1.42     2.60      0.460       (  0.145)       0.117        0.343
18   1.50     2.70      0.478       (  0.145)       0.121        0.357
19   1.58     2.40      0.425       (  0.145)       0.108        0.317
20   1.67     2.70      0.478       (  0.145)       0.121        0.357
21   1.75     3.30      0.584          0.145    (  0.148)        0.439
22   1.83     3.10      0.549       (  0.145)       0.139        0.409
23   1.92     2.90      0.513       (  0.145)       0.130        0.383
24   2.00     3.00      0.531       (  0.145)       0.135        0.396
25   2.08     3.10      0.549       (  0.145)       0.139        0.409
26   2.17     4.20      0.743          0.145    (  0.188)        0.598
27   2.25     5.00      0.885          0.145    (  0.224)        0.740
28   2.33     3.50      0.619          0.145    (  0.157)        0.474
29   2.42     6.80      1.203          0.145    (  0.305)        1.058
30   2.50     7.30      1.292          0.145    (  0.328)        1.147
31   2.58     8.20      1.451          0.145    (  0.368)        1.306
32   2.67     5.90      1.044          0.145    (  0.265)        0.899
33   2.75     2.00      0.354       (  0.145)       0.090        0.264
34   2.83     1.80      0.319       (  0.145)       0.081        0.238
35   2.92     1.80      0.319       (  0.145)       0.081        0.238
36   3.00     0.60      0.106       (  0.145)       0.027        0.079
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    14.0
      Flood volume = Effective rainfall      1.17(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       2.5(Ac.Ft)
      Total soil loss =      0.31(In)
      Total soil loss =     0.646(Ac.Ft)
      Total rainfall =      1.47(In)
      Flood volume =      107731.5 Cubic Feet
      Total soil loss =       28125.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     28.034(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0043      0.62  Q         |         |         |         |
  0+10       0.0223      2.62  V  Q      |         |         |         |
  0+15       0.0454      3.36  V   Q     |         |         |         |
  0+20       0.0702      3.60  |V  Q     |         |         |         |
  0+25       0.0998      4.29  |V   Q    |         |         |         |
  0+30       0.1326      4.77  | V   Q   |         |         |         |
  0+35       0.1689      5.26  | V    Q  |         |         |         |
  0+40       0.2050      5.25  |  V  Q   |         |         |         |
  0+45       0.2440      5.66  |  V   Q  |         |         |         |
  0+50       0.2835      5.74  |   V  Q  |         |         |         |
  0+55       0.3207      5.40  |    V Q  |         |         |         |
  1+ 0       0.3587      5.51  |    V Q  |         |         |         |
  1+ 5       0.4002      6.02  |     V Q |         |         |         |
```



1+10	0.4467	6.76	V Q
1+15	0.4954	7.07	VQ
1+20	0.5444	7.11	VQ
1+25	0.5938	7.18	Q
1+30	0.6494	8.07	Q
1+35	0.7075	8.44	Q
1+40	0.7650	8.35	QV
1+45	0.8273	9.04	QV
1+50	0.8966	10.08	QV
1+55	0.9663	10.12	Q V
2+ 0	1.0347	9.93	Q V
2+ 5	1.1041	10.07	Q V
2+10	1.1796	10.97	Q V
2+15	1.2745	13.77	Q V
2+20	1.3806	15.41	Q V
2+25	1.4877	15.56	Q V
2+30	1.6386	21.90	V Q
2+35	1.8186	26.13	V Q
2+40	2.0117	28.03	V Q
2+45	2.1676	22.64	Q V
2+50	2.2641	14.02	Q V
2+55	2.3354	10.34	Q V
3+ 0	2.3917	8.19	Q V
3+ 5	2.4269	5.11	Q V
3+10	2.4469	2.89	Q V
3+15	2.4587	1.72	Q V
3+20	2.4659	1.05	Q V
3+25	2.4698	0.56	Q V
3+30	2.4715	0.25	Q V
3+35	2.4725	0.15	Q V
3+40	2.4730	0.08	Q V
3+45	2.4732	0.02	Q V

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST610.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
10 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 2.079(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 2.079(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.125	(0.145)	0.032	0.093
2	0.17	0.60	0.150	(0.145)	0.038	0.112
3	0.25	0.60	0.150	(0.145)	0.038	0.112
4	0.33	0.60	0.150	(0.145)	0.038	0.112
5	0.42	0.60	0.150	(0.145)	0.038	0.112
6	0.50	0.70	0.175	(0.145)	0.044	0.130
7	0.58	0.70	0.175	(0.145)	0.044	0.130
8	0.67	0.70	0.175	(0.145)	0.044	0.130
9	0.75	0.70	0.175	(0.145)	0.044	0.130
10	0.83	0.70	0.175	(0.145)	0.044	0.130

11	0.92	0.70	0.175	(0.145)	0.044	0.130
12	1.00	0.80	0.200	(0.145)	0.051	0.149
13	1.08	0.80	0.200	(0.145)	0.051	0.149
14	1.17	0.80	0.200	(0.145)	0.051	0.149
15	1.25	0.80	0.200	(0.145)	0.051	0.149
16	1.33	0.80	0.200	(0.145)	0.051	0.149
17	1.42	0.80	0.200	(0.145)	0.051	0.149
18	1.50	0.80	0.200	(0.145)	0.051	0.149
19	1.58	0.80	0.200	(0.145)	0.051	0.149
20	1.67	0.80	0.200	(0.145)	0.051	0.149
21	1.75	0.80	0.200	(0.145)	0.051	0.149
22	1.83	0.80	0.200	(0.145)	0.051	0.149
23	1.92	0.80	0.200	(0.145)	0.051	0.149
24	2.00	0.90	0.224	(0.145)	0.057	0.168
25	2.08	0.80	0.200	(0.145)	0.051	0.149
26	2.17	0.90	0.224	(0.145)	0.057	0.168
27	2.25	0.90	0.224	(0.145)	0.057	0.168
28	2.33	0.90	0.224	(0.145)	0.057	0.168
29	2.42	0.90	0.224	(0.145)	0.057	0.168
30	2.50	0.90	0.224	(0.145)	0.057	0.168
31	2.58	0.90	0.224	(0.145)	0.057	0.168
32	2.67	0.90	0.224	(0.145)	0.057	0.168
33	2.75	1.00	0.249	(0.145)	0.063	0.186
34	2.83	1.00	0.249	(0.145)	0.063	0.186
35	2.92	1.00	0.249	(0.145)	0.063	0.186
36	3.00	1.00	0.249	(0.145)	0.063	0.186
37	3.08	1.00	0.249	(0.145)	0.063	0.186
38	3.17	1.10	0.274	(0.145)	0.070	0.205
39	3.25	1.10	0.274	(0.145)	0.070	0.205
40	3.33	1.10	0.274	(0.145)	0.070	0.205
41	3.42	1.20	0.299	(0.145)	0.076	0.223
42	3.50	1.30	0.324	(0.145)	0.082	0.242
43	3.58	1.40	0.349	(0.145)	0.089	0.261
44	3.67	1.40	0.349	(0.145)	0.089	0.261
45	3.75	1.50	0.374	(0.145)	0.095	0.279
46	3.83	1.50	0.374	(0.145)	0.095	0.279
47	3.92	1.60	0.399	(0.145)	0.101	0.298
48	4.00	1.60	0.399	(0.145)	0.101	0.298
49	4.08	1.70	0.424	(0.145)	0.108	0.316
50	4.17	1.80	0.449	(0.145)	0.114	0.335
51	4.25	1.90	0.474	(0.145)	0.120	0.354
52	4.33	2.00	0.499	(0.145)	0.127	0.372
53	4.42	2.10	0.524	(0.145)	0.133	0.391
54	4.50	2.10	0.524	(0.145)	0.133	0.391
55	4.58	2.20	0.549	(0.145)	0.139	0.410
56	4.67	2.30	0.574	0.145	(0.145)	0.429
57	4.75	2.40	0.599	0.145	(0.152)	0.454
58	4.83	2.40	0.599	0.145	(0.152)	0.454
59	4.92	2.50	0.624	0.145	(0.158)	0.479
60	5.00	2.60	0.648	0.145	(0.164)	0.504
61	5.08	3.10	0.773	0.145	(0.196)	0.628
62	5.17	3.60	0.898	0.145	(0.228)	0.753
63	5.25	3.90	0.973	0.145	(0.247)	0.828
64	5.33	4.20	1.048	0.145	(0.266)	0.903
65	5.42	4.70	1.172	0.145	(0.297)	1.027
66	5.50	5.60	1.397	0.145	(0.354)	1.252
67	5.58	1.90	0.474	(0.145)	0.120	0.354
68	5.67	0.90	0.224	(0.145)	0.057	0.168
69	5.75	0.60	0.150	(0.145)	0.038	0.112
70	5.83	0.50	0.125	(0.145)	0.032	0.093

```
71   5.92     0.30      0.075       (  0.145)       0.019        0.056
72   6.00     0.20      0.050       (  0.145)       0.013        0.037
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    19.4
      Flood volume = Effective rainfall      1.62(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       3.4(Ac.Ft)
      Total soil loss =      0.46(In)
      Total soil loss =     0.980(Ac.Ft)
      Total rainfall =      2.08(In)
      Flood volume =      148806.1 Cubic Feet
      Total soil loss =       42686.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     25.059(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0023      0.34  Q         |         |         |         |
  0+10       0.0126      1.49  VQ        |         |         |         |
  0+15       0.0274      2.16  V Q       |         |         |         |
  0+20       0.0442      2.44  V  Q      |         |         |         |
  0+25       0.0621      2.59  V  Q      |         |         |         |
  0+30       0.0810      2.75  V  Q      |         |         |         |
  0+35       0.1019      3.04  |V  Q     |         |         |         |
  0+40       0.1238      3.17  |V  Q     |         |         |         |
  0+45       0.1461      3.24  |V  Q     |         |         |         |
  0+50       0.1687      3.29  |V  Q     |         |         |         |
  0+55       0.1915      3.31  | V Q     |         |         |         |
  1+ 0       0.2149      3.39  | V Q     |         |         |         |
  1+ 5       0.2397      3.61  | V Q     |         |         |         |
  1+10       0.2652      3.71  |  VQ     |         |         |         |
  1+15       0.2910      3.75  |  VQ     |         |         |         |
  1+20       0.3170      3.77  |  V Q    |         |         |         |
  1+25       0.3431      3.79  |   VQ    |         |         |         |
  1+30       0.3692      3.80  |   VQ    |         |         |         |
  1+35       0.3954      3.80  |   VQ    |         |         |         |
  1+40       0.4216      3.81  |   VQ    |         |         |         |
  1+45       0.4479      3.81  |    Q    |         |         |         |
  1+50       0.4741      3.81  |    Q    |         |         |         |
  1+55       0.5004      3.81  |    Q    |         |         |         |
  2+ 0       0.5271      3.88  |    QV   |         |         |         |
  2+ 5       0.5548      4.03  |    QV   |         |         |         |
  2+10       0.5822      3.97  |    QV   |         |         |         |
  2+15       0.6106      4.13  |    Q V  |         |         |         |
  2+20       0.6396      4.21  |    Q V  |         |         |         |
  2+25       0.6688      4.24  |    Q V  |         |         |         |
  2+30       0.6981      4.26  |    Q  V |         |         |         |
  2+35       0.7275      4.27  |    Q  V |         |         |         |
  2+40       0.7570      4.28  |    Q  V |         |         |         |
  2+45       0.7870      4.35  |    Q   V|         |         |         |
  2+50       0.8184      4.57  |     Q  V|         |         |         |
  2+55       0.8505      4.66  |     Q  V|         |         |         |
  3+ 0       0.8829      4.70  |     Q   V         |         |         |
  3+ 5       0.9154      4.72  |     Q   V         |         |         |
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   3+10       0.9485      4.81  |     Q   |V        |         |         |
   3+15       0.9832      5.03  |     Q   |V        |         |         |
   3+20       1.0185      5.13  |     Q   |V        |         |         |
   3+25       1.0546      5.24  |     Q   | V       |         |         |
   3+30       1.0928      5.55  |      Q  | V       |         |         |
   3+35       1.1337      5.94  |      Q  |  V      |         |         |
   3+40       1.1771      6.30  |       Q |  V      |         |         |
   3+45       1.2220      6.52  |       Q |   V     |         |         |
   3+50       1.2690      6.82  |        Q|   V     |         |         |
   3+55       1.3174      7.03  |        Q|    V    |         |         |
   4+ 0       1.3678      7.32  |        Q|     V   |         |         |
   4+ 5       1.4196      7.52  |         Q     V   |         |         |
   4+10       1.4738      7.87  |         Q      V  |         |         |
   4+15       1.5308      8.29  |         |Q     V  |         |         |
   4+20       1.5909      8.73  |         |Q      V |         |         |
   4+25       1.6541      9.18  |         | Q      V|         |         |
   4+30       1.7201      9.57  |         | Q       V         |         |
   4+35       1.7877      9.82  |         |  Q      V         |         |
   4+40       1.8579     10.20  |         |  Q      |V        |         |
   4+45       1.9314     10.67  |         |   Q     | V       |         |
   4+50       2.0080     11.13  |         |   Q     |  V      |         |
   4+55       2.0868     11.43  |         |    Q    |   V     |         |
   5+ 0       2.1688     11.91  |         |    Q    |    V    |         |
   5+ 5       2.2573     12.84  |         |      Q  |     V   |         |
   5+10       2.3603     14.96  |         |        Q|      V  |         |
   5+15       2.4800     17.39  |         |         |  Q     V|         |
   5+20       2.6141     19.47  |         |         |    Q    V         |
   5+25       2.7629     21.61  |         |         |       Q | V       |
   5+30       2.9328     24.67  |         |         |         | Q V     |
   5+35       3.1054     25.06  |         |         |         |  Q  V   |
   5+40       3.2127     15.59  |         |         Q         |     V   |
   5+45       3.2791      9.63  |         | Q       |         |       V |
   5+50       3.3249      6.65  |       Q |         |         |       V |
   5+55       3.3584      4.86  |     Q   |         |         |        V|
   6+ 0       3.3821      3.44  |   Q     |         |         |        V|
   6+ 5       3.3979      2.29  |  Q      |         |         |        V|
   6+10       3.4067      1.28  |Q        |         |         |        V|
   6+15       3.4117      0.73  Q         |         |         |        V|
   6+20       3.4138      0.31  Q         |         |         |        V|
   6+25       3.4149      0.16  Q         |         |         |        V|
   6+30       3.4156      0.09  Q         |         |         |        V|
   6+35       3.4159      0.05  Q         |         |         |        V|
   6+40       3.4161      0.02  Q         |         |         |        V|
   6+45       3.4161      0.01  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST2410.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
10 YEAR 24 HOUR EVENT
FUSCOE ENGINEERING

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Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
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Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 10.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 3.916(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.916(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

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2	0.167	165.991	45.379	11.607
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6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.031	(0.257)	0.008	0.023
2	0.17	0.07	0.031	(0.256)	0.008	0.023
3	0.25	0.07	0.031	(0.255)	0.008	0.023
4	0.33	0.10	0.047	(0.254)	0.012	0.035
5	0.42	0.10	0.047	(0.253)	0.012	0.035
6	0.50	0.10	0.047	(0.252)	0.012	0.035
7	0.58	0.10	0.047	(0.251)	0.012	0.035
8	0.67	0.10	0.047	(0.250)	0.012	0.035
9	0.75	0.10	0.047	(0.249)	0.012	0.035
10	0.83	0.13	0.063	(0.248)	0.016	0.047

11	0.92	0.13	0.063	(0.247)	0.016	0.047
12	1.00	0.13	0.063	(0.246)	0.016	0.047
13	1.08	0.10	0.047	(0.245)	0.012	0.035
14	1.17	0.10	0.047	(0.244)	0.012	0.035
15	1.25	0.10	0.047	(0.243)	0.012	0.035
16	1.33	0.10	0.047	(0.242)	0.012	0.035
17	1.42	0.10	0.047	(0.241)	0.012	0.035
18	1.50	0.10	0.047	(0.240)	0.012	0.035
19	1.58	0.10	0.047	(0.239)	0.012	0.035
20	1.67	0.10	0.047	(0.238)	0.012	0.035
21	1.75	0.10	0.047	(0.237)	0.012	0.035
22	1.83	0.13	0.063	(0.236)	0.016	0.047
23	1.92	0.13	0.063	(0.235)	0.016	0.047
24	2.00	0.13	0.063	(0.235)	0.016	0.047
25	2.08	0.13	0.063	(0.234)	0.016	0.047
26	2.17	0.13	0.063	(0.233)	0.016	0.047
27	2.25	0.13	0.063	(0.232)	0.016	0.047
28	2.33	0.13	0.063	(0.231)	0.016	0.047
29	2.42	0.13	0.063	(0.230)	0.016	0.047
30	2.50	0.13	0.063	(0.229)	0.016	0.047
31	2.58	0.17	0.078	(0.228)	0.020	0.058
32	2.67	0.17	0.078	(0.227)	0.020	0.058
33	2.75	0.17	0.078	(0.226)	0.020	0.058
34	2.83	0.17	0.078	(0.225)	0.020	0.058
35	2.92	0.17	0.078	(0.224)	0.020	0.058
36	3.00	0.17	0.078	(0.223)	0.020	0.058
37	3.08	0.17	0.078	(0.222)	0.020	0.058
38	3.17	0.17	0.078	(0.221)	0.020	0.058
39	3.25	0.17	0.078	(0.221)	0.020	0.058
40	3.33	0.17	0.078	(0.220)	0.020	0.058
41	3.42	0.17	0.078	(0.219)	0.020	0.058
42	3.50	0.17	0.078	(0.218)	0.020	0.058
43	3.58	0.17	0.078	(0.217)	0.020	0.058
44	3.67	0.17	0.078	(0.216)	0.020	0.058
45	3.75	0.17	0.078	(0.215)	0.020	0.058
46	3.83	0.20	0.094	(0.214)	0.024	0.070
47	3.92	0.20	0.094	(0.213)	0.024	0.070
48	4.00	0.20	0.094	(0.212)	0.024	0.070
49	4.08	0.20	0.094	(0.211)	0.024	0.070
50	4.17	0.20	0.094	(0.211)	0.024	0.070
51	4.25	0.20	0.094	(0.210)	0.024	0.070
52	4.33	0.23	0.110	(0.209)	0.028	0.082
53	4.42	0.23	0.110	(0.208)	0.028	0.082
54	4.50	0.23	0.110	(0.207)	0.028	0.082
55	4.58	0.23	0.110	(0.206)	0.028	0.082
56	4.67	0.23	0.110	(0.205)	0.028	0.082
57	4.75	0.23	0.110	(0.204)	0.028	0.082
58	4.83	0.27	0.125	(0.203)	0.032	0.094
59	4.92	0.27	0.125	(0.203)	0.032	0.094
60	5.00	0.27	0.125	(0.202)	0.032	0.094
61	5.08	0.20	0.094	(0.201)	0.024	0.070
62	5.17	0.20	0.094	(0.200)	0.024	0.070
63	5.25	0.20	0.094	(0.199)	0.024	0.070
64	5.33	0.23	0.110	(0.198)	0.028	0.082
65	5.42	0.23	0.110	(0.197)	0.028	0.082
66	5.50	0.23	0.110	(0.196)	0.028	0.082
67	5.58	0.27	0.125	(0.196)	0.032	0.094
68	5.67	0.27	0.125	(0.195)	0.032	0.094
69	5.75	0.27	0.125	(0.194)	0.032	0.094
70	5.83	0.27	0.125	(0.193)	0.032	0.094

71	5.92	0.27	0.125	(0.192)	0.032	0.094
72	6.00	0.27	0.125	(0.191)	0.032	0.094
73	6.08	0.30	0.141	(0.190)	0.036	0.105
74	6.17	0.30	0.141	(0.190)	0.036	0.105
75	6.25	0.30	0.141	(0.189)	0.036	0.105
76	6.33	0.30	0.141	(0.188)	0.036	0.105
77	6.42	0.30	0.141	(0.187)	0.036	0.105
78	6.50	0.30	0.141	(0.186)	0.036	0.105
79	6.58	0.33	0.157	(0.185)	0.040	0.117
80	6.67	0.33	0.157	(0.185)	0.040	0.117
81	6.75	0.33	0.157	(0.184)	0.040	0.117
82	6.83	0.33	0.157	(0.183)	0.040	0.117
83	6.92	0.33	0.157	(0.182)	0.040	0.117
84	7.00	0.33	0.157	(0.181)	0.040	0.117
85	7.08	0.33	0.157	(0.180)	0.040	0.117
86	7.17	0.33	0.157	(0.180)	0.040	0.117
87	7.25	0.33	0.157	(0.179)	0.040	0.117
88	7.33	0.37	0.172	(0.178)	0.044	0.129
89	7.42	0.37	0.172	(0.177)	0.044	0.129
90	7.50	0.37	0.172	(0.176)	0.044	0.129
91	7.58	0.40	0.188	(0.176)	0.048	0.140
92	7.67	0.40	0.188	(0.175)	0.048	0.140
93	7.75	0.40	0.188	(0.174)	0.048	0.140
94	7.83	0.43	0.204	(0.173)	0.052	0.152
95	7.92	0.43	0.204	(0.172)	0.052	0.152
96	8.00	0.43	0.204	(0.171)	0.052	0.152
97	8.08	0.50	0.235	(0.171)	0.060	0.175
98	8.17	0.50	0.235	(0.170)	0.060	0.175
99	8.25	0.50	0.235	(0.169)	0.060	0.175
100	8.33	0.50	0.235	(0.168)	0.060	0.175
101	8.42	0.50	0.235	(0.168)	0.060	0.175
102	8.50	0.50	0.235	(0.167)	0.060	0.175
103	8.58	0.53	0.251	(0.166)	0.064	0.187
104	8.67	0.53	0.251	(0.165)	0.064	0.187
105	8.75	0.53	0.251	(0.164)	0.064	0.187
106	8.83	0.57	0.266	(0.164)	0.068	0.199
107	8.92	0.57	0.266	(0.163)	0.068	0.199
108	9.00	0.57	0.266	(0.162)	0.068	0.199
109	9.08	0.63	0.298	(0.161)	0.075	0.222
110	9.17	0.63	0.298	(0.161)	0.075	0.222
111	9.25	0.63	0.298	(0.160)	0.075	0.222
112	9.33	0.67	0.313	(0.159)	0.079	0.234
113	9.42	0.67	0.313	(0.158)	0.079	0.234
114	9.50	0.67	0.313	(0.158)	0.079	0.234
115	9.58	0.70	0.329	(0.157)	0.083	0.246
116	9.67	0.70	0.329	(0.156)	0.083	0.246
117	9.75	0.70	0.329	(0.155)	0.083	0.246
118	9.83	0.73	0.345	(0.155)	0.087	0.257
119	9.92	0.73	0.345	(0.154)	0.087	0.257
120	10.00	0.73	0.345	(0.153)	0.087	0.257
121	10.08	0.50	0.235	(0.152)	0.060	0.175
122	10.17	0.50	0.235	(0.152)	0.060	0.175
123	10.25	0.50	0.235	(0.151)	0.060	0.175
124	10.33	0.50	0.235	(0.150)	0.060	0.175
125	10.42	0.50	0.235	(0.149)	0.060	0.175
126	10.50	0.50	0.235	(0.149)	0.060	0.175
127	10.58	0.67	0.313	(0.148)	0.079	0.234
128	10.67	0.67	0.313	(0.147)	0.079	0.234
129	10.75	0.67	0.313	(0.146)	0.079	0.234
130	10.83	0.67	0.313	(0.146)	0.079	0.234

131	10.92	0.67	0.313	(0.145)	0.079	0.234
132	11.00	0.67	0.313	(0.144)	0.079	0.234
133	11.08	0.63	0.298	(0.144)	0.075	0.222
134	11.17	0.63	0.298	(0.143)	0.075	0.222
135	11.25	0.63	0.298	(0.142)	0.075	0.222
136	11.33	0.63	0.298	(0.141)	0.075	0.222
137	11.42	0.63	0.298	(0.141)	0.075	0.222
138	11.50	0.63	0.298	(0.140)	0.075	0.222
139	11.58	0.57	0.266	(0.139)	0.068	0.199
140	11.67	0.57	0.266	(0.139)	0.068	0.199
141	11.75	0.57	0.266	(0.138)	0.068	0.199
142	11.83	0.60	0.282	(0.137)	0.072	0.210
143	11.92	0.60	0.282	(0.137)	0.072	0.210
144	12.00	0.60	0.282	(0.136)	0.072	0.210
145	12.08	0.83	0.392	(0.135)	0.099	0.292
146	12.17	0.83	0.392	(0.135)	0.099	0.292
147	12.25	0.83	0.392	(0.134)	0.099	0.292
148	12.33	0.87	0.407	(0.133)	0.103	0.304
149	12.42	0.87	0.407	(0.133)	0.103	0.304
150	12.50	0.87	0.407	(0.132)	0.103	0.304
151	12.58	0.93	0.439	(0.131)	0.111	0.327
152	12.67	0.93	0.439	(0.131)	0.111	0.327
153	12.75	0.93	0.439	(0.130)	0.111	0.327
154	12.83	0.97	0.454	(0.129)	0.115	0.339
155	12.92	0.97	0.454	(0.129)	0.115	0.339
156	13.00	0.97	0.454	(0.128)	0.115	0.339
157	13.08	1.13	0.533	0.127	(0.135)	0.405
158	13.17	1.13	0.533	0.127	(0.135)	0.406
159	13.25	1.13	0.533	0.126	(0.135)	0.407
160	13.33	1.13	0.533	0.125	(0.135)	0.407
161	13.42	1.13	0.533	0.125	(0.135)	0.408
162	13.50	1.13	0.533	0.124	(0.135)	0.408
163	13.58	0.77	0.360	(0.123)	0.091	0.269
164	13.67	0.77	0.360	(0.123)	0.091	0.269
165	13.75	0.77	0.360	(0.122)	0.091	0.269
166	13.83	0.77	0.360	(0.122)	0.091	0.269
167	13.92	0.77	0.360	(0.121)	0.091	0.269
168	14.00	0.77	0.360	(0.120)	0.091	0.269
169	14.08	0.90	0.423	(0.120)	0.107	0.316
170	14.17	0.90	0.423	(0.119)	0.107	0.316
171	14.25	0.90	0.423	(0.119)	0.107	0.316
172	14.33	0.87	0.407	(0.118)	0.103	0.304
173	14.42	0.87	0.407	(0.117)	0.103	0.304
174	14.50	0.87	0.407	(0.117)	0.103	0.304
175	14.58	0.87	0.407	(0.116)	0.103	0.304
176	14.67	0.87	0.407	(0.116)	0.103	0.304
177	14.75	0.87	0.407	(0.115)	0.103	0.304
178	14.83	0.83	0.392	(0.114)	0.099	0.292
179	14.92	0.83	0.392	(0.114)	0.099	0.292
180	15.00	0.83	0.392	(0.113)	0.099	0.292
181	15.08	0.80	0.376	(0.113)	0.095	0.281
182	15.17	0.80	0.376	(0.112)	0.095	0.281
183	15.25	0.80	0.376	(0.111)	0.095	0.281
184	15.33	0.77	0.360	(0.111)	0.091	0.269
185	15.42	0.77	0.360	(0.110)	0.091	0.269
186	15.50	0.77	0.360	(0.110)	0.091	0.269
187	15.58	0.63	0.298	(0.109)	0.075	0.222
188	15.67	0.63	0.298	(0.109)	0.075	0.222
189	15.75	0.63	0.298	(0.108)	0.075	0.222
190	15.83	0.63	0.298	(0.108)	0.075	0.222

191	15.92	0.63	0.298	(0.107)	0.075	0.222
192	16.00	0.63	0.298	(0.106)	0.075	0.222
193	16.08	0.13	0.063	(0.106)	0.016	0.047
194	16.17	0.13	0.063	(0.105)	0.016	0.047
195	16.25	0.13	0.063	(0.105)	0.016	0.047
196	16.33	0.13	0.063	(0.104)	0.016	0.047
197	16.42	0.13	0.063	(0.104)	0.016	0.047
198	16.50	0.13	0.063	(0.103)	0.016	0.047
199	16.58	0.10	0.047	(0.103)	0.012	0.035
200	16.67	0.10	0.047	(0.102)	0.012	0.035
201	16.75	0.10	0.047	(0.102)	0.012	0.035
202	16.83	0.10	0.047	(0.101)	0.012	0.035
203	16.92	0.10	0.047	(0.101)	0.012	0.035
204	17.00	0.10	0.047	(0.100)	0.012	0.035
205	17.08	0.17	0.078	(0.100)	0.020	0.058
206	17.17	0.17	0.078	(0.099)	0.020	0.058
207	17.25	0.17	0.078	(0.099)	0.020	0.058
208	17.33	0.17	0.078	(0.098)	0.020	0.058
209	17.42	0.17	0.078	(0.098)	0.020	0.058
210	17.50	0.17	0.078	(0.097)	0.020	0.058
211	17.58	0.17	0.078	(0.097)	0.020	0.058
212	17.67	0.17	0.078	(0.096)	0.020	0.058
213	17.75	0.17	0.078	(0.096)	0.020	0.058
214	17.83	0.13	0.063	(0.095)	0.016	0.047
215	17.92	0.13	0.063	(0.095)	0.016	0.047
216	18.00	0.13	0.063	(0.094)	0.016	0.047
217	18.08	0.13	0.063	(0.094)	0.016	0.047
218	18.17	0.13	0.063	(0.093)	0.016	0.047
219	18.25	0.13	0.063	(0.093)	0.016	0.047
220	18.33	0.13	0.063	(0.092)	0.016	0.047
221	18.42	0.13	0.063	(0.092)	0.016	0.047
222	18.50	0.13	0.063	(0.092)	0.016	0.047
223	18.58	0.10	0.047	(0.091)	0.012	0.035
224	18.67	0.10	0.047	(0.091)	0.012	0.035
225	18.75	0.10	0.047	(0.090)	0.012	0.035
226	18.83	0.07	0.031	(0.090)	0.008	0.023
227	18.92	0.07	0.031	(0.089)	0.008	0.023
228	19.00	0.07	0.031	(0.089)	0.008	0.023
229	19.08	0.10	0.047	(0.089)	0.012	0.035
230	19.17	0.10	0.047	(0.088)	0.012	0.035
231	19.25	0.10	0.047	(0.088)	0.012	0.035
232	19.33	0.13	0.063	(0.087)	0.016	0.047
233	19.42	0.13	0.063	(0.087)	0.016	0.047
234	19.50	0.13	0.063	(0.086)	0.016	0.047
235	19.58	0.10	0.047	(0.086)	0.012	0.035
236	19.67	0.10	0.047	(0.086)	0.012	0.035
237	19.75	0.10	0.047	(0.085)	0.012	0.035
238	19.83	0.07	0.031	(0.085)	0.008	0.023
239	19.92	0.07	0.031	(0.085)	0.008	0.023
240	20.00	0.07	0.031	(0.084)	0.008	0.023
241	20.08	0.10	0.047	(0.084)	0.012	0.035
242	20.17	0.10	0.047	(0.083)	0.012	0.035
243	20.25	0.10	0.047	(0.083)	0.012	0.035
244	20.33	0.10	0.047	(0.083)	0.012	0.035
245	20.42	0.10	0.047	(0.082)	0.012	0.035
246	20.50	0.10	0.047	(0.082)	0.012	0.035
247	20.58	0.10	0.047	(0.082)	0.012	0.035
248	20.67	0.10	0.047	(0.081)	0.012	0.035
249	20.75	0.10	0.047	(0.081)	0.012	0.035
250	20.83	0.07	0.031	(0.081)	0.008	0.023

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251  20.92     0.07      0.031       (  0.080)       0.008        0.023
252  21.00     0.07      0.031       (  0.080)       0.008        0.023
253  21.08     0.10      0.047       (  0.080)       0.012        0.035
254  21.17     0.10      0.047       (  0.079)       0.012        0.035
255  21.25     0.10      0.047       (  0.079)       0.012        0.035
256  21.33     0.07      0.031       (  0.079)       0.008        0.023
257  21.42     0.07      0.031       (  0.078)       0.008        0.023
258  21.50     0.07      0.031       (  0.078)       0.008        0.023
259  21.58     0.10      0.047       (  0.078)       0.012        0.035
260  21.67     0.10      0.047       (  0.078)       0.012        0.035
261  21.75     0.10      0.047       (  0.077)       0.012        0.035
262  21.83     0.07      0.031       (  0.077)       0.008        0.023
263  21.92     0.07      0.031       (  0.077)       0.008        0.023
264  22.00     0.07      0.031       (  0.077)       0.008        0.023
265  22.08     0.10      0.047       (  0.076)       0.012        0.035
266  22.17     0.10      0.047       (  0.076)       0.012        0.035
267  22.25     0.10      0.047       (  0.076)       0.012        0.035
268  22.33     0.07      0.031       (  0.076)       0.008        0.023
269  22.42     0.07      0.031       (  0.075)       0.008        0.023
270  22.50     0.07      0.031       (  0.075)       0.008        0.023
271  22.58     0.07      0.031       (  0.075)       0.008        0.023
272  22.67     0.07      0.031       (  0.075)       0.008        0.023
273  22.75     0.07      0.031       (  0.074)       0.008        0.023
274  22.83     0.07      0.031       (  0.074)       0.008        0.023
275  22.92     0.07      0.031       (  0.074)       0.008        0.023
276  23.00     0.07      0.031       (  0.074)       0.008        0.023
277  23.08     0.07      0.031       (  0.074)       0.008        0.023
278  23.17     0.07      0.031       (  0.074)       0.008        0.023
279  23.25     0.07      0.031       (  0.073)       0.008        0.023
280  23.33     0.07      0.031       (  0.073)       0.008        0.023
281  23.42     0.07      0.031       (  0.073)       0.008        0.023
282  23.50     0.07      0.031       (  0.073)       0.008        0.023
283  23.58     0.07      0.031       (  0.073)       0.008        0.023
284  23.67     0.07      0.031       (  0.073)       0.008        0.023
285  23.75     0.07      0.031       (  0.073)       0.008        0.023
286  23.83     0.07      0.031       (  0.073)       0.008        0.023
287  23.92     0.07      0.031       (  0.073)       0.008        0.023
288  24.00     0.07      0.031       (  0.072)       0.008        0.023
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    35.1
       Flood volume = Effective rainfall      2.93(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       6.2(Ac.Ft)
       Total soil loss =      0.99(In)
       Total soil loss =     2.091(Ac.Ft)
       Total rainfall =      3.92(In)
       Flood volume =      269716.4 Cubic Feet
       Total soil loss =       91063.1 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =     10.329(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
 ------------------------------------------------------------------------
   0+ 5       0.0006      0.08  Q         |         |         |         |
```

0+10	0.0030	0.36	Q				
0+15	0.0063	0.47	Q				
0+20	0.0101	0.56	VQ				
0+25	0.0151	0.73	VQ				
0+30	0.0207	0.80	VQ				
0+35	0.0264	0.84	VQ				
0+40	0.0323	0.86	VQ				
0+45	0.0384	0.88	VQ				
0+50	0.0448	0.93	VQ				
0+55	0.0522	1.07	V Q				
1+ 0	0.0599	1.13	V Q				
1+ 5	0.0676	1.11	V Q				
1+10	0.0745	0.99	VQ				
1+15	0.0810	0.95	VQ				
1+20	0.0873	0.93	VQ				
1+25	0.0937	0.92	VQ				
1+30	0.0999	0.91	VQ				
1+35	0.1062	0.91	VQ				
1+40	0.1124	0.90	VQ				
1+45	0.1186	0.90	VQ				
1+50	0.1251	0.94	VQ				
1+55	0.1325	1.08	V Q				
2+ 0	0.1403	1.13	V Q				
2+ 5	0.1483	1.16	V Q				
2+10	0.1563	1.17	|VQ				
2+15	0.1645	1.18	|VQ				
2+20	0.1726	1.19	|VQ				
2+25	0.1808	1.19	|VQ				
2+30	0.1891	1.19	|VQ				
2+35	0.1976	1.24	|VQ				
2+40	0.2071	1.37	|VQ				
2+45	0.2169	1.43	|VQ				
2+50	0.2270	1.46	|VQ				
2+55	0.2371	1.47	|VQ				
3+ 0	0.2473	1.48	|VQ				
3+ 5	0.2575	1.49	|VQ				
3+10	0.2678	1.49	|VQ				
3+15	0.2781	1.49	|VQ				
3+20	0.2884	1.50	|VQ				
3+25	0.2987	1.50	|VQ				
3+30	0.3090	1.50	|VQ				
3+35	0.3193	1.50	| Q				
3+40	0.3296	1.50	| Q				
3+45	0.3399	1.50	| Q				
3+50	0.3505	1.54	| VQ				
3+55	0.3620	1.67	| VQ				
4+ 0	0.3739	1.73	| VQ				
4+ 5	0.3860	1.76	| VQ				
4+10	0.3982	1.77	| VQ				
4+15	0.4105	1.78	| VQ				
4+20	0.4230	1.83	| VQ				
4+25	0.4366	1.97	| VQ				
4+30	0.4506	2.03	| V Q				
4+35	0.4647	2.05	| VQ				
4+40	0.4790	2.07	| VQ				
4+45	0.4933	2.08	| VQ				
4+50	0.5079	2.13	| VQ				
4+55	0.5235	2.27	| VQ				
5+ 0	0.5395	2.33	| VQ				
5+ 5	0.5552	2.27	| VQ				

5+10	0.5690	2.01	VQ				
5+15	0.5822	1.91	Q				
5+20	0.5953	1.91	Q				
5+25	0.6092	2.02	VQ				
5+30	0.6234	2.06	Q				
5+35	0.6380	2.12	Q				
5+40	0.6535	2.26	Q				
5+45	0.6695	2.32	Q				
5+50	0.6856	2.34	Q				
5+55	0.7019	2.36	Q				
6+ 0	0.7183	2.37	Q				
6+ 5	0.7350	2.43	Q				
6+10	0.7526	2.57	VQ				
6+15	0.7707	2.63	VQ				
6+20	0.7890	2.65	Q				
6+25	0.8074	2.67	Q				
6+30	0.8258	2.68	Q				
6+35	0.8446	2.73	Q				
6+40	0.8643	2.87	Q				
6+45	0.8844	2.93	Q				
6+50	0.9048	2.95	Q				
6+55	0.9252	2.97	Q				
7+ 0	0.9457	2.98	QV				
7+ 5	0.9662	2.98	QV				
7+10	0.9868	2.99	QV				
7+15	1.0074	2.99	QV				
7+20	1.0283	3.03	Q				
7+25	1.0501	3.17	Q				
7+30	1.0724	3.23	Q				
7+35	1.0950	3.29	QV				
7+40	1.1188	3.44	QV				
7+45	1.1429	3.51	Q				
7+50	1.1676	3.58	Q				
7+55	1.1933	3.74	Q				
8+ 0	1.2196	3.81	Q				
8+ 5	1.2466	3.92	QV				
8+10	1.2756	4.21	Q				
8+15	1.3055	4.34	Q				
8+20	1.3358	4.40	Q				
8+25	1.3663	4.43	Q				
8+30	1.3970	4.45	QV				
8+35	1.4280	4.51	Q				
8+40	1.4601	4.65	Q				
8+45	1.4926	4.72	Q				
8+50	1.5256	4.79	Q				
8+55	1.5596	4.94	QV				
9+ 0	1.5941	5.01	Q				
9+ 5	1.6294	5.12	Q				
9+10	1.6666	5.41	Q				
9+15	1.7048	5.54	Q				
9+20	1.7436	5.64	Q				
9+25	1.7836	5.81	Q				
9+30	1.8241	5.88	Q				
9+35	1.8652	5.97	QV				
9+40	1.9074	6.13	Q				
9+45	1.9501	6.20	Q				
9+50	1.9933	6.28	Q				
9+55	2.0376	6.43	QV				
10+ 0	2.0823	6.50	QV				
10+ 5	2.1253	6.24	QV				

10+10	2.1618	5.30	| Q V |	|	|
10+15	2.1957	4.92	| Q| V |	|	|
10+20	2.2284	4.76	| Q| V |	|	|
10+25	2.2605	4.66	| Q| V |	|	|
10+30	2.2922	4.60	| Q| V |	|	|
10+35	2.3251	4.77	| Q| V |	|	|
10+40	2.3624	5.42	| Q V |	|	|
10+45	2.4015	5.68	| |Q V |	|	|
10+50	2.4414	5.78	| |Q V |	|	|
10+55	2.4817	5.86	| |Q V |	|	|
11+ 0	2.5224	5.90	| |Q V |	|	|
11+ 5	2.5629	5.89	| |Q V |	|	|
11+10	2.6027	5.78	| |Q V |	|	|
11+15	2.6422	5.73	| |Q V |	|	|
11+20	2.6816	5.72	| |Q V |	|	|
11+25	2.7210	5.71	| |Q V |	|	|
11+30	2.7602	5.70	| |Q V |	|	|
11+35	2.7989	5.61	| |Q V |	|	|
11+40	2.8356	5.33	| Q V |	|	|
11+45	2.8715	5.22	| Q V |	|	|
11+50	2.9074	5.21	| Q V |	|	|
11+55	2.9440	5.32	| Q V|	|	|
12+ 0	2.9809	5.35	| Q V|	|	|
12+ 5	3.0199	5.66	| |Q V|	|	|
12+10	3.0655	6.62	| | Q V|	|	|
12+15	3.1138	7.02	| | Q V	|	|
12+20	3.1637	7.23	| | Q V	|	|
12+25	3.2151	7.47	| | Q V	|	|
12+30	3.2674	7.60	| | Q |V	|	|
12+35	3.3209	7.75	| | Q |V	|	|
12+40	3.3764	8.07	| | Q |V	|	|
12+45	3.4330	8.21	| | Q | V	|	|
12+50	3.4904	8.33	| | Q | V	|	|
12+55	3.5489	8.50	| | Q | V	|	|
13+ 0	3.6080	8.58	| | Q | V	|	|
13+ 5	3.6690	8.86	| | Q | V	|	|
13+10	3.7354	9.65	| | Q| V	|	|
13+15	3.8043	10.00	| | Q| V	|	|
13+20	3.8743	10.16	| | Q V	|	|
13+25	3.9449	10.26	| | Q V	|	|
13+30	4.0161	10.33	| | Q V	|	|
13+35	4.0841	9.88	| | Q| V	|	|
13+40	4.1412	8.29	| | Q | V	|	|
13+45	4.1937	7.62	| | Q | V	|	|
13+50	4.2443	7.35	| | Q | V	|	|
13+55	4.2938	7.18	| | Q | V	|	|
14+ 0	4.3425	7.08	| | Q | V	|	|
14+ 5	4.3919	7.17	| | Q | V	|	|
14+10	4.4447	7.66	| | Q | V	|	|
14+15	4.4988	7.86	| | Q | V|	|	|
14+20	4.5531	7.88	| | Q | V|	|	|
14+25	4.6068	7.80	| | Q | V|	|	|
14+30	4.6603	7.78	| | Q | V	|	|
14+35	4.7139	7.78	| | Q | V	|	|
14+40	4.7675	7.78	| | Q | V	|	|
14+45	4.8211	7.78	| | Q | |V	|	|
14+50	4.8745	7.75	| | Q | |V	|	|
14+55	4.9269	7.61	| | Q | |V	|	|
15+ 0	4.9788	7.55	| | Q | | V	|	|
15+ 5	5.0303	7.48	| | Q | | V	|	|

15+10	5.0808	7.33	|	| Q	|	| V |
15+15	5.1308	7.26	|	| Q	|	| V |
15+20	5.1803	7.19	|	| Q	|	| V |
15+25	5.2288	7.03	|	| Q	|	| V |
15+30	5.2767	6.97	|	| Q	|	| V |
15+35	5.3233	6.76	|	| Q	|	| V |
15+40	5.3660	6.20	|	| Q	|	| V |
15+45	5.4070	5.96	|	|Q	|	| V |
15+50	5.4474	5.85	|	|Q	|	| V |
15+55	5.4873	5.79	|	|Q	|	| V |
16+ 0	5.5269	5.75	|	|Q	|	| V |
16+ 5	5.5619	5.09	|	Q	|	| V |
16+10	5.5829	3.04	| Q	|	|	| V |
16+15	5.5978	2.17	| Q	|	|	| V |
16+20	5.6101	1.79	| Q	|	|	| V |
16+25	5.6210	1.58	| Q	|	|	| V |
16+30	5.6310	1.44	| Q	|	|	| V |
16+35	5.6400	1.31	| Q	|	|	| V |
16+40	5.6476	1.10	| Q	|	|	| V |
16+45	5.6545	1.00	| Q	|	|	| V |
16+50	5.6609	0.94	|Q	|	|	| V |
16+55	5.6673	0.92	|Q	|	|	| V |
17+ 0	5.6736	0.91	|Q	|	|	| V |
17+ 5	5.6804	0.99	|Q	|	|	| V |
17+10	5.6891	1.26	| Q	|	|	| V |
17+15	5.6985	1.37	| Q	|	|	| V |
17+20	5.7083	1.42	| Q	|	|	| V |
17+25	5.7182	1.45	| Q	|	|	| V |
17+30	5.7283	1.46	| Q	|	|	| V |
17+35	5.7385	1.48	| Q	|	|	| V |
17+40	5.7487	1.48	| Q	|	|	| V |
17+45	5.7590	1.49	| Q	|	|	| V |
17+50	5.7690	1.45	| Q	|	|	| V |
17+55	5.7781	1.32	| Q	|	|	| V |
18+ 0	5.7867	1.26	| Q	|	|	| V |
18+ 5	5.7953	1.24	| Q	|	|	| V |
18+10	5.8037	1.22	| Q	|	|	| V |
18+15	5.8120	1.21	| Q	|	|	| V |
18+20	5.8203	1.21	| Q	|	|	| V |
18+25	5.8286	1.20	| Q	|	|	| V |
18+30	5.8369	1.20	| Q	|	|	| V |
18+35	5.8448	1.15	| Q	|	|	| V |
18+40	5.8519	1.02	| Q	|	|	| V |
18+45	5.8585	0.96	|Q	|	|	| V |
18+50	5.8646	0.90	|Q	|	|	| V |
18+55	5.8698	0.74	|Q	|	|	| V |
19+ 0	5.8744	0.68	|Q	|	|	| V |
19+ 5	5.8792	0.69	|Q	|	|	| V |
19+10	5.8848	0.81	|Q	|	|	| V |
19+15	5.8906	0.85	|Q	|	|	| V |
19+20	5.8969	0.91	|Q	|	|	| V |
19+25	5.9042	1.06	| Q	|	|	| V |
19+30	5.9119	1.12	| Q	|	|	| V |
19+35	5.9195	1.10	| Q	|	|	| V |
19+40	5.9263	0.99	|Q	|	|	| V |
19+45	5.9328	0.94	|Q	|	|	| V |
19+50	5.9389	0.89	|Q	|	|	| V |
19+55	5.9440	0.74	|Q	|	|	| V |
20+ 0	5.9486	0.68	|Q	|	|	| V |
20+ 5	5.9534	0.69	|Q	|	|	| V |

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  20+10       5.9590      0.81  |Q        |         |         |       V |
  20+15       5.9648      0.85  |Q        |         |         |       V |
  20+20       5.9708      0.87  |Q        |         |         |       V |
  20+25       5.9768      0.88  |Q        |         |         |       V |
  20+30       5.9829      0.88  |Q        |         |         |       V |
  20+35       5.9890      0.89  |Q        |         |         |       V |
  20+40       5.9952      0.89  |Q        |         |         |       V |
  20+45       6.0014      0.89  |Q        |         |         |       V |
  20+50       6.0072      0.86  |Q        |         |         |       V |
  20+55       6.0122      0.72  |Q        |         |         |       V |
  21+ 0       6.0168      0.66  |Q        |         |         |       V |
  21+ 5       6.0214      0.68  |Q        |         |         |       V |
  21+10       6.0270      0.80  |Q        |         |         |       V |
  21+15       6.0328      0.85  |Q        |         |         |       V |
  21+20       6.0385      0.83  |Q        |         |         |        V|
  21+25       6.0433      0.70  |Q        |         |         |        V|
  21+30       6.0478      0.65  |Q        |         |         |        V|
  21+35       6.0524      0.67  |Q        |         |         |        V|
  21+40       6.0579      0.80  |Q        |         |         |        V|
  21+45       6.0637      0.85  |Q        |         |         |        V|
  21+50       6.0694      0.83  |Q        |         |         |        V|
  21+55       6.0742      0.70  |Q        |         |         |        V|
  22+ 0       6.0787      0.65  |Q        |         |         |        V|
  22+ 5       6.0833      0.67  |Q        |         |         |        V|
  22+10       6.0888      0.80  |Q        |         |         |        V|
  22+15       6.0946      0.85  |Q        |         |         |        V|
  22+20       6.1003      0.83  |Q        |         |         |        V|
  22+25       6.1052      0.70  |Q        |         |         |        V|
  22+30       6.1096      0.65  |Q        |         |         |        V|
  22+35       6.1139      0.63  |Q        |         |         |        V|
  22+40       6.1182      0.62  |Q        |         |         |        V|
  22+45       6.1224      0.61  |Q        |         |         |        V|
  22+50       6.1266      0.61  |Q        |         |         |        V|
  22+55       6.1308      0.60  |Q        |         |         |        V|
  23+ 0       6.1349      0.60  |Q        |         |         |        V|
  23+ 5       6.1390      0.60  |Q        |         |         |        V|
  23+10       6.1432      0.60  |Q        |         |         |        V|
  23+15       6.1473      0.60  |Q        |         |         |        V|
  23+20       6.1514      0.60  |Q        |         |         |        V|
  23+25       6.1555      0.60  |Q        |         |         |        V|
  23+30       6.1596      0.60  |Q        |         |         |        V|
  23+35       6.1638      0.60  |Q        |         |         |        V|
  23+40       6.1679      0.60  |Q        |         |         |        V|
  23+45       6.1720      0.60  |Q        |         |         |        V|
  23+50       6.1761      0.60  |Q        |         |         |        V|
  23+55       6.1802      0.60  |Q        |         |         |        V|
  24+ 0       6.1844      0.60  |Q        |         |         |        V|
  24+ 5       6.1879      0.51  |Q        |         |         |        V|
  24+10       6.1896      0.24  Q         |         |         |        V|
  24+15       6.1905      0.13  Q         |         |         |        V|
  24+20       6.1910      0.08  Q         |         |         |        V|
  24+25       6.1914      0.05  Q         |         |         |        V|
  24+30       6.1916      0.03  Q         |         |         |        V|
  24+35       6.1917      0.02  Q         |         |         |        V|
  24+40       6.1918      0.01  Q         |         |         |        V|
  24+45       6.1918      0.01  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST15.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
5 YEAR 1 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.695(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.695(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.350	(0.145)	0.089	0.261
2	0.17	4.30	0.359	(0.145)	0.091	0.268
3	0.25	5.00	0.417	(0.145)	0.106	0.311
4	0.33	5.00	0.417	(0.145)	0.106	0.311
5	0.42	5.80	0.484	(0.145)	0.123	0.361
6	0.50	6.50	0.542	(0.145)	0.137	0.405
7	0.58	7.40	0.617	0.145	(0.157)	0.472
8	0.67	8.60	0.717	0.145	(0.182)	0.572

```
 9   0.75    12.30      1.026          0.145    (  0.260)        0.881
10   0.83    29.10      2.427          0.145    (  0.616)        2.282
11   0.92     6.80      0.567       (  0.145)       0.144        0.423
12   1.00     5.00      0.417       (  0.145)       0.106        0.311
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     6.9
      Flood volume = Effective rainfall      0.57(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
      Total soil loss =      0.12(In)
      Total soil loss =     0.261(Ac.Ft)
      Total rainfall =      0.70(In)
      Flood volume =       52667.0 Cubic Feet
      Total soil loss =       11368.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     34.871(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0       10.0      20.0      30.0      40.0
  ---------------------------------------------------------------------
    0+ 5       0.0065      0.95  Q         |         |         |         |
    0+10       0.0341      4.01  |V  Q     |         |         |         |
    0+15       0.0721      5.51  | V  Q    |         |         |         |
    0+20       0.1175      6.59  |  V  Q   |         |         |         |
    0+25       0.1678      7.32  |    V Q  |         |         |         |
    0+30       0.2254      8.35  |      VQ |         |         |         |
    0+35       0.2911      9.55  |        Q|         |         |         |
    0+40       0.3679     11.15  |         |QV       |         |         |
    0+45       0.4643     14.00  |         |  Q V    |         |         |
    0+50       0.6258     23.45  |         |         V  Q      |         |
    0+55       0.8660     34.87  |         |         |       V |   Q     |
    1+ 0       1.0078     20.59  |         |         Q         |  V      |
    1+ 5       1.0938     12.49  |         | Q       |         |    V    |
    1+10       1.1389      6.56  |     Q   |         |         |     V   |
    1+15       1.1653      3.83  |  Q      |         |         |      V  |
    1+20       1.1829      2.55  | Q       |         |         |       V |
    1+25       1.1944      1.68  |Q        |         |         |       V |
    1+30       1.2020      1.10  |Q        |         |         |       V |
    1+35       1.2073      0.77  Q         |         |         |       V |
    1+40       1.2085      0.18  Q         |         |         |       V |
    1+45       1.2091      0.08  Q         |         |         |        V
  ---------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST35.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
5 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 1.226(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.226(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

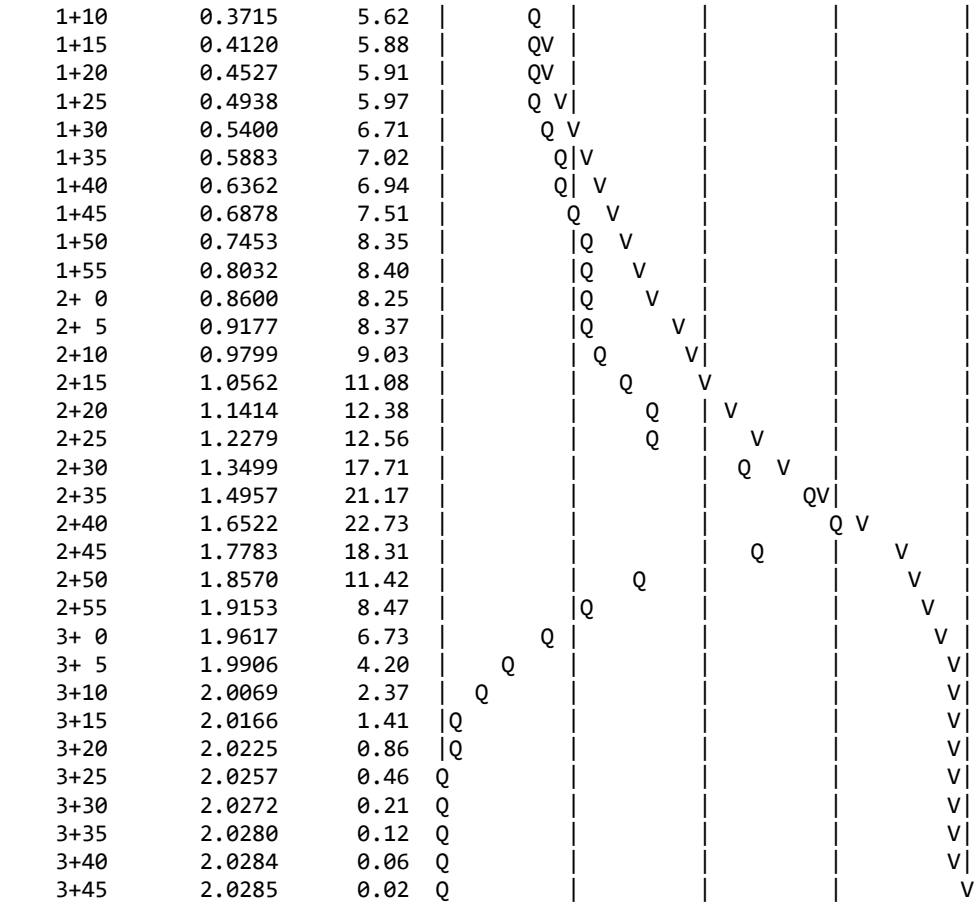
Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.191	(0.145)	0.049	0.143
2	0.17	1.30	0.191	(0.145)	0.049	0.143
3	0.25	1.10	0.162	(0.145)	0.041	0.121
4	0.33	1.50	0.221	(0.145)	0.056	0.165
5	0.42	1.50	0.221	(0.145)	0.056	0.165
6	0.50	1.80	0.265	(0.145)	0.067	0.198
7	0.58	1.50	0.221	(0.145)	0.056	0.165
8	0.67	1.80	0.265	(0.145)	0.067	0.198
9	0.75	1.80	0.265	(0.145)	0.067	0.198
10	0.83	1.50	0.221	(0.145)	0.056	0.165

```
11   0.92     1.60      0.235       (  0.145)       0.060        0.176
12   1.00     1.80      0.265       (  0.145)       0.067        0.198
13   1.08     2.20      0.324       (  0.145)       0.082        0.242
14   1.17     2.20      0.324       (  0.145)       0.082        0.242
15   1.25     2.20      0.324       (  0.145)       0.082        0.242
16   1.33     2.00      0.294       (  0.145)       0.075        0.220
17   1.42     2.60      0.383       (  0.145)       0.097        0.286
18   1.50     2.70      0.397       (  0.145)       0.101        0.297
19   1.58     2.40      0.353       (  0.145)       0.090        0.264
20   1.67     2.70      0.397       (  0.145)       0.101        0.297
21   1.75     3.30      0.486       (  0.145)       0.123        0.362
22   1.83     3.10      0.456       (  0.145)       0.116        0.340
23   1.92     2.90      0.427       (  0.145)       0.108        0.319
24   2.00     3.00      0.441       (  0.145)       0.112        0.329
25   2.08     3.10      0.456       (  0.145)       0.116        0.340
26   2.17     4.20      0.618          0.145    (  0.157)       0.473
27   2.25     5.00      0.736          0.145    (  0.187)       0.591
28   2.33     3.50      0.515       (  0.145)       0.131        0.384
29   2.42     6.80      1.001          0.145    (  0.254)       0.856
30   2.50     7.30      1.074          0.145    (  0.272)       0.929
31   2.58     8.20      1.207          0.145    (  0.306)       1.062
32   2.67     5.90      0.868          0.145    (  0.220)       0.723
33   2.75     2.00      0.294       (  0.145)       0.075        0.220
34   2.83     1.80      0.265       (  0.145)       0.067        0.198
35   2.92     1.80      0.265       (  0.145)       0.067        0.198
36   3.00     0.60      0.088       (  0.145)       0.022        0.066
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    11.5
      Flood volume = Effective rainfall      0.96(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       2.0(Ac.Ft)
      Total soil loss =      0.27(In)
      Total soil loss =     0.565(Ac.Ft)
      Total rainfall =      1.23(In)
      Flood volume =       88363.1 Cubic Feet
      Total soil loss =       24610.2 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     22.726(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0036      0.52  Q         |         |         |         |
  0+10       0.0185      2.17  V Q       |         |         |         |
  0+15       0.0378      2.79  V  Q      |         |         |         |
  0+20       0.0584      2.99  |V Q      |         |         |         |
  0+25       0.0830      3.57  |V  Q     |         |         |         |
  0+30       0.1103      3.97  | V  Q    |         |         |         |
  0+35       0.1404      4.37  | V  Q    |         |         |         |
  0+40       0.1705      4.36  |  V Q    |         |         |         |
  0+45       0.2029      4.71  |   V Q   |         |         |         |
  0+50       0.2358      4.77  |   V Q   |         |         |         |
  0+55       0.2667      4.49  |    Q    |         |         |         |
  1+ 0       0.2983      4.58  |    VQ   |         |         |         |
  1+ 5       0.3328      5.01  |     Q   |         |         |         |
```



1+10	0.3715	5.62	Q
1+15	0.4120	5.88	QV
1+20	0.4527	5.91	QV
1+25	0.4938	5.97	Q V
1+30	0.5400	6.71	Q V
1+35	0.5883	7.02	Q|V
1+40	0.6362	6.94	Q| V
1+45	0.6878	7.51	Q V
1+50	0.7453	8.35	|Q V
1+55	0.8032	8.40	|Q V
2+ 0	0.8600	8.25	|Q V
2+ 5	0.9177	8.37	|Q V
2+10	0.9799	9.03	| Q V|
2+15	1.0562	11.08	| Q V
2+20	1.1414	12.38	| Q | V
2+25	1.2279	12.56	| Q | V
2+30	1.3499	17.71	| | Q V |
2+35	1.4957	21.17	| | | QV|
2+40	1.6522	22.73	| | | Q V
2+45	1.7783	18.31	| | Q | V |
2+50	1.8570	11.42	| Q | V |
2+55	1.9153	8.47	|Q | V |
3+ 0	1.9617	6.73	Q | V |
3+ 5	1.9906	4.20	Q | V|
3+10	2.0069	2.37	Q | V|
3+15	2.0166	1.41	|Q | V|
3+20	2.0225	0.86	|Q | V|
3+25	2.0257	0.46	Q | V|
3+30	2.0272	0.21	Q | V|
3+35	2.0280	0.12	Q | V|
3+40	2.0284	0.06	Q | V|
3+45	2.0285	0.02	Q | V

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST65.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
5 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 1.726(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.726(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

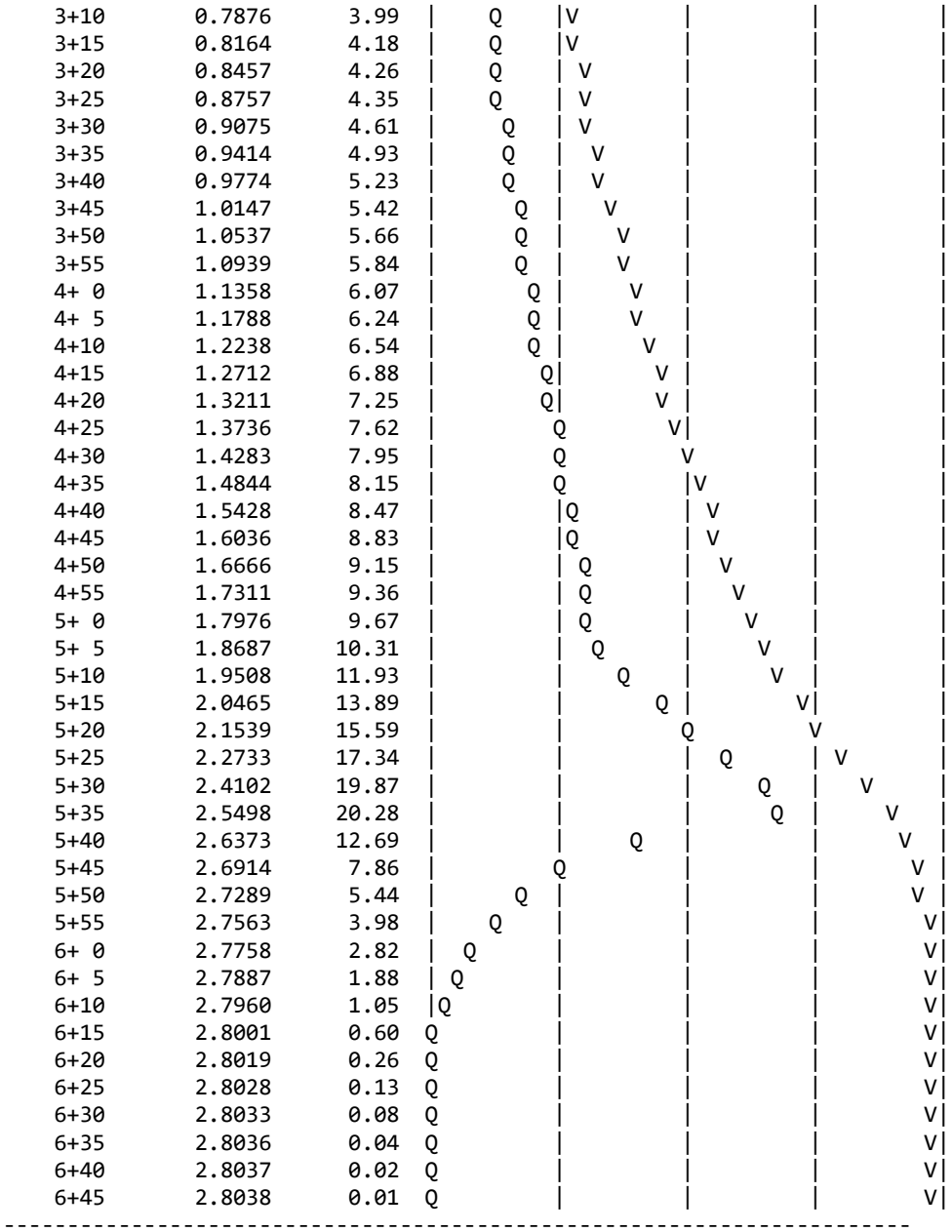
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.104	(0.145)	0.026	0.077
2	0.17	0.60	0.124	(0.145)	0.032	0.093
3	0.25	0.60	0.124	(0.145)	0.032	0.093
4	0.33	0.60	0.124	(0.145)	0.032	0.093
5	0.42	0.60	0.124	(0.145)	0.032	0.093
6	0.50	0.70	0.145	(0.145)	0.037	0.108
7	0.58	0.70	0.145	(0.145)	0.037	0.108
8	0.67	0.70	0.145	(0.145)	0.037	0.108
9	0.75	0.70	0.145	(0.145)	0.037	0.108
10	0.83	0.70	0.145	(0.145)	0.037	0.108

11	0.92	0.70	0.145	(	0.145)	0.037	0.108
12	1.00	0.80	0.166	(	0.145)	0.042	0.124
13	1.08	0.80	0.166	(	0.145)	0.042	0.124
14	1.17	0.80	0.166	(	0.145)	0.042	0.124
15	1.25	0.80	0.166	(	0.145)	0.042	0.124
16	1.33	0.80	0.166	(	0.145)	0.042	0.124
17	1.42	0.80	0.166	(	0.145)	0.042	0.124
18	1.50	0.80	0.166	(	0.145)	0.042	0.124
19	1.58	0.80	0.166	(	0.145)	0.042	0.124
20	1.67	0.80	0.166	(	0.145)	0.042	0.124
21	1.75	0.80	0.166	(	0.145)	0.042	0.124
22	1.83	0.80	0.166	(	0.145)	0.042	0.124
23	1.92	0.80	0.166	(	0.145)	0.042	0.124
24	2.00	0.90	0.186	(	0.145)	0.047	0.139
25	2.08	0.80	0.166	(	0.145)	0.042	0.124
26	2.17	0.90	0.186	(	0.145)	0.047	0.139
27	2.25	0.90	0.186	(	0.145)	0.047	0.139
28	2.33	0.90	0.186	(	0.145)	0.047	0.139
29	2.42	0.90	0.186	(	0.145)	0.047	0.139
30	2.50	0.90	0.186	(	0.145)	0.047	0.139
31	2.58	0.90	0.186	(	0.145)	0.047	0.139
32	2.67	0.90	0.186	(	0.145)	0.047	0.139
33	2.75	1.00	0.207	(	0.145)	0.053	0.155
34	2.83	1.00	0.207	(	0.145)	0.053	0.155
35	2.92	1.00	0.207	(	0.145)	0.053	0.155
36	3.00	1.00	0.207	(	0.145)	0.053	0.155
37	3.08	1.00	0.207	(	0.145)	0.053	0.155
38	3.17	1.10	0.228	(	0.145)	0.058	0.170
39	3.25	1.10	0.228	(	0.145)	0.058	0.170
40	3.33	1.10	0.228	(	0.145)	0.058	0.170
41	3.42	1.20	0.249	(	0.145)	0.063	0.186
42	3.50	1.30	0.269	(	0.145)	0.068	0.201
43	3.58	1.40	0.290	(	0.145)	0.074	0.216
44	3.67	1.40	0.290	(	0.145)	0.074	0.216
45	3.75	1.50	0.311	(	0.145)	0.079	0.232
46	3.83	1.50	0.311	(	0.145)	0.079	0.232
47	3.92	1.60	0.331	(	0.145)	0.084	0.247
48	4.00	1.60	0.331	(	0.145)	0.084	0.247
49	4.08	1.70	0.352	(	0.145)	0.089	0.263
50	4.17	1.80	0.373	(	0.145)	0.095	0.278
51	4.25	1.90	0.394	(	0.145)	0.100	0.294
52	4.33	2.00	0.414	(	0.145)	0.105	0.309
53	4.42	2.10	0.435	(	0.145)	0.110	0.325
54	4.50	2.10	0.435	(	0.145)	0.110	0.325
55	4.58	2.20	0.456	(	0.145)	0.116	0.340
56	4.67	2.30	0.476	(	0.145)	0.121	0.356
57	4.75	2.40	0.497	(	0.145)	0.126	0.371
58	4.83	2.40	0.497	(	0.145)	0.126	0.371
59	4.92	2.50	0.518	(	0.145)	0.131	0.386
60	5.00	2.60	0.538	(	0.145)	0.137	0.402
61	5.08	3.10	0.642		0.145	(0.163)	0.497
62	5.17	3.60	0.746		0.145	(0.189)	0.601
63	5.25	3.90	0.808		0.145	(0.205)	0.663
64	5.33	4.20	0.870		0.145	(0.221)	0.725
65	5.42	4.70	0.973		0.145	(0.247)	0.829
66	5.50	5.60	1.160		0.145	(0.294)	1.015
67	5.58	1.90	0.394	(	0.145)	0.100	0.294
68	5.67	0.90	0.186	(	0.145)	0.047	0.139
69	5.75	0.60	0.124	(	0.145)	0.032	0.093
70	5.83	0.50	0.104	(	0.145)	0.026	0.077

```
71   5.92     0.30      0.062       (  0.145)       0.016        0.046
72   6.00     0.20      0.041       (  0.145)       0.011        0.031
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    15.9
      Flood volume = Effective rainfall      1.33(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       2.8(Ac.Ft)
      Total soil loss =      0.40(In)
      Total soil loss =     0.847(Ac.Ft)
      Total rainfall =      1.73(In)
      Flood volume =      122132.3 Cubic Feet
      Total soil loss =       36878.9 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     20.279(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
-------------------------------------------------------------------------
  0+ 5       0.0019      0.28  Q         |          |          |          |
  0+10       0.0104      1.23  VQ        |          |          |          |
  0+15       0.0228      1.79  V Q       |          |          |          |
  0+20       0.0367      2.03  V Q       |          |          |          |
  0+25       0.0515      2.15  V Q       |          |          |          |
  0+30       0.0673      2.29  V  Q      |          |          |          |
  0+35       0.0846      2.52  |V Q      |          |          |          |
  0+40       0.1028      2.63  |V Q      |          |          |          |
  0+45       0.1213      2.69  |V Q      |          |          |          |
  0+50       0.1401      2.73  |V Q      |          |          |          |
  0+55       0.1590      2.75  | VQ      |          |          |          |
  1+ 0       0.1784      2.81  | VQ      |          |          |          |
  1+ 5       0.1991      3.00  | VQ      |          |          |          |
  1+10       0.2202      3.08  |  VQ     |          |          |          |
  1+15       0.2417      3.11  |  VQ     |          |          |          |
  1+20       0.2632      3.13  |  VQ     |          |          |          |
  1+25       0.2849      3.14  |   Q     |          |          |          |
  1+30       0.3066      3.15  |   Q     |          |          |          |
  1+35       0.3283      3.16  |   Q     |          |          |          |
  1+40       0.3501      3.16  |   Q     |          |          |          |
  1+45       0.3719      3.16  |   QV    |          |          |          |
  1+50       0.3937      3.16  |   QV    |          |          |          |
  1+55       0.4155      3.16  |   QV    |          |          |          |
  2+ 0       0.4377      3.22  |   Q V   |          |          |          |
  2+ 5       0.4607      3.34  |   Q V   |          |          |          |
  2+10       0.4834      3.30  |   Q V   |          |          |          |
  2+15       0.5071      3.43  |   Q  V  |          |          |          |
  2+20       0.5311      3.50  |   Q  V  |          |          |          |
  2+25       0.5554      3.52  |   Q  V  |          |          |          |
  2+30       0.5797      3.54  |   Q   V |          |          |          |
  2+35       0.6041      3.54  |   Q   V |          |          |          |
  2+40       0.6286      3.55  |   Q   V |          |          |          |
  2+45       0.6535      3.61  |   Q    V|          |          |          |
  2+50       0.6796      3.79  |    Q   V|          |          |          |
  2+55       0.7063      3.87  |    Q    V          |          |          |
  3+ 0       0.7331      3.90  |    Q    V          |          |          |
  3+ 5       0.7602      3.92  |    Q    V          |          |          |
```



3+10	0.7876	3.99	Q	V			
3+15	0.8164	4.18	Q	V			
3+20	0.8457	4.26	Q	V			
3+25	0.8757	4.35	Q	V			
3+30	0.9075	4.61	Q	V			
3+35	0.9414	4.93	Q	V			
3+40	0.9774	5.23	Q	V			
3+45	1.0147	5.42	Q	V			
3+50	1.0537	5.66	Q	V			
3+55	1.0939	5.84	Q	V			
4+ 0	1.1358	6.07	Q	V			
4+ 5	1.1788	6.24	Q	V			
4+10	1.2238	6.54	Q	V			
4+15	1.2712	6.88	Q	V			
4+20	1.3211	7.25	Q	V			
4+25	1.3736	7.62	Q	V			
4+30	1.4283	7.95	Q	V			
4+35	1.4844	8.15	Q	V			
4+40	1.5428	8.47	Q	V			
4+45	1.6036	8.83	Q	V			
4+50	1.6666	9.15	Q	V			
4+55	1.7311	9.36	Q	V			
5+ 0	1.7976	9.67	Q	V			
5+ 5	1.8687	10.31	Q	V			
5+10	1.9508	11.93	Q	V			
5+15	2.0465	13.89	Q	V			
5+20	2.1539	15.59	Q	V			
5+25	2.2733	17.34	Q	V			
5+30	2.4102	19.87	Q	V			
5+35	2.5498	20.28	Q	V			
5+40	2.6373	12.69	Q	V			
5+45	2.6914	7.86	Q	V			
5+50	2.7289	5.44	Q	V			
5+55	2.7563	3.98	Q	V			
6+ 0	2.7758	2.82	Q	V			
6+ 5	2.7887	1.88	Q	V			
6+10	2.7960	1.05	Q	V			
6+15	2.8001	0.60	Q	V			
6+20	2.8019	0.26	Q	V			
6+25	2.8028	0.13	Q	V			
6+30	2.8033	0.08	Q	V			
6+35	2.8036	0.04	Q	V			
6+40	2.8037	0.02	Q	V			
6+45	2.8038	0.01	Q	V			

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST245.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
5 YEAR 24 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 5.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 3.199(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.198(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	54.0	0.531	0.808	0.145	1.000	0.145
					Sum (F) =	0.145

Area averaged mean soil loss (F) (In/Hr) = 0.145
Minimum soil loss rate ((In/Hr)) = 0.072
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.026	(0.257)	0.006	0.019
2	0.17	0.07	0.026	(0.256)	0.006	0.019
3	0.25	0.07	0.026	(0.255)	0.006	0.019
4	0.33	0.10	0.038	(0.254)	0.010	0.029
5	0.42	0.10	0.038	(0.253)	0.010	0.029
6	0.50	0.10	0.038	(0.252)	0.010	0.029
7	0.58	0.10	0.038	(0.251)	0.010	0.029
8	0.67	0.10	0.038	(0.250)	0.010	0.029
9	0.75	0.10	0.038	(0.249)	0.010	0.029
10	0.83	0.13	0.051	(0.248)	0.013	0.038

11	0.92	0.13	0.051	(0.247)	0.013	0.038
12	1.00	0.13	0.051	(0.246)	0.013	0.038
13	1.08	0.10	0.038	(0.245)	0.010	0.029
14	1.17	0.10	0.038	(0.244)	0.010	0.029
15	1.25	0.10	0.038	(0.243)	0.010	0.029
16	1.33	0.10	0.038	(0.242)	0.010	0.029
17	1.42	0.10	0.038	(0.241)	0.010	0.029
18	1.50	0.10	0.038	(0.240)	0.010	0.029
19	1.58	0.10	0.038	(0.239)	0.010	0.029
20	1.67	0.10	0.038	(0.238)	0.010	0.029
21	1.75	0.10	0.038	(0.237)	0.010	0.029
22	1.83	0.13	0.051	(0.236)	0.013	0.038
23	1.92	0.13	0.051	(0.235)	0.013	0.038
24	2.00	0.13	0.051	(0.235)	0.013	0.038
25	2.08	0.13	0.051	(0.234)	0.013	0.038
26	2.17	0.13	0.051	(0.233)	0.013	0.038
27	2.25	0.13	0.051	(0.232)	0.013	0.038
28	2.33	0.13	0.051	(0.231)	0.013	0.038
29	2.42	0.13	0.051	(0.230)	0.013	0.038
30	2.50	0.13	0.051	(0.229)	0.013	0.038
31	2.58	0.17	0.064	(0.228)	0.016	0.048
32	2.67	0.17	0.064	(0.227)	0.016	0.048
33	2.75	0.17	0.064	(0.226)	0.016	0.048
34	2.83	0.17	0.064	(0.225)	0.016	0.048
35	2.92	0.17	0.064	(0.224)	0.016	0.048
36	3.00	0.17	0.064	(0.223)	0.016	0.048
37	3.08	0.17	0.064	(0.222)	0.016	0.048
38	3.17	0.17	0.064	(0.221)	0.016	0.048
39	3.25	0.17	0.064	(0.221)	0.016	0.048
40	3.33	0.17	0.064	(0.220)	0.016	0.048
41	3.42	0.17	0.064	(0.219)	0.016	0.048
42	3.50	0.17	0.064	(0.218)	0.016	0.048
43	3.58	0.17	0.064	(0.217)	0.016	0.048
44	3.67	0.17	0.064	(0.216)	0.016	0.048
45	3.75	0.17	0.064	(0.215)	0.016	0.048
46	3.83	0.20	0.077	(0.214)	0.019	0.057
47	3.92	0.20	0.077	(0.213)	0.019	0.057
48	4.00	0.20	0.077	(0.212)	0.019	0.057
49	4.08	0.20	0.077	(0.211)	0.019	0.057
50	4.17	0.20	0.077	(0.211)	0.019	0.057
51	4.25	0.20	0.077	(0.210)	0.019	0.057
52	4.33	0.23	0.090	(0.209)	0.023	0.067
53	4.42	0.23	0.090	(0.208)	0.023	0.067
54	4.50	0.23	0.090	(0.207)	0.023	0.067
55	4.58	0.23	0.090	(0.206)	0.023	0.067
56	4.67	0.23	0.090	(0.205)	0.023	0.067
57	4.75	0.23	0.090	(0.204)	0.023	0.067
58	4.83	0.27	0.102	(0.203)	0.026	0.076
59	4.92	0.27	0.102	(0.203)	0.026	0.076
60	5.00	0.27	0.102	(0.202)	0.026	0.076
61	5.08	0.20	0.077	(0.201)	0.019	0.057
62	5.17	0.20	0.077	(0.200)	0.019	0.057
63	5.25	0.20	0.077	(0.199)	0.019	0.057
64	5.33	0.23	0.090	(0.198)	0.023	0.067
65	5.42	0.23	0.090	(0.197)	0.023	0.067
66	5.50	0.23	0.090	(0.196)	0.023	0.067
67	5.58	0.27	0.102	(0.196)	0.026	0.076
68	5.67	0.27	0.102	(0.195)	0.026	0.076
69	5.75	0.27	0.102	(0.194)	0.026	0.076
70	5.83	0.27	0.102	(0.193)	0.026	0.076

71	5.92	0.27	0.102	(0.192)	0.026	0.076
72	6.00	0.27	0.102	(0.191)	0.026	0.076
73	6.08	0.30	0.115	(0.190)	0.029	0.086
74	6.17	0.30	0.115	(0.190)	0.029	0.086
75	6.25	0.30	0.115	(0.189)	0.029	0.086
76	6.33	0.30	0.115	(0.188)	0.029	0.086
77	6.42	0.30	0.115	(0.187)	0.029	0.086
78	6.50	0.30	0.115	(0.186)	0.029	0.086
79	6.58	0.33	0.128	(0.185)	0.032	0.095
80	6.67	0.33	0.128	(0.185)	0.032	0.095
81	6.75	0.33	0.128	(0.184)	0.032	0.095
82	6.83	0.33	0.128	(0.183)	0.032	0.095
83	6.92	0.33	0.128	(0.182)	0.032	0.095
84	7.00	0.33	0.128	(0.181)	0.032	0.095
85	7.08	0.33	0.128	(0.180)	0.032	0.095
86	7.17	0.33	0.128	(0.180)	0.032	0.095
87	7.25	0.33	0.128	(0.179)	0.032	0.095
88	7.33	0.37	0.141	(0.178)	0.036	0.105
89	7.42	0.37	0.141	(0.177)	0.036	0.105
90	7.50	0.37	0.141	(0.176)	0.036	0.105
91	7.58	0.40	0.154	(0.176)	0.039	0.115
92	7.67	0.40	0.154	(0.175)	0.039	0.115
93	7.75	0.40	0.154	(0.174)	0.039	0.115
94	7.83	0.43	0.166	(0.173)	0.042	0.124
95	7.92	0.43	0.166	(0.172)	0.042	0.124
96	8.00	0.43	0.166	(0.171)	0.042	0.124
97	8.08	0.50	0.192	(0.171)	0.049	0.143
98	8.17	0.50	0.192	(0.170)	0.049	0.143
99	8.25	0.50	0.192	(0.169)	0.049	0.143
100	8.33	0.50	0.192	(0.168)	0.049	0.143
101	8.42	0.50	0.192	(0.168)	0.049	0.143
102	8.50	0.50	0.192	(0.167)	0.049	0.143
103	8.58	0.53	0.205	(0.166)	0.052	0.153
104	8.67	0.53	0.205	(0.165)	0.052	0.153
105	8.75	0.53	0.205	(0.164)	0.052	0.153
106	8.83	0.57	0.217	(0.164)	0.055	0.162
107	8.92	0.57	0.217	(0.163)	0.055	0.162
108	9.00	0.57	0.217	(0.162)	0.055	0.162
109	9.08	0.63	0.243	(0.161)	0.062	0.181
110	9.17	0.63	0.243	(0.161)	0.062	0.181
111	9.25	0.63	0.243	(0.160)	0.062	0.181
112	9.33	0.67	0.256	(0.159)	0.065	0.191
113	9.42	0.67	0.256	(0.158)	0.065	0.191
114	9.50	0.67	0.256	(0.158)	0.065	0.191
115	9.58	0.70	0.269	(0.157)	0.068	0.201
116	9.67	0.70	0.269	(0.156)	0.068	0.201
117	9.75	0.70	0.269	(0.155)	0.068	0.201
118	9.83	0.73	0.281	(0.155)	0.071	0.210
119	9.92	0.73	0.281	(0.154)	0.071	0.210
120	10.00	0.73	0.281	(0.153)	0.071	0.210
121	10.08	0.50	0.192	(0.152)	0.049	0.143
122	10.17	0.50	0.192	(0.152)	0.049	0.143
123	10.25	0.50	0.192	(0.151)	0.049	0.143
124	10.33	0.50	0.192	(0.150)	0.049	0.143
125	10.42	0.50	0.192	(0.149)	0.049	0.143
126	10.50	0.50	0.192	(0.149)	0.049	0.143
127	10.58	0.67	0.256	(0.148)	0.065	0.191
128	10.67	0.67	0.256	(0.147)	0.065	0.191
129	10.75	0.67	0.256	(0.146)	0.065	0.191
130	10.83	0.67	0.256	(0.146)	0.065	0.191

131	10.92	0.67	0.256	(0.145)	0.065	0.191
132	11.00	0.67	0.256	(0.144)	0.065	0.191
133	11.08	0.63	0.243	(0.144)	0.062	0.181
134	11.17	0.63	0.243	(0.143)	0.062	0.181
135	11.25	0.63	0.243	(0.142)	0.062	0.181
136	11.33	0.63	0.243	(0.141)	0.062	0.181
137	11.42	0.63	0.243	(0.141)	0.062	0.181
138	11.50	0.63	0.243	(0.140)	0.062	0.181
139	11.58	0.57	0.217	(0.139)	0.055	0.162
140	11.67	0.57	0.217	(0.139)	0.055	0.162
141	11.75	0.57	0.217	(0.138)	0.055	0.162
142	11.83	0.60	0.230	(0.137)	0.058	0.172
143	11.92	0.60	0.230	(0.137)	0.058	0.172
144	12.00	0.60	0.230	(0.136)	0.058	0.172
145	12.08	0.83	0.320	(0.135)	0.081	0.239
146	12.17	0.83	0.320	(0.135)	0.081	0.239
147	12.25	0.83	0.320	(0.134)	0.081	0.239
148	12.33	0.87	0.333	(0.133)	0.084	0.248
149	12.42	0.87	0.333	(0.133)	0.084	0.248
150	12.50	0.87	0.333	(0.132)	0.084	0.248
151	12.58	0.93	0.358	(0.131)	0.091	0.267
152	12.67	0.93	0.358	(0.131)	0.091	0.267
153	12.75	0.93	0.358	(0.130)	0.091	0.267
154	12.83	0.97	0.371	(0.129)	0.094	0.277
155	12.92	0.97	0.371	(0.129)	0.094	0.277
156	13.00	0.97	0.371	(0.128)	0.094	0.277
157	13.08	1.13	0.435	(0.127)	0.110	0.325
158	13.17	1.13	0.435	(0.127)	0.110	0.325
159	13.25	1.13	0.435	(0.126)	0.110	0.325
160	13.33	1.13	0.435	(0.125)	0.110	0.325
161	13.42	1.13	0.435	(0.125)	0.110	0.325
162	13.50	1.13	0.435	(0.124)	0.110	0.325
163	13.58	0.77	0.294	(0.123)	0.075	0.220
164	13.67	0.77	0.294	(0.123)	0.075	0.220
165	13.75	0.77	0.294	(0.122)	0.075	0.220
166	13.83	0.77	0.294	(0.122)	0.075	0.220
167	13.92	0.77	0.294	(0.121)	0.075	0.220
168	14.00	0.77	0.294	(0.120)	0.075	0.220
169	14.08	0.90	0.345	(0.120)	0.088	0.258
170	14.17	0.90	0.345	(0.119)	0.088	0.258
171	14.25	0.90	0.345	(0.119)	0.088	0.258
172	14.33	0.87	0.333	(0.118)	0.084	0.248
173	14.42	0.87	0.333	(0.117)	0.084	0.248
174	14.50	0.87	0.333	(0.117)	0.084	0.248
175	14.58	0.87	0.333	(0.116)	0.084	0.248
176	14.67	0.87	0.333	(0.116)	0.084	0.248
177	14.75	0.87	0.333	(0.115)	0.084	0.248
178	14.83	0.83	0.320	(0.114)	0.081	0.239
179	14.92	0.83	0.320	(0.114)	0.081	0.239
180	15.00	0.83	0.320	(0.113)	0.081	0.239
181	15.08	0.80	0.307	(0.113)	0.078	0.229
182	15.17	0.80	0.307	(0.112)	0.078	0.229
183	15.25	0.80	0.307	(0.111)	0.078	0.229
184	15.33	0.77	0.294	(0.111)	0.075	0.220
185	15.42	0.77	0.294	(0.110)	0.075	0.220
186	15.50	0.77	0.294	(0.110)	0.075	0.220
187	15.58	0.63	0.243	(0.109)	0.062	0.181
188	15.67	0.63	0.243	(0.109)	0.062	0.181
189	15.75	0.63	0.243	(0.108)	0.062	0.181
190	15.83	0.63	0.243	(0.108)	0.062	0.181

191	15.92	0.63	0.243	(0.107)	0.062	0.181
192	16.00	0.63	0.243	(0.106)	0.062	0.181
193	16.08	0.13	0.051	(0.106)	0.013	0.038
194	16.17	0.13	0.051	(0.105)	0.013	0.038
195	16.25	0.13	0.051	(0.105)	0.013	0.038
196	16.33	0.13	0.051	(0.104)	0.013	0.038
197	16.42	0.13	0.051	(0.104)	0.013	0.038
198	16.50	0.13	0.051	(0.103)	0.013	0.038
199	16.58	0.10	0.038	(0.103)	0.010	0.029
200	16.67	0.10	0.038	(0.102)	0.010	0.029
201	16.75	0.10	0.038	(0.102)	0.010	0.029
202	16.83	0.10	0.038	(0.101)	0.010	0.029
203	16.92	0.10	0.038	(0.101)	0.010	0.029
204	17.00	0.10	0.038	(0.100)	0.010	0.029
205	17.08	0.17	0.064	(0.100)	0.016	0.048
206	17.17	0.17	0.064	(0.099)	0.016	0.048
207	17.25	0.17	0.064	(0.099)	0.016	0.048
208	17.33	0.17	0.064	(0.098)	0.016	0.048
209	17.42	0.17	0.064	(0.098)	0.016	0.048
210	17.50	0.17	0.064	(0.097)	0.016	0.048
211	17.58	0.17	0.064	(0.097)	0.016	0.048
212	17.67	0.17	0.064	(0.096)	0.016	0.048
213	17.75	0.17	0.064	(0.096)	0.016	0.048
214	17.83	0.13	0.051	(0.095)	0.013	0.038
215	17.92	0.13	0.051	(0.095)	0.013	0.038
216	18.00	0.13	0.051	(0.094)	0.013	0.038
217	18.08	0.13	0.051	(0.094)	0.013	0.038
218	18.17	0.13	0.051	(0.093)	0.013	0.038
219	18.25	0.13	0.051	(0.093)	0.013	0.038
220	18.33	0.13	0.051	(0.092)	0.013	0.038
221	18.42	0.13	0.051	(0.092)	0.013	0.038
222	18.50	0.13	0.051	(0.092)	0.013	0.038
223	18.58	0.10	0.038	(0.091)	0.010	0.029
224	18.67	0.10	0.038	(0.091)	0.010	0.029
225	18.75	0.10	0.038	(0.090)	0.010	0.029
226	18.83	0.07	0.026	(0.090)	0.006	0.019
227	18.92	0.07	0.026	(0.089)	0.006	0.019
228	19.00	0.07	0.026	(0.089)	0.006	0.019
229	19.08	0.10	0.038	(0.089)	0.010	0.029
230	19.17	0.10	0.038	(0.088)	0.010	0.029
231	19.25	0.10	0.038	(0.088)	0.010	0.029
232	19.33	0.13	0.051	(0.087)	0.013	0.038
233	19.42	0.13	0.051	(0.087)	0.013	0.038
234	19.50	0.13	0.051	(0.086)	0.013	0.038
235	19.58	0.10	0.038	(0.086)	0.010	0.029
236	19.67	0.10	0.038	(0.086)	0.010	0.029
237	19.75	0.10	0.038	(0.085)	0.010	0.029
238	19.83	0.07	0.026	(0.085)	0.006	0.019
239	19.92	0.07	0.026	(0.085)	0.006	0.019
240	20.00	0.07	0.026	(0.084)	0.006	0.019
241	20.08	0.10	0.038	(0.084)	0.010	0.029
242	20.17	0.10	0.038	(0.083)	0.010	0.029
243	20.25	0.10	0.038	(0.083)	0.010	0.029
244	20.33	0.10	0.038	(0.083)	0.010	0.029
245	20.42	0.10	0.038	(0.082)	0.010	0.029
246	20.50	0.10	0.038	(0.082)	0.010	0.029
247	20.58	0.10	0.038	(0.082)	0.010	0.029
248	20.67	0.10	0.038	(0.081)	0.010	0.029
249	20.75	0.10	0.038	(0.081)	0.010	0.029
250	20.83	0.07	0.026	(0.081)	0.006	0.019

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251  20.92     0.07      0.026       (  0.080)       0.006        0.019
252  21.00     0.07      0.026       (  0.080)       0.006        0.019
253  21.08     0.10      0.038       (  0.080)       0.010        0.029
254  21.17     0.10      0.038       (  0.079)       0.010        0.029
255  21.25     0.10      0.038       (  0.079)       0.010        0.029
256  21.33     0.07      0.026       (  0.079)       0.006        0.019
257  21.42     0.07      0.026       (  0.078)       0.006        0.019
258  21.50     0.07      0.026       (  0.078)       0.006        0.019
259  21.58     0.10      0.038       (  0.078)       0.010        0.029
260  21.67     0.10      0.038       (  0.078)       0.010        0.029
261  21.75     0.10      0.038       (  0.077)       0.010        0.029
262  21.83     0.07      0.026       (  0.077)       0.006        0.019
263  21.92     0.07      0.026       (  0.077)       0.006        0.019
264  22.00     0.07      0.026       (  0.077)       0.006        0.019
265  22.08     0.10      0.038       (  0.076)       0.010        0.029
266  22.17     0.10      0.038       (  0.076)       0.010        0.029
267  22.25     0.10      0.038       (  0.076)       0.010        0.029
268  22.33     0.07      0.026       (  0.076)       0.006        0.019
269  22.42     0.07      0.026       (  0.075)       0.006        0.019
270  22.50     0.07      0.026       (  0.075)       0.006        0.019
271  22.58     0.07      0.026       (  0.075)       0.006        0.019
272  22.67     0.07      0.026       (  0.075)       0.006        0.019
273  22.75     0.07      0.026       (  0.074)       0.006        0.019
274  22.83     0.07      0.026       (  0.074)       0.006        0.019
275  22.92     0.07      0.026       (  0.074)       0.006        0.019
276  23.00     0.07      0.026       (  0.074)       0.006        0.019
277  23.08     0.07      0.026       (  0.074)       0.006        0.019
278  23.17     0.07      0.026       (  0.074)       0.006        0.019
279  23.25     0.07      0.026       (  0.073)       0.006        0.019
280  23.33     0.07      0.026       (  0.073)       0.006        0.019
281  23.42     0.07      0.026       (  0.073)       0.006        0.019
282  23.50     0.07      0.026       (  0.073)       0.006        0.019
283  23.58     0.07      0.026       (  0.073)       0.006        0.019
284  23.67     0.07      0.026       (  0.073)       0.006        0.019
285  23.75     0.07      0.026       (  0.073)       0.006        0.019
286  23.83     0.07      0.026       (  0.073)       0.006        0.019
287  23.92     0.07      0.026       (  0.073)       0.006        0.019
288  24.00     0.07      0.026       (  0.072)       0.006        0.019
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    28.6
       Flood volume = Effective rainfall      2.39(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       5.0(Ac.Ft)
       Total soil loss =      0.81(In)
       Total soil loss =     1.716(Ac.Ft)
       Total rainfall =      3.20(In)
       Flood volume =      219942.6 Cubic Feet
       Total soil loss =       74728.6 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =      8.239(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

       ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0005      0.07  Q         |         |         |         |
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0+10	0.0025	0.29	VQ	|	|	|	|
0+15	0.0051	0.38	VQ	|	|	|	|
0+20	0.0083	0.46	VQ	|	|	|	|
0+25	0.0124	0.59	V Q	|	|	|	|
0+30	0.0169	0.65	V Q	|	|	|	|
0+35	0.0216	0.68	V Q	|	|	|	|
0+40	0.0264	0.70	V Q	|	|	|	|
0+45	0.0313	0.72	V Q	|	|	|	|
0+50	0.0366	0.76	V Q	|	|	|	|
0+55	0.0426	0.87	V Q	|	|	|	|
1+ 0	0.0490	0.92	V Q	|	|	|	|
1+ 5	0.0552	0.91	V Q	|	|	|	|
1+10	0.0608	0.81	V Q	|	|	|	|
1+15	0.0661	0.77	V Q	|	|	|	|
1+20	0.0713	0.76	V Q	|	|	|	|
1+25	0.0765	0.75	V Q	|	|	|	|
1+30	0.0816	0.74	V Q	|	|	|	|
1+35	0.0867	0.74	V Q	|	|	|	|
1+40	0.0918	0.74	V Q	|	|	|	|
1+45	0.0969	0.74	V Q	|	|	|	|
1+50	0.1022	0.77	V Q	|	|	|	|
1+55	0.1082	0.88	V Q	|	|	|	|
2+ 0	0.1146	0.93	V Q	|	|	|	|
2+ 5	0.1211	0.94	V Q	|	|	|	|
2+10	0.1277	0.96	|V Q	|	|	|	|
2+15	0.1343	0.96	|V Q	|	|	|	|
2+20	0.1410	0.97	|V Q	|	|	|	|
2+25	0.1477	0.97	|V Q	|	|	|	|
2+30	0.1544	0.98	|V Q	|	|	|	|
2+35	0.1614	1.01	|V Q	|	|	|	|
2+40	0.1691	1.12	|V Q	|	|	|	|
2+45	0.1772	1.17	|V Q	|	|	|	|
2+50	0.1854	1.19	|V Q	|	|	|	|
2+55	0.1936	1.20	|V Q	|	|	|	|
3+ 0	0.2020	1.21	|V Q	|	|	|	|
3+ 5	0.2103	1.21	|V Q	|	|	|	|
3+10	0.2187	1.22	|V Q	|	|	|	|
3+15	0.2271	1.22	|V Q	|	|	|	|
3+20	0.2355	1.22	|V Q	|	|	|	|
3+25	0.2439	1.22	|V Q	|	|	|	|
3+30	0.2524	1.22	|V Q	|	|	|	|
3+35	0.2608	1.22	| V Q	|	|	|	|
3+40	0.2692	1.22	| V Q	|	|	|	|
3+45	0.2776	1.22	| V Q	|	|	|	|
3+50	0.2863	1.26	| V Q	|	|	|	|
3+55	0.2957	1.37	| V Q	|	|	|	|
4+ 0	0.3054	1.41	| V Q	|	|	|	|
4+ 5	0.3153	1.43	| V Q	|	|	|	|
4+10	0.3252	1.45	| V Q	|	|	|	|
4+15	0.3352	1.45	| V Q	|	|	|	|
4+20	0.3455	1.49	| V Q	|	|	|	|
4+25	0.3566	1.61	| V Q	|	|	|	|
4+30	0.3680	1.66	| V Q	|	|	|	|
4+35	0.3796	1.68	| V Q	|	|	|	|
4+40	0.3912	1.69	| V Q	|	|	|	|
4+45	0.4029	1.70	| V Q	|	|	|	|
4+50	0.4148	1.74	| V Q	|	|	|	|
4+55	0.4276	1.85	| V Q	|	|	|	|
5+ 0	0.4407	1.90	| V Q	|	|	|	|
5+ 5	0.4534	1.85	| V Q	|	|	|	|

5+10	0.4648	1.64	V Q			
5+15	0.4755	1.56	V Q			
5+20	0.4862	1.56	V Q			
5+25	0.4976	1.65	V Q			
5+30	0.5092	1.68	V Q			
5+35	0.5211	1.73	V Q			
5+40	0.5338	1.84	V Q			
5+45	0.5468	1.89	V Q			
5+50	0.5600	1.91	V Q			
5+55	0.5733	1.93	V Q			
6+ 0	0.5866	1.94	V Q			
6+ 5	0.6003	1.98	V Q			
6+10	0.6147	2.10	V Q			
6+15	0.6295	2.14	V Q			
6+20	0.6444	2.17	V Q			
6+25	0.6594	2.18	V Q			
6+30	0.6745	2.19	V Q			
6+35	0.6898	2.23	V Q			
6+40	0.7059	2.34	V Q			
6+45	0.7224	2.39	V Q			
6+50	0.7390	2.41	V Q			
6+55	0.7557	2.42	V Q			
7+ 0	0.7724	2.43	V Q			
7+ 5	0.7892	2.44	V Q			
7+10	0.8060	2.44	V Q			
7+15	0.8228	2.44	V Q			
7+20	0.8399	2.48	V Q			
7+25	0.8577	2.59	V Q			
7+30	0.8759	2.64	V Q			
7+35	0.8944	2.69	V Q			
7+40	0.9138	2.81	V Q			
7+45	0.9335	2.87	V Q			
7+50	0.9537	2.93	V Q			
7+55	0.9747	3.05	V Q			
8+ 0	0.9961	3.11	V Q			
8+ 5	1.0182	3.21	V Q			
8+10	1.0419	3.44	V Q			
8+15	1.0663	3.55	V Q			
8+20	1.0910	3.59	V Q			
8+25	1.1160	3.62	V Q			
8+30	1.1410	3.64	V Q			
8+35	1.1664	3.68	V Q			
8+40	1.1926	3.80	V Q			
8+45	1.2191	3.85	V Q			
8+50	1.2460	3.91	V Q			
8+55	1.2738	4.03	V Q			
9+ 0	1.3020	4.09	V Q			
9+ 5	1.3308	4.18	V Q			
9+10	1.3612	4.42	V Q			
9+15	1.3924	4.52	V Q			
9+20	1.4241	4.60	V Q			
9+25	1.4568	4.74	V Q			
9+30	1.4899	4.81	V Q			
9+35	1.5234	4.87	V Q			
9+40	1.5579	5.00	V Q			
9+45	1.5927	5.06	V Q			
9+50	1.6280	5.13	V Q			
9+55	1.6642	5.25	V Q			
10+ 0	1.7008	5.31	V Q			
10+ 5	1.7358	5.09	V Q			

10+10	1.7657	4.33	|	| V Q |	|	|	|
10+15	1.7933	4.02	|	| V Q |	|	|	|
10+20	1.8201	3.89	|	| VQ |	|	|	|
10+25	1.8463	3.81	|	| VQ |	|	|	|
10+30	1.8722	3.76	|	| VQ |	|	|	|
10+35	1.8990	3.90	|	| Q |	|	|	|
10+40	1.9295	4.43	|	| V Q |	|	|	|
10+45	1.9615	4.64	|	| V Q |	|	|	|
10+50	1.9940	4.72	|	| V Q |	|	|	|
10+55	2.0270	4.78	|	| V Q|	|	|	|
11+ 0	2.0602	4.82	|	| V Q|	|	|	|
11+ 5	2.0933	4.81	|	| V Q|	|	|	|
11+10	2.1258	4.72	|	| V Q |	|	|	|
11+15	2.1581	4.68	|	| VQ |	|	|	|
11+20	2.1903	4.68	|	| VQ |	|	|	|
11+25	2.2224	4.66	|	| VQ |	|	|	|
11+30	2.2545	4.66	|	| VQ |	|	|	|
11+35	2.2860	4.58	|	| Q |	|	|	|
11+40	2.3160	4.36	|	| QV |	|	|	|
11+45	2.3454	4.26	|	| QV |	|	|	|
11+50	2.3747	4.25	|	| QV |	|	|	|
11+55	2.4046	4.34	|	| Q V|	|	|	|
12+ 0	2.4347	4.37	|	| Q V|	|	|	|
12+ 5	2.4665	4.62	|	| QV|	|	|	|
12+10	2.5038	5.41	|	| V|Q	|	|	|
12+15	2.5433	5.73	|	| V Q	|	|	|
12+20	2.5840	5.91	|	| V Q	|	|	|
12+25	2.6260	6.10	|	| V Q	|	|	|
12+30	2.6687	6.20	|	| |V Q	|	|	|
12+35	2.7123	6.33	|	| |V Q	|	|	|
12+40	2.7577	6.59	|	| |V Q	|	|	|
12+45	2.8039	6.71	|	| V Q	|	|	|
12+50	2.8508	6.80	|	| V Q	|	|	|
12+55	2.8986	6.94	|	| V Q	|	|	|
13+ 0	2.9469	7.01	|	| V Q |	|	|	|
13+ 5	2.9965	7.21	|	| V Q |	|	|	|
13+10	3.0501	7.78	|	| V |Q	|	|	|
13+15	3.1054	8.03	|	| V | Q	|	|	|
13+20	3.1615	8.14	|	| V | Q	|	|	|
13+25	3.2180	8.20	|	| V | Q	|	|	|
13+30	3.2747	8.24	|	| V | Q	|	|	|
13+35	3.3290	7.89	|	| V |Q	|	|	|
13+40	3.3751	6.69	|	| Q |	|	|	|
13+45	3.4177	6.18	|	| Q V |	|	|	|
13+50	3.4588	5.98	|	| Q V |	|	|	|
13+55	3.4991	5.85	|	| Q V |	|	|	|
14+ 0	3.5389	5.77	|	| Q V |	|	|	|
14+ 5	3.5791	5.85	|	| Q V |	|	|	|
14+10	3.6222	6.25	|	| Q V |	|	|	|
14+15	3.6664	6.41	|	| Q V|	|	|	|
14+20	3.7107	6.43	|	| Q V|	|	|	|
14+25	3.7546	6.37	|	| Q V|	|	|	|
14+30	3.7983	6.35	|	| Q V	|	|	|
14+35	3.8421	6.35	|	| Q V	|	|	|
14+40	3.8858	6.36	|	| Q V	|	|	|
14+45	3.9296	6.36	|	| Q |V	|	|	|
14+50	3.9732	6.33	|	| Q |V	|	|	|
14+55	4.0160	6.21	|	| Q |V	|	|	|
15+ 0	4.0584	6.16	|	| Q | V	|	|	|
15+ 5	4.1005	6.11	|	| Q | V	|	|	|

15+10	4.1417	5.98	|	|	Q |	V |
15+15	4.1826	5.93	|	|	Q |	V |
15+20	4.2230	5.87	|	|	Q |	V |
15+25	4.2626	5.75	|	|	Q |	V |
15+30	4.3018	5.69	|	|	Q |	V |
15+35	4.3398	5.52	|	|	Q |	V |
15+40	4.3747	5.06	|	Q |	|	V |
15+45	4.4082	4.87	|	Q|	|	V |
15+50	4.4411	4.78	|	Q|	|	V |
15+55	4.4737	4.73	|	Q |	|	V |
16+ 0	4.5061	4.70	|	Q |	|	V |
16+ 5	4.5347	4.16	|	Q |	|	V |
16+10	4.5518	2.48	| Q|	|	|	V |
16+15	4.5640	1.77	| Q |	|	|	V |
16+20	4.5741	1.47	| Q |	|	|	V |
16+25	4.5830	1.29	| Q |	|	|	V |
16+30	4.5911	1.18	| Q |	|	|	V |
16+35	4.5984	1.07	| Q |	|	|	V |
16+40	4.6046	0.90	| Q |	|	|	V |
16+45	4.6103	0.82	| Q |	|	|	V |
16+50	4.6156	0.77	| Q |	|	|	V |
16+55	4.6208	0.75	| Q |	|	|	V |
17+ 0	4.6259	0.75	| Q |	|	|	V |
17+ 5	4.6315	0.81	| Q |	|	|	V |
17+10	4.6386	1.03	| Q |	|	|	V |
17+15	4.6463	1.12	| Q |	|	|	V |
17+20	4.6542	1.16	| Q |	|	|	V |
17+25	4.6624	1.18	| Q |	|	|	V |
17+30	4.6706	1.19	| Q |	|	|	V |
17+35	4.6789	1.21	| Q |	|	|	V |
17+40	4.6873	1.21	| Q |	|	|	V |
17+45	4.6956	1.22	| Q |	|	|	V |
17+50	4.7038	1.19	| Q |	|	|	V |
17+55	4.7112	1.08	| Q |	|	|	V |
18+ 0	4.7183	1.03	| Q |	|	|	V |
18+ 5	4.7253	1.01	| Q |	|	|	V |
18+10	4.7322	1.00	| Q |	|	|	V |
18+15	4.7390	0.99	| Q |	|	|	V |
18+20	4.7458	0.99	| Q |	|	|	V |
18+25	4.7525	0.98	| Q |	|	|	V |
18+30	4.7593	0.98	| Q |	|	|	V |
18+35	4.7658	0.94	| Q |	|	|	V |
18+40	4.7715	0.83	| Q |	|	|	V |
18+45	4.7769	0.79	| Q |	|	|	V |
18+50	4.7819	0.73	| Q |	|	|	V |
18+55	4.7861	0.61	| Q |	|	|	V |
19+ 0	4.7900	0.55	| Q |	|	|	V |
19+ 5	4.7938	0.56	| Q |	|	|	V |
19+10	4.7984	0.66	| Q |	|	|	V |
19+15	4.8032	0.70	| Q |	|	|	V |
19+20	4.8083	0.74	| Q |	|	|	V |
19+25	4.8142	0.86	| Q |	|	|	V |
19+30	4.8205	0.91	| Q |	|	|	V |
19+35	4.8268	0.90	| Q |	|	|	V |
19+40	4.8323	0.81	| Q |	|	|	V |
19+45	4.8376	0.77	| Q |	|	|	V |
19+50	4.8426	0.72	| Q |	|	|	V |
19+55	4.8467	0.60	| Q |	|	|	V |
20+ 0	4.8505	0.55	| Q |	|	|	V |
20+ 5	4.8544	0.56	| Q |	|	|	V |

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  20+10       4.8590      0.66  | Q       |         |         |       V |
  20+15       4.8638      0.70  | Q       |         |         |       V |
  20+20       4.8687      0.71  | Q       |         |         |       V |
  20+25       4.8736      0.72  | Q       |         |         |       V |
  20+30       4.8786      0.72  | Q       |         |         |       V |
  20+35       4.8836      0.72  | Q       |         |         |       V |
  20+40       4.8886      0.73  | Q       |         |         |       V |
  20+45       4.8936      0.73  | Q       |         |         |       V |
  20+50       4.8984      0.70  | Q       |         |         |       V |
  20+55       4.9025      0.59  | Q       |         |         |       V |
  21+ 0       4.9062      0.54  | Q       |         |         |       V |
  21+ 5       4.9100      0.56  | Q       |         |         |       V |
  21+10       4.9145      0.66  | Q       |         |         |       V |
  21+15       4.9193      0.69  | Q       |         |         |       V |
  21+20       4.9240      0.67  | Q       |         |         |        V|
  21+25       4.9279      0.57  | Q       |         |         |        V|
  21+30       4.9315      0.53  | Q       |         |         |        V|
  21+35       4.9353      0.55  | Q       |         |         |        V|
  21+40       4.9398      0.65  | Q       |         |         |        V|
  21+45       4.9446      0.69  | Q       |         |         |        V|
  21+50       4.9492      0.67  | Q       |         |         |        V|
  21+55       4.9531      0.57  | Q       |         |         |        V|
  22+ 0       4.9568      0.53  | Q       |         |         |        V|
  22+ 5       4.9606      0.55  | Q       |         |         |        V|
  22+10       4.9650      0.65  | Q       |         |         |        V|
  22+15       4.9698      0.69  | Q       |         |         |        V|
  22+20       4.9745      0.67  | Q       |         |         |        V|
  22+25       4.9784      0.57  | Q       |         |         |        V|
  22+30       4.9820      0.53  | Q       |         |         |        V|
  22+35       4.9856      0.51  | Q       |         |         |        V|
  22+40       4.9890      0.50  | Q       |         |         |        V|
  22+45       4.9925      0.50  |Q        |         |         |        V|
  22+50       4.9959      0.50  |Q        |         |         |        V|
  22+55       4.9993      0.49  |Q        |         |         |        V|
  23+ 0       5.0027      0.49  |Q        |         |         |        V|
  23+ 5       5.0061      0.49  |Q        |         |         |        V|
  23+10       5.0094      0.49  |Q        |         |         |        V|
  23+15       5.0128      0.49  |Q        |         |         |        V|
  23+20       5.0162      0.49  |Q        |         |         |        V|
  23+25       5.0195      0.49  |Q        |         |         |        V|
  23+30       5.0229      0.49  |Q        |         |         |        V|
  23+35       5.0263      0.49  |Q        |         |         |        V|
  23+40       5.0296      0.49  |Q        |         |         |        V|
  23+45       5.0330      0.49  |Q        |         |         |        V|
  23+50       5.0364      0.49  |Q        |         |         |        V|
  23+55       5.0397      0.49  |Q        |         |         |        V|
  24+ 0       5.0431      0.49  |Q        |         |         |        V|
  24+ 5       5.0460      0.42  |Q        |         |         |        V|
  24+10       5.0473      0.20  Q         |         |         |        V|
  24+15       5.0481      0.10  Q         |         |         |        V|
  24+20       5.0485      0.07  Q         |         |         |        V|
  24+25       5.0488      0.04  Q         |         |         |        V|
  24+30       5.0490      0.03  Q         |         |         |        V|
  24+35       5.0491      0.02  Q         |         |         |        V|
  24+40       5.0492      0.01  Q         |         |         |        V|
  24+45       5.0492      0.00  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST12.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
2 YEAR 1 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.50	12.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.34	34.01

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 0.498(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.498(In)
Areal adjustment factor = 99.98 %
Adjusted average point rain = 0.498(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	34.2	0.722	0.808	0.197	1.000	0.197
					Sum (F) =	0.197

Area averaged mean soil loss (F) (In/Hr) = 0.197
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

Slope of intensity-duration curve for a 1 hour storm =0.5000

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.20	0.251	(0.197)	0.064	0.187
2	0.17	4.30	0.257	(0.197)	0.065	0.192
3	0.25	5.00	0.299	(0.197)	0.076	0.223
4	0.33	5.00	0.299	(0.197)	0.076	0.223
5	0.42	5.80	0.347	(0.197)	0.088	0.259
6	0.50	6.50	0.388	(0.197)	0.098	0.290
7	0.58	7.40	0.442	(0.197)	0.112	0.330
8	0.67	8.60	0.514	(0.197)	0.130	0.384

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 9   0.75    12.30      0.735       (  0.197)       0.186        0.549
10   0.83    29.10      1.739          0.197    (  0.441)        1.542
11   0.92     6.80      0.406       (  0.197)       0.103        0.303
12   1.00     5.00      0.299       (  0.197)       0.076        0.223
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     4.7
      Flood volume = Effective rainfall      0.39(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       0.8(Ac.Ft)
      Total soil loss =      0.11(In)
      Total soil loss =     0.224(Ac.Ft)
      Total rainfall =      0.50(In)
      Flood volume =       36109.8 Cubic Feet
      Total soil loss =        9760.1 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     23.428(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                         1 - H O U R    S T O R M
                    R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
  Time(h+m) Volume Ac.Ft   Q(CFS)  0        7.5      15.0      22.5      30.0
  ---------------------------------------------------------------------
    0+ 5       0.0047      0.68  Q         |         |         |         |
    0+10       0.0244      2.87  |V Q      |         |         |         |
    0+15       0.0516      3.95  | V  Q    |         |         |         |
    0+20       0.0841      4.72  |   V Q   |         |         |         |
    0+25       0.1202      5.24  |    VQ   |         |         |         |
    0+30       0.1614      5.98  |      Q  |         |         |         |
    0+35       0.2083      6.81  |        QV         |         |         |
    0+40       0.2620      7.79  |         Q V       |         |         |
    0+45       0.3266      9.38  |         | Q  V    |         |         |
    0+50       0.4324     15.36  |         |         Q         |         |
    0+55       0.5937     23.43  |         |         |       V |Q        |
    1+ 0       0.6907     14.08  |         |       Q |         |  V      |
    1+ 5       0.7501      8.63  |         |Q        |         |     V   |
    1+10       0.7811      4.50  |     Q   |         |         |      V  |
    1+15       0.7991      2.61  |  Q      |         |         |       V |
    1+20       0.8111      1.74  | Q       |         |         |        V|
    1+25       0.8189      1.14  |Q        |         |         |        V|
    1+30       0.8241      0.75  Q         |         |         |        V|
    1+35       0.8277      0.53  Q         |         |         |        V|
    1+40       0.8286      0.13  Q         |         |         |        V|
    1+45       0.8290      0.05  Q         |         |         |         V
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST32.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
2 YEAR 3 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	0.90	22.79

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.30	58.37

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 0.898(In)
Area Averaged 100-Year Rainfall = 2.300(In)

Point rain (area averaged) = 0.898(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 0.898(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	34.2	0.722	0.808	0.197	1.000	0.197
					Sum (F) =	0.197

Area averaged mean soil loss (F) (In/Hr) = 0.197
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.140	(0.197)	0.036	0.105
2	0.17	1.30	0.140	(0.197)	0.036	0.105
3	0.25	1.10	0.119	(0.197)	0.030	0.088
4	0.33	1.50	0.162	(0.197)	0.041	0.121
5	0.42	1.50	0.162	(0.197)	0.041	0.121
6	0.50	1.80	0.194	(0.197)	0.049	0.145
7	0.58	1.50	0.162	(0.197)	0.041	0.121
8	0.67	1.80	0.194	(0.197)	0.049	0.145
9	0.75	1.80	0.194	(0.197)	0.049	0.145
10	0.83	1.50	0.162	(0.197)	0.041	0.121

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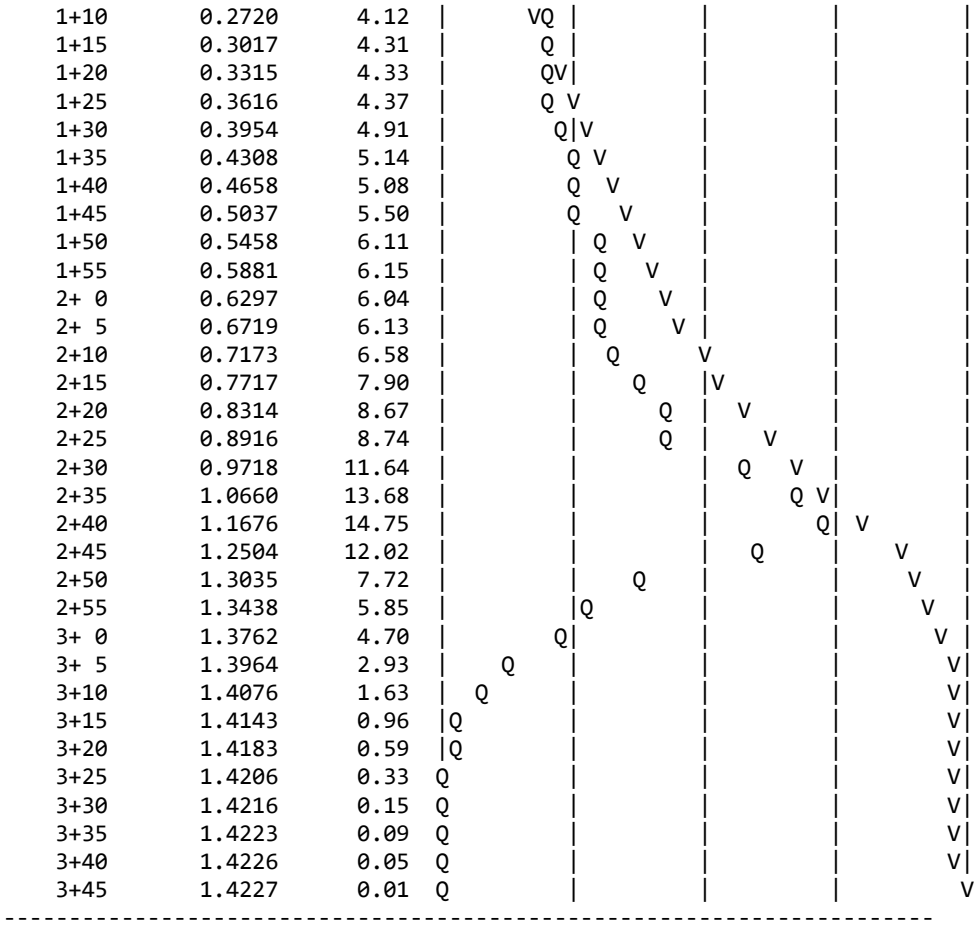
11   0.92     1.60      0.172       (  0.197)       0.044        0.129
12   1.00     1.80      0.194       (  0.197)       0.049        0.145
13   1.08     2.20      0.237       (  0.197)       0.060        0.177
14   1.17     2.20      0.237       (  0.197)       0.060        0.177
15   1.25     2.20      0.237       (  0.197)       0.060        0.177
16   1.33     2.00      0.215       (  0.197)       0.055        0.161
17   1.42     2.60      0.280       (  0.197)       0.071        0.209
18   1.50     2.70      0.291       (  0.197)       0.074        0.217
19   1.58     2.40      0.259       (  0.197)       0.066        0.193
20   1.67     2.70      0.291       (  0.197)       0.074        0.217
21   1.75     3.30      0.356       (  0.197)       0.090        0.265
22   1.83     3.10      0.334       (  0.197)       0.085        0.249
23   1.92     2.90      0.312       (  0.197)       0.079        0.233
24   2.00     3.00      0.323       (  0.197)       0.082        0.241
25   2.08     3.10      0.334       (  0.197)       0.085        0.249
26   2.17     4.20      0.453       (  0.197)       0.115        0.338
27   2.25     5.00      0.539       (  0.197)       0.137        0.402
28   2.33     3.50      0.377       (  0.197)       0.096        0.281
29   2.42     6.80      0.733       (  0.197)       0.186        0.547
30   2.50     7.30      0.787          0.197    (  0.199)       0.590
31   2.58     8.20      0.884          0.197    (  0.224)       0.687
32   2.67     5.90      0.636       (  0.197)       0.161        0.474
33   2.75     2.00      0.215       (  0.197)       0.055        0.161
34   2.83     1.80      0.194       (  0.197)       0.049        0.145
35   2.92     1.80      0.194       (  0.197)       0.049        0.145
36   3.00     0.60      0.065       (  0.197)       0.016        0.048
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =     8.1
      Flood volume = Effective rainfall      0.67(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       1.4(Ac.Ft)
      Total soil loss =      0.23(In)
      Total soil loss =     0.476(Ac.Ft)
      Total rainfall =      0.90(In)
      Flood volume =       61971.0 Cubic Feet
      Total soil loss =       20752.0 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     14.749(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0026      0.38  Q         |         |         |         |
  0+10       0.0136      1.59  V  Q      |         |         |         |
  0+15       0.0277      2.05  V   Q     |         |         |         |
  0+20       0.0427      2.19  |V  Q     |         |         |         |
  0+25       0.0608      2.61  |V   Q    |         |         |         |
  0+30       0.0808      2.91  | V  Q    |         |         |         |
  0+35       0.1028      3.20  | V   Q   |         |         |         |
  0+40       0.1248      3.19  |  V  Q   |         |         |         |
  0+45       0.1486      3.45  |   V Q   |         |         |         |
  0+50       0.1726      3.50  |   V Q   |         |         |         |
  0+55       0.1953      3.29  |    VQ   |         |         |         |
  1+ 0       0.2184      3.35  |     Q   |         |         |         |
  1+ 5       0.2437      3.67  |     VQ  |         |         |         |
```



1+10	0.2720	4.12	VQ
1+15	0.3017	4.31	Q
1+20	0.3315	4.33	QV
1+25	0.3616	4.37	Q V
1+30	0.3954	4.91	Q|V
1+35	0.4308	5.14	Q V
1+40	0.4658	5.08	Q V
1+45	0.5037	5.50	Q V
1+50	0.5458	6.11	Q V
1+55	0.5881	6.15	Q V
2+ 0	0.6297	6.04	Q V
2+ 5	0.6719	6.13	Q V
2+10	0.7173	6.58	Q V
2+15	0.7717	7.90	Q |V
2+20	0.8314	8.67	Q V
2+25	0.8916	8.74	Q V
2+30	0.9718	11.64	Q V
2+35	1.0660	13.68	Q V
2+40	1.1676	14.75	Q V
2+45	1.2504	12.02	Q V
2+50	1.3035	7.72	Q V
2+55	1.3438	5.85	Q V
3+ 0	1.3762	4.70	Q V
3+ 5	1.3964	2.93	Q V
3+10	1.4076	1.63	Q V
3+15	1.4143	0.96	Q V
3+20	1.4183	0.59	Q V
3+25	1.4206	0.33	Q V
3+30	1.4216	0.15	Q V
3+35	1.4223	0.09	Q V
3+40	1.4226	0.05	Q V
3+45	1.4227	0.01	Q V

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST62.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
2 YEAR 6 HOUR EVENT
FUSCOE ENGINEERING

Drainage Area = 25.38(Ac.) = 0.040 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
Length along longest watercourse = 2079.00(Ft.)
Length along longest watercourse measured to centroid = 1414.00(Ft.)
Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	1.26	31.98

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	3.25	82.48

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 1.260(In)
Area Averaged 100-Year Rainfall = 3.250(In)

Point rain (area averaged) = 1.260(In)
Areal adjustment factor = 99.99 %
Adjusted average point rain = 1.260(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	34.2	0.722	0.808	0.197	1.000	0.197
					Sum (F) =	0.197

Area averaged mean soil loss (F) (In/Hr) = 0.197
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

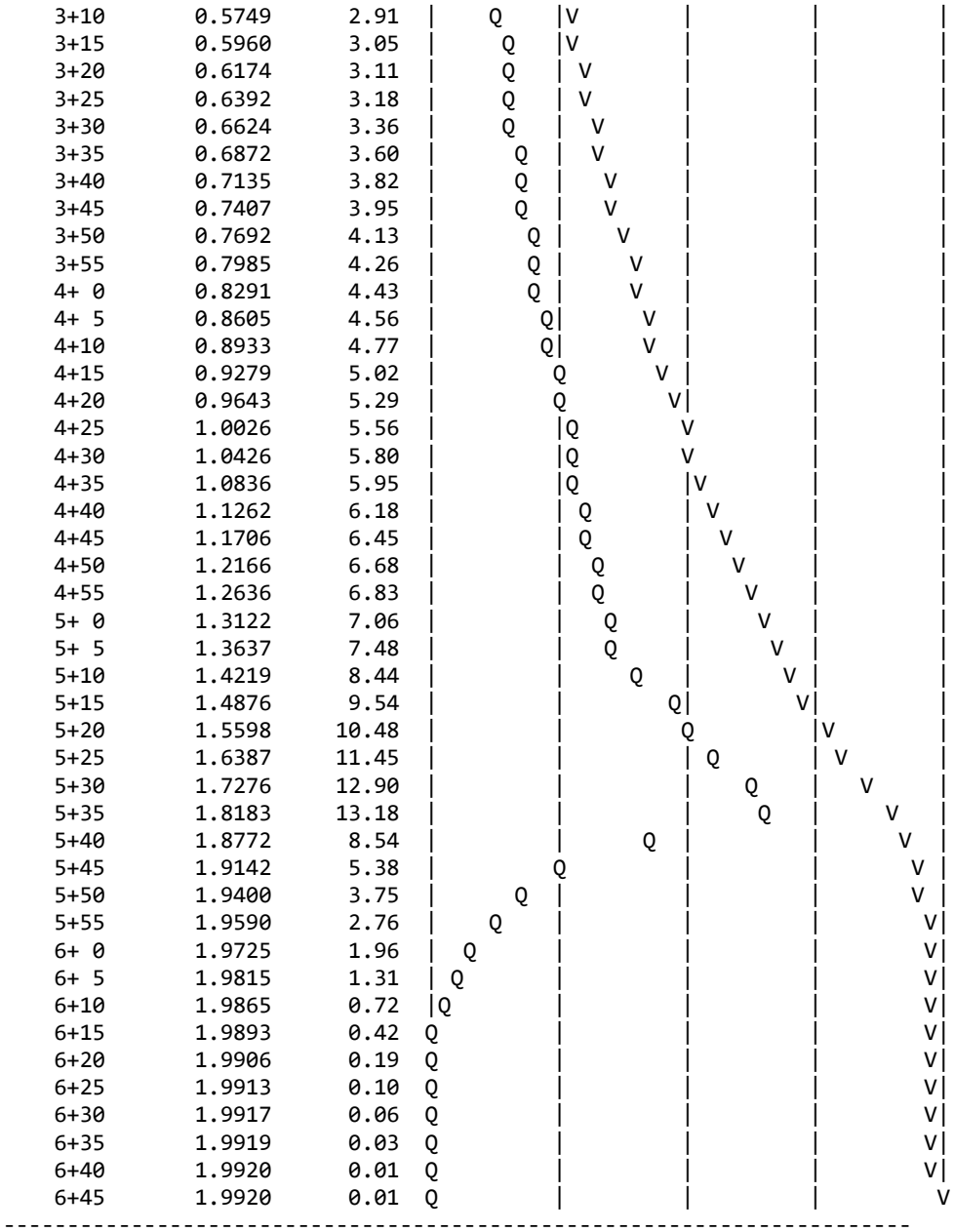
The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.076	(0.197)	0.019	0.056
2	0.17	0.60	0.091	(0.197)	0.023	0.068
3	0.25	0.60	0.091	(0.197)	0.023	0.068
4	0.33	0.60	0.091	(0.197)	0.023	0.068
5	0.42	0.60	0.091	(0.197)	0.023	0.068
6	0.50	0.70	0.106	(0.197)	0.027	0.079
7	0.58	0.70	0.106	(0.197)	0.027	0.079
8	0.67	0.70	0.106	(0.197)	0.027	0.079
9	0.75	0.70	0.106	(0.197)	0.027	0.079
10	0.83	0.70	0.106	(0.197)	0.027	0.079

11	0.92	0.70	0.106	(0.197)	0.027	0.079
12	1.00	0.80	0.121	(0.197)	0.031	0.090
13	1.08	0.80	0.121	(0.197)	0.031	0.090
14	1.17	0.80	0.121	(0.197)	0.031	0.090
15	1.25	0.80	0.121	(0.197)	0.031	0.090
16	1.33	0.80	0.121	(0.197)	0.031	0.090
17	1.42	0.80	0.121	(0.197)	0.031	0.090
18	1.50	0.80	0.121	(0.197)	0.031	0.090
19	1.58	0.80	0.121	(0.197)	0.031	0.090
20	1.67	0.80	0.121	(0.197)	0.031	0.090
21	1.75	0.80	0.121	(0.197)	0.031	0.090
22	1.83	0.80	0.121	(0.197)	0.031	0.090
23	1.92	0.80	0.121	(0.197)	0.031	0.090
24	2.00	0.90	0.136	(0.197)	0.035	0.102
25	2.08	0.80	0.121	(0.197)	0.031	0.090
26	2.17	0.90	0.136	(0.197)	0.035	0.102
27	2.25	0.90	0.136	(0.197)	0.035	0.102
28	2.33	0.90	0.136	(0.197)	0.035	0.102
29	2.42	0.90	0.136	(0.197)	0.035	0.102
30	2.50	0.90	0.136	(0.197)	0.035	0.102
31	2.58	0.90	0.136	(0.197)	0.035	0.102
32	2.67	0.90	0.136	(0.197)	0.035	0.102
33	2.75	1.00	0.151	(0.197)	0.038	0.113
34	2.83	1.00	0.151	(0.197)	0.038	0.113
35	2.92	1.00	0.151	(0.197)	0.038	0.113
36	3.00	1.00	0.151	(0.197)	0.038	0.113
37	3.08	1.00	0.151	(0.197)	0.038	0.113
38	3.17	1.10	0.166	(0.197)	0.042	0.124
39	3.25	1.10	0.166	(0.197)	0.042	0.124
40	3.33	1.10	0.166	(0.197)	0.042	0.124
41	3.42	1.20	0.181	(0.197)	0.046	0.135
42	3.50	1.30	0.197	(0.197)	0.050	0.147
43	3.58	1.40	0.212	(0.197)	0.054	0.158
44	3.67	1.40	0.212	(0.197)	0.054	0.158
45	3.75	1.50	0.227	(0.197)	0.058	0.169
46	3.83	1.50	0.227	(0.197)	0.058	0.169
47	3.92	1.60	0.242	(0.197)	0.061	0.181
48	4.00	1.60	0.242	(0.197)	0.061	0.181
49	4.08	1.70	0.257	(0.197)	0.065	0.192
50	4.17	1.80	0.272	(0.197)	0.069	0.203
51	4.25	1.90	0.287	(0.197)	0.073	0.214
52	4.33	2.00	0.302	(0.197)	0.077	0.226
53	4.42	2.10	0.317	(0.197)	0.081	0.237
54	4.50	2.10	0.317	(0.197)	0.081	0.237
55	4.58	2.20	0.333	(0.197)	0.084	0.248
56	4.67	2.30	0.348	(0.197)	0.088	0.260
57	4.75	2.40	0.363	(0.197)	0.092	0.271
58	4.83	2.40	0.363	(0.197)	0.092	0.271
59	4.92	2.50	0.378	(0.197)	0.096	0.282
60	5.00	2.60	0.393	(0.197)	0.100	0.293
61	5.08	3.10	0.469	(0.197)	0.119	0.350
62	5.17	3.60	0.544	(0.197)	0.138	0.406
63	5.25	3.90	0.590	(0.197)	0.150	0.440
64	5.33	4.20	0.635	(0.197)	0.161	0.474
65	5.42	4.70	0.711	(0.197)	0.180	0.530
66	5.50	5.60	0.847	0.197	(0.215)	0.650
67	5.58	1.90	0.287	(0.197)	0.073	0.214
68	5.67	0.90	0.136	(0.197)	0.035	0.102
69	5.75	0.60	0.091	(0.197)	0.023	0.068
70	5.83	0.50	0.076	(0.197)	0.019	0.056

```
71   5.92     0.30      0.045       (  0.197)       0.012        0.034
72   6.00     0.20      0.030       (  0.197)       0.008        0.023
              (Loss Rate Not Used)
   Sum =     100.0                                   Sum =    11.3
      Flood volume = Effective rainfall      0.94(In)
       times area      25.4(Ac.)/[(In)/(Ft.)] =       2.0(Ac.Ft)
      Total soil loss =      0.32(In)
      Total soil loss =     0.673(Ac.Ft)
      Total rainfall =      1.26(In)
      Flood volume =       86772.7 Cubic Feet
      Total soil loss =       29300.3 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     13.180(CFS)
      ---------------------------------------------------------------------
      +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - H O U R    S T O R M
                     R u n o f f      H y d r o g r a p h
      ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

      ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0014      0.20  Q         |         |         |         |
  0+10       0.0076      0.90  VQ        |         |         |         |
  0+15       0.0166      1.31  V Q       |         |         |         |
  0+20       0.0268      1.48  V Q       |         |         |         |
  0+25       0.0376      1.57  V  Q      |         |         |         |
  0+30       0.0491      1.67  V  Q      |         |         |         |
  0+35       0.0618      1.84  |V Q      |         |         |         |
  0+40       0.0750      1.92  |V Q      |         |         |         |
  0+45       0.0886      1.96  |V Q      |         |         |         |
  0+50       0.1023      1.99  | VQ      |         |         |         |
  0+55       0.1161      2.01  | V Q     |         |         |         |
  1+ 0       0.1302      2.05  | V Q     |         |         |         |
  1+ 5       0.1453      2.19  | V Q     |         |         |         |
  1+10       0.1608      2.25  |  VQ     |         |         |         |
  1+15       0.1764      2.27  |  VQ     |         |         |         |
  1+20       0.1922      2.29  |  VQ     |         |         |         |
  1+25       0.2080      2.29  |   Q     |         |         |         |
  1+30       0.2238      2.30  |   Q     |         |         |         |
  1+35       0.2397      2.30  |   Q     |         |         |         |
  1+40       0.2556      2.31  |   QV    |         |         |         |
  1+45       0.2715      2.31  |   QV    |         |         |         |
  1+50       0.2874      2.31  |   QV    |         |         |         |
  1+55       0.3033      2.31  |   Q V   |         |         |         |
  2+ 0       0.3195      2.35  |   Q V   |         |         |         |
  2+ 5       0.3363      2.44  |   Q V   |         |         |         |
  2+10       0.3529      2.41  |   Q  V  |         |         |         |
  2+15       0.3701      2.51  |    Q V  |         |         |         |
  2+20       0.3877      2.55  |    Q V  |         |         |         |
  2+25       0.4054      2.57  |    Q  V |         |         |         |
  2+30       0.4232      2.58  |    Q  V |         |         |         |
  2+35       0.4410      2.59  |    Q  V |         |         |         |
  2+40       0.4589      2.59  |    Q   V|         |         |         |
  2+45       0.4770      2.64  |    Q   V|         |         |         |
  2+50       0.4961      2.77  |    Q   V|         |         |         |
  2+55       0.5155      2.83  |    Q    V         |         |         |
  3+ 0       0.5352      2.85  |    Q    V         |         |         |
  3+ 5       0.5549      2.86  |    Q    |V        |         |         |
```



3+10	0.5749	2.91	Q	V			
3+15	0.5960	3.05	Q	V			
3+20	0.6174	3.11	Q	V			
3+25	0.6392	3.18	Q	V			
3+30	0.6624	3.36	Q	V			
3+35	0.6872	3.60	Q	V			
3+40	0.7135	3.82	Q	V			
3+45	0.7407	3.95	Q	V			
3+50	0.7692	4.13	Q	V			
3+55	0.7985	4.26	Q	V			
4+ 0	0.8291	4.43	Q	V			
4+ 5	0.8605	4.56	Q	V			
4+10	0.8933	4.77	Q	V			
4+15	0.9279	5.02	Q	V			
4+20	0.9643	5.29	Q	V			
4+25	1.0026	5.56	Q	V			
4+30	1.0426	5.80	Q	V			
4+35	1.0836	5.95	Q	V			
4+40	1.1262	6.18	Q	V			
4+45	1.1706	6.45	Q	V			
4+50	1.2166	6.68	Q	V			
4+55	1.2636	6.83	Q	V			
5+ 0	1.3122	7.06	Q	V			
5+ 5	1.3637	7.48	Q	V			
5+10	1.4219	8.44	Q	V			
5+15	1.4876	9.54	Q	V			
5+20	1.5598	10.48	Q	V			
5+25	1.6387	11.45	Q	V			
5+30	1.7276	12.90	Q	V			
5+35	1.8183	13.18	Q	V			
5+40	1.8772	8.54	Q	V			
5+45	1.9142	5.38	Q	V			
5+50	1.9400	3.75	Q	V			
5+55	1.9590	2.76	Q	V			
6+ 0	1.9725	1.96	Q	V			
6+ 5	1.9815	1.31	Q	V			
6+10	1.9865	0.72	Q	V			
6+15	1.9893	0.42	Q	V			
6+20	1.9906	0.19	Q	V			
6+25	1.9913	0.10	Q	V			
6+30	1.9917	0.06	Q	V			
6+35	1.9919	0.03	Q	V			
6+40	1.9920	0.01	Q	V			
6+45	1.9920	0.01	Q	V			

U n i t H y d r o g r a p h A n a l y s i s

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Study date 04/14/20 File: 1655003UHPOST242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 6049

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

NORCO VALLEY SQUARE MIXED USE
POST DEVLOPMENT
2 YEAR 24 HOUR EVENT
FUSCOE ENGINEERING

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Drainage Area for Depth-Area Areal Adjustment = 25.38(Ac.) = 0.040 Sq. Mi.
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Length along longest watercourse = 0.394 Mi.
Length along longest watercourse measured to centroid = 0.268 Mi.
Difference in elevation = 53.40(Ft.)
Slope along watercourse = 135.6190 Ft./Mi.
Average Manning's 'N' = 0.025
Lag time = 0.100 Hr.
Lag time = 6.02 Min.
25% of lag time = 1.51 Min.
40% of lag time = 2.41 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	2.25	57.10

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
25.38	6.30	159.89

STORM EVENT (YEAR) = 2.00

Area Averaged 2-Year Rainfall = 2.250(In)
Area Averaged 100-Year Rainfall = 6.300(In)

Point rain (area averaged) = 2.250(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.250(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
25.380	54.00	0.808

Total Area Entered = 25.38(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
54.0	34.2	0.722	0.808	0.197	1.000	0.197
					Sum (F) =	0.197

Area averaged mean soil loss (F) (In/Hr) = 0.197
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.254

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	82.996	14.144	3.618
2	0.167	165.991	45.379	11.607
3	0.250	248.987	19.100	4.886
4	0.333	331.982	8.052	2.060
5	0.417	414.978	4.810	1.230
6	0.500	497.973	2.994	0.766
7	0.583	580.969	2.166	0.554
8	0.667	663.964	1.456	0.372
9	0.750	746.960	0.954	0.244
10	0.833	829.955	0.945	0.242
		Sum = 100.000	Sum=	25.578

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.018	(0.349)	0.005	0.013
2	0.17	0.07	0.018	(0.348)	0.005	0.013
3	0.25	0.07	0.018	(0.347)	0.005	0.013
4	0.33	0.10	0.027	(0.345)	0.007	0.020
5	0.42	0.10	0.027	(0.344)	0.007	0.020
6	0.50	0.10	0.027	(0.343)	0.007	0.020
7	0.58	0.10	0.027	(0.341)	0.007	0.020
8	0.67	0.10	0.027	(0.340)	0.007	0.020
9	0.75	0.10	0.027	(0.339)	0.007	0.020
10	0.83	0.13	0.036	(0.337)	0.009	0.027

11	0.92	0.13	0.036	(0.336)	0.009	0.027
12	1.00	0.13	0.036	(0.335)	0.009	0.027
13	1.08	0.10	0.027	(0.333)	0.007	0.020
14	1.17	0.10	0.027	(0.332)	0.007	0.020
15	1.25	0.10	0.027	(0.331)	0.007	0.020
16	1.33	0.10	0.027	(0.329)	0.007	0.020
17	1.42	0.10	0.027	(0.328)	0.007	0.020
18	1.50	0.10	0.027	(0.327)	0.007	0.020
19	1.58	0.10	0.027	(0.325)	0.007	0.020
20	1.67	0.10	0.027	(0.324)	0.007	0.020
21	1.75	0.10	0.027	(0.323)	0.007	0.020
22	1.83	0.13	0.036	(0.321)	0.009	0.027
23	1.92	0.13	0.036	(0.320)	0.009	0.027
24	2.00	0.13	0.036	(0.319)	0.009	0.027
25	2.08	0.13	0.036	(0.318)	0.009	0.027
26	2.17	0.13	0.036	(0.316)	0.009	0.027
27	2.25	0.13	0.036	(0.315)	0.009	0.027
28	2.33	0.13	0.036	(0.314)	0.009	0.027
29	2.42	0.13	0.036	(0.312)	0.009	0.027
30	2.50	0.13	0.036	(0.311)	0.009	0.027
31	2.58	0.17	0.045	(0.310)	0.011	0.034
32	2.67	0.17	0.045	(0.309)	0.011	0.034
33	2.75	0.17	0.045	(0.307)	0.011	0.034
34	2.83	0.17	0.045	(0.306)	0.011	0.034
35	2.92	0.17	0.045	(0.305)	0.011	0.034
36	3.00	0.17	0.045	(0.304)	0.011	0.034
37	3.08	0.17	0.045	(0.302)	0.011	0.034
38	3.17	0.17	0.045	(0.301)	0.011	0.034
39	3.25	0.17	0.045	(0.300)	0.011	0.034
40	3.33	0.17	0.045	(0.299)	0.011	0.034
41	3.42	0.17	0.045	(0.297)	0.011	0.034
42	3.50	0.17	0.045	(0.296)	0.011	0.034
43	3.58	0.17	0.045	(0.295)	0.011	0.034
44	3.67	0.17	0.045	(0.294)	0.011	0.034
45	3.75	0.17	0.045	(0.292)	0.011	0.034
46	3.83	0.20	0.054	(0.291)	0.014	0.040
47	3.92	0.20	0.054	(0.290)	0.014	0.040
48	4.00	0.20	0.054	(0.289)	0.014	0.040
49	4.08	0.20	0.054	(0.287)	0.014	0.040
50	4.17	0.20	0.054	(0.286)	0.014	0.040
51	4.25	0.20	0.054	(0.285)	0.014	0.040
52	4.33	0.23	0.063	(0.284)	0.016	0.047
53	4.42	0.23	0.063	(0.283)	0.016	0.047
54	4.50	0.23	0.063	(0.281)	0.016	0.047
55	4.58	0.23	0.063	(0.280)	0.016	0.047
56	4.67	0.23	0.063	(0.279)	0.016	0.047
57	4.75	0.23	0.063	(0.278)	0.016	0.047
58	4.83	0.27	0.072	(0.277)	0.018	0.054
59	4.92	0.27	0.072	(0.275)	0.018	0.054
60	5.00	0.27	0.072	(0.274)	0.018	0.054
61	5.08	0.20	0.054	(0.273)	0.014	0.040
62	5.17	0.20	0.054	(0.272)	0.014	0.040
63	5.25	0.20	0.054	(0.271)	0.014	0.040
64	5.33	0.23	0.063	(0.269)	0.016	0.047
65	5.42	0.23	0.063	(0.268)	0.016	0.047
66	5.50	0.23	0.063	(0.267)	0.016	0.047
67	5.58	0.27	0.072	(0.266)	0.018	0.054
68	5.67	0.27	0.072	(0.265)	0.018	0.054
69	5.75	0.27	0.072	(0.264)	0.018	0.054
70	5.83	0.27	0.072	(0.262)	0.018	0.054

71	5.92	0.27	0.072	(0.261)	0.018	0.054
72	6.00	0.27	0.072	(0.260)	0.018	0.054
73	6.08	0.30	0.081	(0.259)	0.021	0.060
74	6.17	0.30	0.081	(0.258)	0.021	0.060
75	6.25	0.30	0.081	(0.257)	0.021	0.060
76	6.33	0.30	0.081	(0.255)	0.021	0.060
77	6.42	0.30	0.081	(0.254)	0.021	0.060
78	6.50	0.30	0.081	(0.253)	0.021	0.060
79	6.58	0.33	0.090	(0.252)	0.023	0.067
80	6.67	0.33	0.090	(0.251)	0.023	0.067
81	6.75	0.33	0.090	(0.250)	0.023	0.067
82	6.83	0.33	0.090	(0.249)	0.023	0.067
83	6.92	0.33	0.090	(0.248)	0.023	0.067
84	7.00	0.33	0.090	(0.246)	0.023	0.067
85	7.08	0.33	0.090	(0.245)	0.023	0.067
86	7.17	0.33	0.090	(0.244)	0.023	0.067
87	7.25	0.33	0.090	(0.243)	0.023	0.067
88	7.33	0.37	0.099	(0.242)	0.025	0.074
89	7.42	0.37	0.099	(0.241)	0.025	0.074
90	7.50	0.37	0.099	(0.240)	0.025	0.074
91	7.58	0.40	0.108	(0.239)	0.027	0.081
92	7.67	0.40	0.108	(0.238)	0.027	0.081
93	7.75	0.40	0.108	(0.236)	0.027	0.081
94	7.83	0.43	0.117	(0.235)	0.030	0.087
95	7.92	0.43	0.117	(0.234)	0.030	0.087
96	8.00	0.43	0.117	(0.233)	0.030	0.087
97	8.08	0.50	0.135	(0.232)	0.034	0.101
98	8.17	0.50	0.135	(0.231)	0.034	0.101
99	8.25	0.50	0.135	(0.230)	0.034	0.101
100	8.33	0.50	0.135	(0.229)	0.034	0.101
101	8.42	0.50	0.135	(0.228)	0.034	0.101
102	8.50	0.50	0.135	(0.227)	0.034	0.101
103	8.58	0.53	0.144	(0.226)	0.037	0.107
104	8.67	0.53	0.144	(0.225)	0.037	0.107
105	8.75	0.53	0.144	(0.224)	0.037	0.107
106	8.83	0.57	0.153	(0.222)	0.039	0.114
107	8.92	0.57	0.153	(0.221)	0.039	0.114
108	9.00	0.57	0.153	(0.220)	0.039	0.114
109	9.08	0.63	0.171	(0.219)	0.043	0.128
110	9.17	0.63	0.171	(0.218)	0.043	0.128
111	9.25	0.63	0.171	(0.217)	0.043	0.128
112	9.33	0.67	0.180	(0.216)	0.046	0.134
113	9.42	0.67	0.180	(0.215)	0.046	0.134
114	9.50	0.67	0.180	(0.214)	0.046	0.134
115	9.58	0.70	0.189	(0.213)	0.048	0.141
116	9.67	0.70	0.189	(0.212)	0.048	0.141
117	9.75	0.70	0.189	(0.211)	0.048	0.141
118	9.83	0.73	0.198	(0.210)	0.050	0.148
119	9.92	0.73	0.198	(0.209)	0.050	0.148
120	10.00	0.73	0.198	(0.208)	0.050	0.148
121	10.08	0.50	0.135	(0.207)	0.034	0.101
122	10.17	0.50	0.135	(0.206)	0.034	0.101
123	10.25	0.50	0.135	(0.205)	0.034	0.101
124	10.33	0.50	0.135	(0.204)	0.034	0.101
125	10.42	0.50	0.135	(0.203)	0.034	0.101
126	10.50	0.50	0.135	(0.202)	0.034	0.101
127	10.58	0.67	0.180	(0.201)	0.046	0.134
128	10.67	0.67	0.180	(0.200)	0.046	0.134
129	10.75	0.67	0.180	(0.199)	0.046	0.134
130	10.83	0.67	0.180	(0.198)	0.046	0.134

131	10.92	0.67	0.180	(0.197)	0.046	0.134
132	11.00	0.67	0.180	(0.196)	0.046	0.134
133	11.08	0.63	0.171	(0.195)	0.043	0.128
134	11.17	0.63	0.171	(0.194)	0.043	0.128
135	11.25	0.63	0.171	(0.193)	0.043	0.128
136	11.33	0.63	0.171	(0.192)	0.043	0.128
137	11.42	0.63	0.171	(0.191)	0.043	0.128
138	11.50	0.63	0.171	(0.190)	0.043	0.128
139	11.58	0.57	0.153	(0.190)	0.039	0.114
140	11.67	0.57	0.153	(0.189)	0.039	0.114
141	11.75	0.57	0.153	(0.188)	0.039	0.114
142	11.83	0.60	0.162	(0.187)	0.041	0.121
143	11.92	0.60	0.162	(0.186)	0.041	0.121
144	12.00	0.60	0.162	(0.185)	0.041	0.121
145	12.08	0.83	0.225	(0.184)	0.057	0.168
146	12.17	0.83	0.225	(0.183)	0.057	0.168
147	12.25	0.83	0.225	(0.182)	0.057	0.168
148	12.33	0.87	0.234	(0.181)	0.059	0.175
149	12.42	0.87	0.234	(0.180)	0.059	0.175
150	12.50	0.87	0.234	(0.179)	0.059	0.175
151	12.58	0.93	0.252	(0.178)	0.064	0.188
152	12.67	0.93	0.252	(0.178)	0.064	0.188
153	12.75	0.93	0.252	(0.177)	0.064	0.188
154	12.83	0.97	0.261	(0.176)	0.066	0.195
155	12.92	0.97	0.261	(0.175)	0.066	0.195
156	13.00	0.97	0.261	(0.174)	0.066	0.195
157	13.08	1.13	0.306	(0.173)	0.078	0.228
158	13.17	1.13	0.306	(0.172)	0.078	0.228
159	13.25	1.13	0.306	(0.171)	0.078	0.228
160	13.33	1.13	0.306	(0.170)	0.078	0.228
161	13.42	1.13	0.306	(0.170)	0.078	0.228
162	13.50	1.13	0.306	(0.169)	0.078	0.228
163	13.58	0.77	0.207	(0.168)	0.052	0.154
164	13.67	0.77	0.207	(0.167)	0.052	0.154
165	13.75	0.77	0.207	(0.166)	0.052	0.154
166	13.83	0.77	0.207	(0.165)	0.052	0.154
167	13.92	0.77	0.207	(0.164)	0.052	0.154
168	14.00	0.77	0.207	(0.164)	0.052	0.154
169	14.08	0.90	0.243	(0.163)	0.062	0.181
170	14.17	0.90	0.243	(0.162)	0.062	0.181
171	14.25	0.90	0.243	(0.161)	0.062	0.181
172	14.33	0.87	0.234	(0.160)	0.059	0.175
173	14.42	0.87	0.234	(0.160)	0.059	0.175
174	14.50	0.87	0.234	(0.159)	0.059	0.175
175	14.58	0.87	0.234	(0.158)	0.059	0.175
176	14.67	0.87	0.234	(0.157)	0.059	0.175
177	14.75	0.87	0.234	(0.156)	0.059	0.175
178	14.83	0.83	0.225	(0.155)	0.057	0.168
179	14.92	0.83	0.225	(0.155)	0.057	0.168
180	15.00	0.83	0.225	(0.154)	0.057	0.168
181	15.08	0.80	0.216	(0.153)	0.055	0.161
182	15.17	0.80	0.216	(0.152)	0.055	0.161
183	15.25	0.80	0.216	(0.152)	0.055	0.161
184	15.33	0.77	0.207	(0.151)	0.052	0.154
185	15.42	0.77	0.207	(0.150)	0.052	0.154
186	15.50	0.77	0.207	(0.149)	0.052	0.154
187	15.58	0.63	0.171	(0.148)	0.043	0.128
188	15.67	0.63	0.171	(0.148)	0.043	0.128
189	15.75	0.63	0.171	(0.147)	0.043	0.128
190	15.83	0.63	0.171	(0.146)	0.043	0.128

191	15.92	0.63	0.171	(0.145)	0.043	0.128
192	16.00	0.63	0.171	(0.145)	0.043	0.128
193	16.08	0.13	0.036	(0.144)	0.009	0.027
194	16.17	0.13	0.036	(0.143)	0.009	0.027
195	16.25	0.13	0.036	(0.142)	0.009	0.027
196	16.33	0.13	0.036	(0.142)	0.009	0.027
197	16.42	0.13	0.036	(0.141)	0.009	0.027
198	16.50	0.13	0.036	(0.140)	0.009	0.027
199	16.58	0.10	0.027	(0.140)	0.007	0.020
200	16.67	0.10	0.027	(0.139)	0.007	0.020
201	16.75	0.10	0.027	(0.138)	0.007	0.020
202	16.83	0.10	0.027	(0.137)	0.007	0.020
203	16.92	0.10	0.027	(0.137)	0.007	0.020
204	17.00	0.10	0.027	(0.136)	0.007	0.020
205	17.08	0.17	0.045	(0.135)	0.011	0.034
206	17.17	0.17	0.045	(0.135)	0.011	0.034
207	17.25	0.17	0.045	(0.134)	0.011	0.034
208	17.33	0.17	0.045	(0.133)	0.011	0.034
209	17.42	0.17	0.045	(0.133)	0.011	0.034
210	17.50	0.17	0.045	(0.132)	0.011	0.034
211	17.58	0.17	0.045	(0.131)	0.011	0.034
212	17.67	0.17	0.045	(0.131)	0.011	0.034
213	17.75	0.17	0.045	(0.130)	0.011	0.034
214	17.83	0.13	0.036	(0.129)	0.009	0.027
215	17.92	0.13	0.036	(0.129)	0.009	0.027
216	18.00	0.13	0.036	(0.128)	0.009	0.027
217	18.08	0.13	0.036	(0.128)	0.009	0.027
218	18.17	0.13	0.036	(0.127)	0.009	0.027
219	18.25	0.13	0.036	(0.126)	0.009	0.027
220	18.33	0.13	0.036	(0.126)	0.009	0.027
221	18.42	0.13	0.036	(0.125)	0.009	0.027
222	18.50	0.13	0.036	(0.124)	0.009	0.027
223	18.58	0.10	0.027	(0.124)	0.007	0.020
224	18.67	0.10	0.027	(0.123)	0.007	0.020
225	18.75	0.10	0.027	(0.123)	0.007	0.020
226	18.83	0.07	0.018	(0.122)	0.005	0.013
227	18.92	0.07	0.018	(0.121)	0.005	0.013
228	19.00	0.07	0.018	(0.121)	0.005	0.013
229	19.08	0.10	0.027	(0.120)	0.007	0.020
230	19.17	0.10	0.027	(0.120)	0.007	0.020
231	19.25	0.10	0.027	(0.119)	0.007	0.020
232	19.33	0.13	0.036	(0.119)	0.009	0.027
233	19.42	0.13	0.036	(0.118)	0.009	0.027
234	19.50	0.13	0.036	(0.118)	0.009	0.027
235	19.58	0.10	0.027	(0.117)	0.007	0.020
236	19.67	0.10	0.027	(0.116)	0.007	0.020
237	19.75	0.10	0.027	(0.116)	0.007	0.020
238	19.83	0.07	0.018	(0.115)	0.005	0.013
239	19.92	0.07	0.018	(0.115)	0.005	0.013
240	20.00	0.07	0.018	(0.114)	0.005	0.013
241	20.08	0.10	0.027	(0.114)	0.007	0.020
242	20.17	0.10	0.027	(0.113)	0.007	0.020
243	20.25	0.10	0.027	(0.113)	0.007	0.020
244	20.33	0.10	0.027	(0.112)	0.007	0.020
245	20.42	0.10	0.027	(0.112)	0.007	0.020
246	20.50	0.10	0.027	(0.111)	0.007	0.020
247	20.58	0.10	0.027	(0.111)	0.007	0.020
248	20.67	0.10	0.027	(0.111)	0.007	0.020
249	20.75	0.10	0.027	(0.110)	0.007	0.020
250	20.83	0.07	0.018	(0.110)	0.005	0.013

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251  20.92     0.07      0.018       (  0.109)       0.005        0.013
252  21.00     0.07      0.018       (  0.109)       0.005        0.013
253  21.08     0.10      0.027       (  0.108)       0.007        0.020
254  21.17     0.10      0.027       (  0.108)       0.007        0.020
255  21.25     0.10      0.027       (  0.107)       0.007        0.020
256  21.33     0.07      0.018       (  0.107)       0.005        0.013
257  21.42     0.07      0.018       (  0.107)       0.005        0.013
258  21.50     0.07      0.018       (  0.106)       0.005        0.013
259  21.58     0.10      0.027       (  0.106)       0.007        0.020
260  21.67     0.10      0.027       (  0.105)       0.007        0.020
261  21.75     0.10      0.027       (  0.105)       0.007        0.020
262  21.83     0.07      0.018       (  0.105)       0.005        0.013
263  21.92     0.07      0.018       (  0.104)       0.005        0.013
264  22.00     0.07      0.018       (  0.104)       0.005        0.013
265  22.08     0.10      0.027       (  0.104)       0.007        0.020
266  22.17     0.10      0.027       (  0.103)       0.007        0.020
267  22.25     0.10      0.027       (  0.103)       0.007        0.020
268  22.33     0.07      0.018       (  0.103)       0.005        0.013
269  22.42     0.07      0.018       (  0.102)       0.005        0.013
270  22.50     0.07      0.018       (  0.102)       0.005        0.013
271  22.58     0.07      0.018       (  0.102)       0.005        0.013
272  22.67     0.07      0.018       (  0.101)       0.005        0.013
273  22.75     0.07      0.018       (  0.101)       0.005        0.013
274  22.83     0.07      0.018       (  0.101)       0.005        0.013
275  22.92     0.07      0.018       (  0.101)       0.005        0.013
276  23.00     0.07      0.018       (  0.100)       0.005        0.013
277  23.08     0.07      0.018       (  0.100)       0.005        0.013
278  23.17     0.07      0.018       (  0.100)       0.005        0.013
279  23.25     0.07      0.018       (  0.100)       0.005        0.013
280  23.33     0.07      0.018       (  0.100)       0.005        0.013
281  23.42     0.07      0.018       (  0.099)       0.005        0.013
282  23.50     0.07      0.018       (  0.099)       0.005        0.013
283  23.58     0.07      0.018       (  0.099)       0.005        0.013
284  23.67     0.07      0.018       (  0.099)       0.005        0.013
285  23.75     0.07      0.018       (  0.099)       0.005        0.013
286  23.83     0.07      0.018       (  0.099)       0.005        0.013
287  23.92     0.07      0.018       (  0.099)       0.005        0.013
288  24.00     0.07      0.018       (  0.099)       0.005        0.013
              (Loss Rate Not Used)
    Sum =     100.0                                  Sum =    20.2
       Flood volume = Effective rainfall      1.68(In)
        times area      25.4(Ac.)/[(In)/(Ft.)] =       3.6(Ac.Ft)
       Total soil loss =      0.57(In)
       Total soil loss =     1.207(Ac.Ft)
       Total rainfall =      2.25(In)
       Flood volume =      154714.4 Cubic Feet
       Total soil loss =       52566.4 Cubic Feet
       ------------------------------------------------------------------
        Peak flow rate of this hydrograph =      5.796(CFS)
       ------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           24 - H O U R    S T O R M
                      R u n o f f      H y d r o g r a p h
       ------------------------------------------------------------------
                    Hydrograph in   5   Minute intervals ((CFS))

       ------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
 ------------------------------------------------------------------------
   0+ 5       0.0003      0.05  Q         |         |         |         |
```

0+10	0.0017	0.20	Q	|	|	|	|
0+15	0.0036	0.27	VQ	|	|	|	|
0+20	0.0058	0.32	VQ	|	|	|	|
0+25	0.0087	0.42	VQ	|	|	|	|
0+30	0.0119	0.46	VQ	|	|	|	|
0+35	0.0152	0.48	VQ	|	|	|	|
0+40	0.0186	0.49	VQ	|	|	|	|
0+45	0.0220	0.50	V Q	|	|	|	|
0+50	0.0257	0.53	V Q	|	|	|	|
0+55	0.0300	0.61	V Q	|	|	|	|
1+ 0	0.0344	0.65	V Q	|	|	|	|
1+ 5	0.0388	0.64	V Q	|	|	|	|
1+10	0.0428	0.57	V Q	|	|	|	|
1+15	0.0465	0.54	V Q	|	|	|	|
1+20	0.0502	0.53	V Q	|	|	|	|
1+25	0.0538	0.53	V Q	|	|	|	|
1+30	0.0574	0.52	V Q	|	|	|	|
1+35	0.0610	0.52	V Q	|	|	|	|
1+40	0.0646	0.52	V Q	|	|	|	|
1+45	0.0681	0.52	V Q	|	|	|	|
1+50	0.0719	0.54	V Q	|	|	|	|
1+55	0.0761	0.62	V Q	|	|	|	|
2+ 0	0.0806	0.65	V Q	|	|	|	|
2+ 5	0.0852	0.66	V Q	|	|	|	|
2+10	0.0898	0.67	|VQ	|	|	|	|
2+15	0.0945	0.68	|VQ	|	|	|	|
2+20	0.0992	0.68	|VQ	|	|	|	|
2+25	0.1039	0.68	|VQ	|	|	|	|
2+30	0.1086	0.69	|VQ	|	|	|	|
2+35	0.1135	0.71	|VQ	|	|	|	|
2+40	0.1190	0.79	|V Q	|	|	|	|
2+45	0.1246	0.82	|V Q	|	|	|	|
2+50	0.1304	0.84	|V Q	|	|	|	|
2+55	0.1362	0.84	|V Q	|	|	|	|
3+ 0	0.1421	0.85	|V Q	|	|	|	|
3+ 5	0.1479	0.85	|V Q	|	|	|	|
3+10	0.1538	0.86	|V Q	|	|	|	|
3+15	0.1598	0.86	|V Q	|	|	|	|
3+20	0.1657	0.86	|V Q	|	|	|	|
3+25	0.1716	0.86	|V Q	|	|	|	|
3+30	0.1775	0.86	|V Q	|	|	|	|
3+35	0.1834	0.86	| VQ	|	|	|	|
3+40	0.1894	0.86	| VQ	|	|	|	|
3+45	0.1953	0.86	| VQ	|	|	|	|
3+50	0.2014	0.88	| VQ	|	|	|	|
3+55	0.2080	0.96	| VQ	|	|	|	|
4+ 0	0.2148	0.99	| VQ	|	|	|	|
4+ 5	0.2218	1.01	| V Q	|	|	|	|
4+10	0.2288	1.02	| V Q	|	|	|	|
4+15	0.2358	1.02	| V Q	|	|	|	|
4+20	0.2431	1.05	| V Q	|	|	|	|
4+25	0.2508	1.13	| V Q	|	|	|	|
4+30	0.2589	1.16	| V Q	|	|	|	|
4+35	0.2670	1.18	| VQ	|	|	|	|
4+40	0.2752	1.19	| VQ	|	|	|	|
4+45	0.2834	1.19	| VQ	|	|	|	|
4+50	0.2918	1.22	| VQ	|	|	|	|
4+55	0.3008	1.30	| V Q	|	|	|	|
5+ 0	0.3100	1.34	| V Q	|	|	|	|
5+ 5	0.3190	1.30	| V Q	|	|	|	|

5+10	0.3269	1.16	VQ				
5+15	0.3345	1.10	VQ				
5+20	0.3420	1.10	VQ				
5+25	0.3500	1.16	VQ				
5+30	0.3582	1.18	Q				
5+35	0.3665	1.22	Q				
5+40	0.3755	1.30	VQ				
5+45	0.3847	1.33	VQ				
5+50	0.3939	1.35	VQ				
5+55	0.4033	1.36	VQ				
6+ 0	0.4127	1.36	VQ				
6+ 5	0.4223	1.39	VQ				
6+10	0.4324	1.47	VQ				
6+15	0.4428	1.51	V Q				
6+20	0.4533	1.52	VQ				
6+25	0.4639	1.53	VQ				
6+30	0.4745	1.54	VQ				
6+35	0.4852	1.57	VQ				
6+40	0.4966	1.65	VQ				
6+45	0.5081	1.68	VQ				
6+50	0.5198	1.70	VQ				
6+55	0.5316	1.70	VQ				
7+ 0	0.5433	1.71	Q				
7+ 5	0.5551	1.71	Q				
7+10	0.5670	1.72	Q				
7+15	0.5788	1.72	Q				
7+20	0.5908	1.74	Q				
7+25	0.6033	1.82	VQ				
7+30	0.6161	1.85	VQ				
7+35	0.6291	1.89	Q				
7+40	0.6428	1.98	Q				
7+45	0.6567	2.02	VQ				
7+50	0.6708	2.06	VQ				
7+55	0.6856	2.15	VQ				
8+ 0	0.7007	2.19	VQ				
8+ 5	0.7162	2.25	VQ				
8+10	0.7329	2.42	VQ				
8+15	0.7501	2.49	VQ				
8+20	0.7675	2.53	V Q				
8+25	0.7850	2.55	V Q				
8+30	0.8026	2.56	VQ				
8+35	0.8205	2.59	VQ				
8+40	0.8389	2.67	VQ				
8+45	0.8576	2.71	VQ				
8+50	0.8765	2.75	VQ				
8+55	0.8960	2.84	VQ				
9+ 0	0.9159	2.88	VQ				
9+ 5	0.9361	2.94	VQ				
9+10	0.9575	3.11	V Q				
9+15	0.9794	3.18	VQ				
9+20	1.0018	3.24	VQ				
9+25	1.0247	3.34	V Q				
9+30	1.0480	3.38	V Q				
9+35	1.0716	3.43	VQ				
9+40	1.0959	3.52	V Q				
9+45	1.1204	3.56	V Q				
9+50	1.1452	3.61	V Q				
9+55	1.1707	3.69	VQ				
10+ 0	1.1964	3.73	VQ				
10+ 5	1.2210	3.58	VQ				

10+10	1.2420	3.05	|	| QV |	|	|
10+15	1.2615	2.82	|	|Q V |	|	|
10+20	1.2803	2.73	|	|Q V |	|	|
10+25	1.2988	2.68	|	|Q V |	|	|
10+30	1.3170	2.64	|	|Q V |	|	|
10+35	1.3358	2.74	|	|Q V |	|	|
10+40	1.3573	3.11	|	| Q V |	|	|
10+45	1.3798	3.27	|	| Q V |	|	|
10+50	1.4027	3.32	|	| Q V |	|	|
10+55	1.4258	3.36	|	| Q V |	|	|
11+ 0	1.4492	3.39	|	| Q V |	|	|
11+ 5	1.4725	3.38	|	| Q V |	|	|
11+10	1.4954	3.32	|	| Q V |	|	|
11+15	1.5180	3.29	|	| Q V |	|	|
11+20	1.5407	3.29	|	| Q V |	|	|
11+25	1.5633	3.28	|	| Q V |	|	|
11+30	1.5859	3.28	|	| Q V |	|	|
11+35	1.6081	3.22	|	| Q V |	|	|
11+40	1.6292	3.06	|	| Q V |	|	|
11+45	1.6498	3.00	|	|Q V |	|	|
11+50	1.6704	2.99	|	|Q V |	|	|
11+55	1.6914	3.05	|	| Q V|	|	|
12+ 0	1.7126	3.08	|	| Q V|	|	|
12+ 5	1.7350	3.25	|	| Q V|	|	|
12+10	1.7612	3.80	|	| Q V|	|	|
12+15	1.7890	4.03	|	| Q V	|	|
12+20	1.8176	4.16	|	| Q V	|	|
12+25	1.8472	4.29	|	| Q V	|	|
12+30	1.8773	4.36	|	| Q |V	|	|
12+35	1.9079	4.45	|	| Q |V	|	|
12+40	1.9399	4.64	|	| Q |V	|	|
12+45	1.9724	4.72	|	| Q | V	|	|
12+50	2.0053	4.79	|	| Q| V	|	|
12+55	2.0390	4.88	|	| Q| V	|	|
13+ 0	2.0729	4.93	|	| Q| V	|	|
13+ 5	2.1078	5.07	|	| Q V	|	|
13+10	2.1456	5.48	|	| |Q V	|	|
13+15	2.1845	5.65	|	| | Q V	|	|
13+20	2.2239	5.72	|	| | Q V	|	|
13+25	2.2636	5.77	|	| | Q V	|	|
13+30	2.3035	5.80	|	| | Q V	|	|
13+35	2.3417	5.55	|	| | Q V	|	|
13+40	2.3741	4.70	|	| Q | V	|	|
13+45	2.4041	4.35	|	| Q | V	|	|
13+50	2.4330	4.21	|	| Q | V	|	|
13+55	2.4614	4.11	|	| Q | V	|	|
14+ 0	2.4893	4.06	|	| Q | V	|	|
14+ 5	2.5177	4.11	|	| Q | V	|	|
14+10	2.5480	4.40	|	| Q | V	|	|
14+15	2.5790	4.51	|	| Q | V|	|	|
14+20	2.6102	4.53	|	| Q | V|	|	|
14+25	2.6411	4.48	|	| Q | V|	|	|
14+30	2.6718	4.47	|	| Q | V	|	|
14+35	2.7026	4.47	|	| Q | V	|	|
14+40	2.7334	4.47	|	| Q | V	|	|
14+45	2.7642	4.47	|	| Q | |V	|	|
14+50	2.7949	4.45	|	| Q | |V	|	|
14+55	2.8250	4.37	|	| Q | |V	|	|
15+ 0	2.8548	4.34	|	| Q | | V	|	|
15+ 5	2.8844	4.30	|	| Q | | V	|	|

15+10	2.9134	4.21	|	Q |	V |
15+15	2.9422	4.17	|	Q |	V |
15+20	2.9706	4.13	|	Q |	V |
15+25	2.9984	4.04	|	Q |	V |
15+30	3.0260	4.00	|	Q |	V |
15+35	3.0527	3.89	|	Q |	V |
15+40	3.0773	3.56	|	Q |	V |
15+45	3.1009	3.42	| Q |	V |
15+50	3.1240	3.36	| Q |	V |
15+55	3.1470	3.33	| Q |	V |
16+ 0	3.1697	3.31	| Q |	V |
16+ 5	3.1899	2.92	|Q |	V |
16+10	3.2019	1.74	Q |	V |
16+15	3.2104	1.25	Q |	V |
16+20	3.2176	1.03	Q |	V |
16+25	3.2238	0.91	Q |	V |
16+30	3.2295	0.83	Q |	V |
16+35	3.2347	0.75	Q |	V |
16+40	3.2390	0.63	Q |	V |
16+45	3.2430	0.58	Q |	V |
16+50	3.2467	0.54	Q |	V |
16+55	3.2504	0.53	Q |	V |
17+ 0	3.2540	0.53	Q |	V |
17+ 5	3.2579	0.57	Q |	V |
17+10	3.2629	0.72	Q |	V |
17+15	3.2683	0.79	Q |	V |
17+20	3.2739	0.81	Q |	V |
17+25	3.2797	0.83	Q |	V |
17+30	3.2854	0.84	Q |	V |
17+35	3.2913	0.85	Q |	V |
17+40	3.2972	0.85	Q |	V |
17+45	3.3031	0.86	Q |	V |
17+50	3.3088	0.84	Q |	V |
17+55	3.3140	0.76	Q |	V |
18+ 0	3.3190	0.72	Q |	V |
18+ 5	3.3239	0.71	Q |	V |
18+10	3.3287	0.70	Q |	V |
18+15	3.3335	0.70	Q |	V |
18+20	3.3383	0.69	Q |	V |
18+25	3.3431	0.69	Q |	V |
18+30	3.3478	0.69	Q |	V |
18+35	3.3524	0.66	Q |	V |
18+40	3.3564	0.59	Q |	V |
18+45	3.3602	0.55	Q |	V |
18+50	3.3638	0.51	Q |	V |
18+55	3.3667	0.43	|Q |	V |
19+ 0	3.3694	0.39	|Q |	V |
19+ 5	3.3721	0.40	|Q |	V |
19+10	3.3753	0.46	|Q |	V |
19+15	3.3787	0.49	|Q |	V |
19+20	3.3823	0.52	Q |	V |
19+25	3.3865	0.61	Q |	V |
19+30	3.3909	0.64	Q |	V |
19+35	3.3953	0.63	Q |	V |
19+40	3.3992	0.57	Q |	V |
19+45	3.4029	0.54	Q |	V |
19+50	3.4064	0.51	Q |	V |
19+55	3.4094	0.42	|Q |	V |
20+ 0	3.4120	0.39	|Q |	V |
20+ 5	3.4148	0.40	|Q |	V |

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  20+10       3.4180      0.46  |Q        |         |         |       V |
  20+15       3.4213      0.49  |Q        |         |         |       V |
  20+20       3.4248      0.50  |Q        |         |         |       V |
  20+25       3.4282      0.50  | Q       |         |         |       V |
  20+30       3.4317      0.51  | Q       |         |         |       V |
  20+35       3.4352      0.51  | Q       |         |         |       V |
  20+40       3.4388      0.51  | Q       |         |         |       V |
  20+45       3.4423      0.51  | Q       |         |         |       V |
  20+50       3.4457      0.49  |Q        |         |         |       V |
  20+55       3.4485      0.41  |Q        |         |         |       V |
  21+ 0       3.4512      0.38  |Q        |         |         |       V |
  21+ 5       3.4539      0.39  |Q        |         |         |       V |
  21+10       3.4570      0.46  |Q        |         |         |       V |
  21+15       3.4604      0.49  |Q        |         |         |       V |
  21+20       3.4637      0.47  |Q        |         |         |        V|
  21+25       3.4664      0.40  |Q        |         |         |        V|
  21+30       3.4690      0.37  |Q        |         |         |        V|
  21+35       3.4717      0.39  |Q        |         |         |        V|
  21+40       3.4748      0.46  |Q        |         |         |        V|
  21+45       3.4782      0.49  |Q        |         |         |        V|
  21+50       3.4814      0.47  |Q        |         |         |        V|
  21+55       3.4842      0.40  |Q        |         |         |        V|
  22+ 0       3.4868      0.37  |Q        |         |         |        V|
  22+ 5       3.4894      0.39  |Q        |         |         |        V|
  22+10       3.4926      0.46  |Q        |         |         |        V|
  22+15       3.4959      0.49  |Q        |         |         |        V|
  22+20       3.4992      0.47  |Q        |         |         |        V|
  22+25       3.5020      0.40  |Q        |         |         |        V|
  22+30       3.5045      0.37  |Q        |         |         |        V|
  22+35       3.5070      0.36  |Q        |         |         |        V|
  22+40       3.5094      0.36  |Q        |         |         |        V|
  22+45       3.5119      0.35  |Q        |         |         |        V|
  22+50       3.5143      0.35  |Q        |         |         |        V|
  22+55       3.5167      0.35  |Q        |         |         |        V|
  23+ 0       3.5190      0.35  |Q        |         |         |        V|
  23+ 5       3.5214      0.34  |Q        |         |         |        V|
  23+10       3.5238      0.34  |Q        |         |         |        V|
  23+15       3.5262      0.34  |Q        |         |         |        V|
  23+20       3.5285      0.34  |Q        |         |         |        V|
  23+25       3.5309      0.34  |Q        |         |         |        V|
  23+30       3.5333      0.34  |Q        |         |         |        V|
  23+35       3.5356      0.34  |Q        |         |         |        V|
  23+40       3.5380      0.34  |Q        |         |         |        V|
  23+45       3.5404      0.34  |Q        |         |         |        V|
  23+50       3.5427      0.34  |Q        |         |         |        V|
  23+55       3.5451      0.34  |Q        |         |         |        V|
  24+ 0       3.5475      0.34  |Q        |         |         |        V|
  24+ 5       3.5495      0.30  |Q        |         |         |        V|
  24+10       3.5505      0.14  Q         |         |         |        V|
  24+15       3.5510      0.07  Q         |         |         |        V|
  24+20       3.5513      0.05  Q         |         |         |        V|
  24+25       3.5515      0.03  Q         |         |         |        V|
  24+30       3.5516      0.02  Q         |         |         |        V|
  24+35       3.5517      0.01  Q         |         |         |        V|
  24+40       3.5517      0.01  Q         |         |         |        V|
  24+45       3.5518      0.00  Q         |         |         |        V|
-------------------------------------------------------------------------
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APPENDIX 5

DETENTION BASIN SIZING CALCULATION

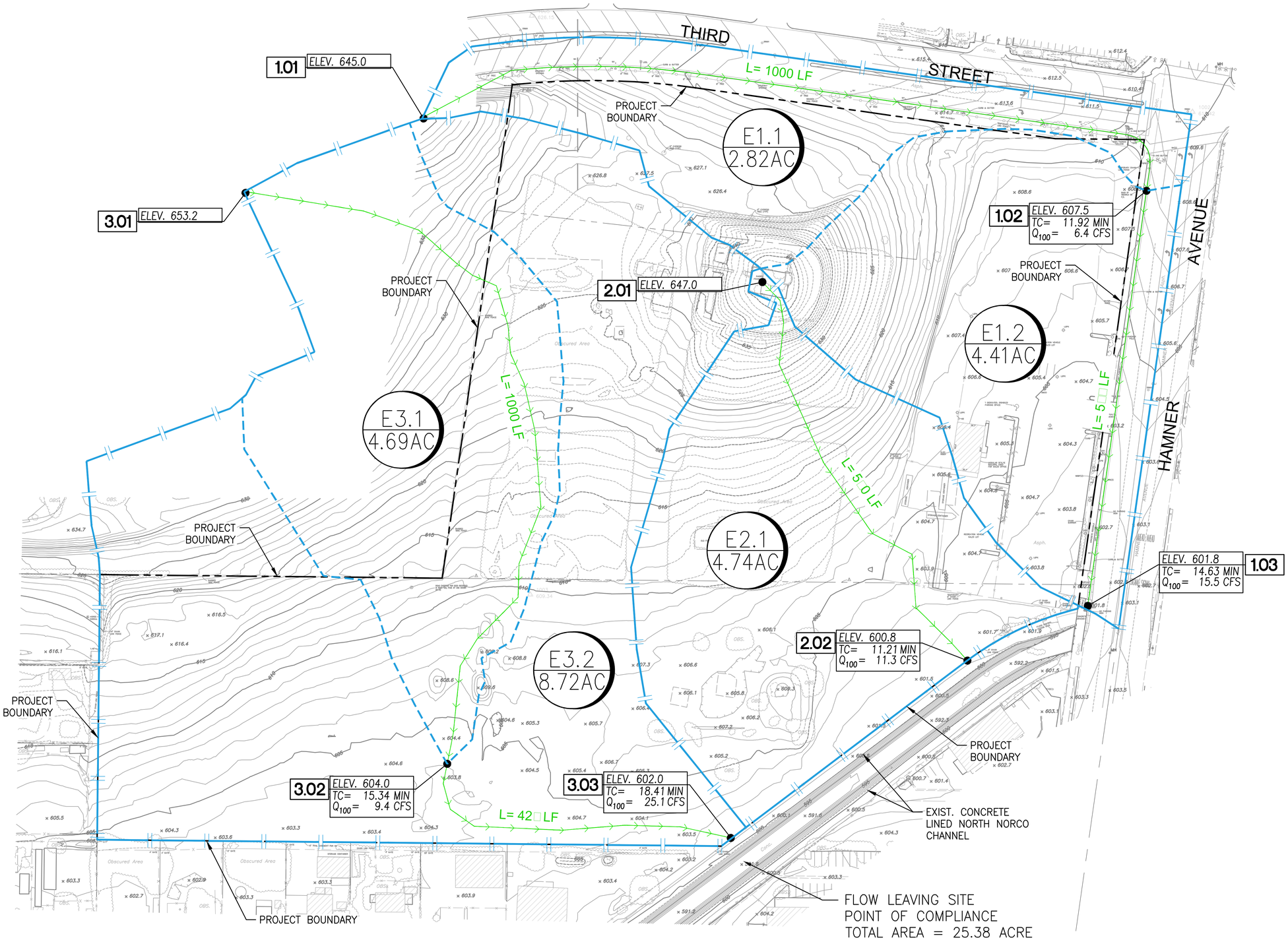
Comparison of Flood Volume for different Rain Event and Pre. Vs. Post. Delta Volume

Year/ Event	Pre/ Post	V total @ 1 Hr	V total @ 3 Hr	V total @ 6 Hr	V total @ 24 Hr
		cubic-ft	cubic-ft	cubic-ft	cubic-ft
2	Pre	17,618	21,787	27,360	44,275
	Post	36,110	61,971	86,773	154,714
Delta Volume=		**18,492**	**40,184**	**59,413**	**110,439**
5	Pre	37,490	47,859	58,036	71,645
	Post	52,667	88,363	122,132	219,943
Delta Volume=		**15,177**	**40,504**	**64,096**	**148,298**
10	Pre	51,059	65,027	78,842	104,923
	Post	65,354	107,732	148,806	269,716
Delta Volume=		**14,295**	**42,705**	**69,964**	**164,793**

Prorated Runoff Volume and Proposed Detention Volume for each site					
Site ID	Developed Site	Commercial Site	Hotel Site	Apartment Site	
				Site 1	Site 2
Tributary area (acre)	17.8	4.7	2.3	4.6	6.2
Site Imperviousness	0.839	0.9	0.9	0.8	0.8
Delta Volume (Cubic-ft)	164,793	46,658	22,833	40,592	54,710
Proposed Detention Storage (Cubic-ft)	165,953	46,911	23,218	40,778	55,046

APPENDIX 6

HYDROLOGY MAP
PRE-DEVELOPEMENT



LEGEND

- DRAINAGE AREA BOUNDARY
- SUB-DRAINAGE AREA BOUNDARY
- AREA ID / SUB-AREA ID / EX.X / X AC / SUB-AREA (ACRES) — AREA NODE
- RUNOFF CONVEYANCE LINE
- L=XXX' — RUNOFF CONVEYANCE LENGTH
- ELEV. XXX.XX / TC= XX.XX MIN / Q100=XX.XX CFS / XXX — SURFACE FLOW NODE

60' 0' 20' 40' 60' 120'

SCALE: 1" = 60'

NORCO VALLEY SQUARE

HYDROLOGY EXHIBIT
PRE□DEVELOPMENT

FUSCOE ENGINEERING
2850 Inland Empire Blvd., Suite B
Ontario, California 91764
tel 909.581.0676 ◦ fax 909.581.0696
www.fuscoe.com

JOB NO. 1655-003
DRAWN BY: MAS
SHEET 1 of 1

G:\PROJECTS\1655\003_SUPPORT FILES\REPORTS\HYDROLOGY\EXHIBIT\1655-003-01-HYD.DWG (04-22-2020 7:52:47PM) Plotted by: Mayesdelin Snipe

APPENDIX 7

HYDROLOGY MAP
POST-DEVELOPEMENT

P3.1
0.97AC

P1.1
1.54AC

THIRD

THIRD ST.

STREET

1.01 ELEV. 645.0

L= 1000 LF

ELEV. 607.5
TC= 11.31 MIN
Q_{100}= 3.7 CFS
1.02

3.01 ELEV. 629.8

L= 375 LF

2.05 ELEV. 653.2

3.02 ELEV. 626.8
TC= 9.08 MIN
Q_{100}= 2.6 CFS

P2.1
2.59AC

2.02 ELEV. 615.0

P2.2
1.10AC

2.01 ELEV. 621.6

P2.4
2.50AC

ELEV. 627.3 3.03

L= 687 LF

L= 637 LF

AVENUE

P3.2
1.40AC

ELEV. 613.3
ELEV. 609.0(INV)
TC= 9.89 MIN
Q_{100}= 12.3 CFS
INV. 600.0(OUT)
2.03

L= 582 LF

L= 533 LF

HAMNER

2.04 ELEV. 640.5

L= 682 LF

P2.3
1.87AC

P3.3
2.22AC

PARK

L= 710 LF

L= 456 LF

3.04 ELEV. 610.5
TC= 8.84 MIN
Q_{100}= 9.9 CFS

18" SD. LINE

2.06 ELEV. 607.5
TC= 12.68 MIN
Q_{100}= 9.6 CFS
INV. 599.1(OUT)

L= 782 LF

ELEV. 612.0 2.08

P1.2
1.59AC

3.07 ELEV. 613.0

L= 480 LF

18" SD. LINE

L= 363 LF

P2.5
2.34AC

ELEV. 611.5 3.09

HOTEL
120 keys
(4 Levels)

2.07 ELEV. 595.5(INV)
TC= 10.99 MIN
Q_{100}= 20.1 CFS

P3.4
2.03AC

P3.7
0.47AC

L= 300 LF

ELEV. 610.5 3.05

L= 676 LF

L= 161 LF

L= 257 LF

L= 224 LF

ELEV. 601.8
TC= 14.53 MIN
Q_{100}= 7.0 CFS
1.03

30" SD. LINE

ELEV. 606.6
ELEV. 594.2(INV)
TC= 11.44 MIN
Q_{100}= 25.7 CFS
INV. 593.2(OUT)
2.09

P3.5
0.55AC

3.06 ELEV. 607.0
TC= 9.33 MIN
Q_{100}= 14.9 CFS
INV. 600.5(OUT)

P3.6
2.66AC

18" SD. LINE

L= 42 LF

L= 139 LF

36" SD. LINE

L= 719 LF

L= 50 LF

ELEV. 592.8(INV)
TC= 11.52 MIN
Q_{100}= 25.7 CFS
2.10

P3.8
0.56AC

3.11 ELEV. 600.0(INV)
TC= 9.63 MIN
Q_{100}= 21.5 CFS
INV. 593.2(OUT)

L= 60 LF

24" SD. LINE

ELEV. 608.5
ELEV. 602.8(INV)
TC= 7.24 MIN
Q_{100}= 1.4 CFS
3.10

3.08 ELEV. 606.7
TC= 6.85 MIN
Q_{100}= 1.7 CFS
INV. 604.2(OUT)

ELEV. 592.6(INV)
TC= 9.75 MIN
Q_{100}= 21.5 CFS
3.12

FLOW LEAVING SITE
POINT OF COMPLIANCE
TOTAL AREA = 25.38 ACRE
TC= 11.52 MIN., Q_{100}=51.1 CFS

LEGEND

DRAINAG AREA BOUNDARY

SUB-DRAINAGE AREA BOUNDARY

AREA ID
SUB-AREA ID
PX.X
X AC
SUB-AREA (ACRES)

AREA NODE

RUNOFF CONVEYANCE LINE

L=XXX LF

RUNOFF CONVEYANCE LENGTH

ELEV. XXX.XX
TC= XX.XX MIN
Q_{100}=XX.XX CFS
XXX

SURFACE FLOW NODE

N

60' 0' 20' 40' 60' 120'
SCALE: 1" = 60'

NORCO VALLEY SQUARE

HYDROLOGY EXHIBIT
POST-DEVELOPMENT

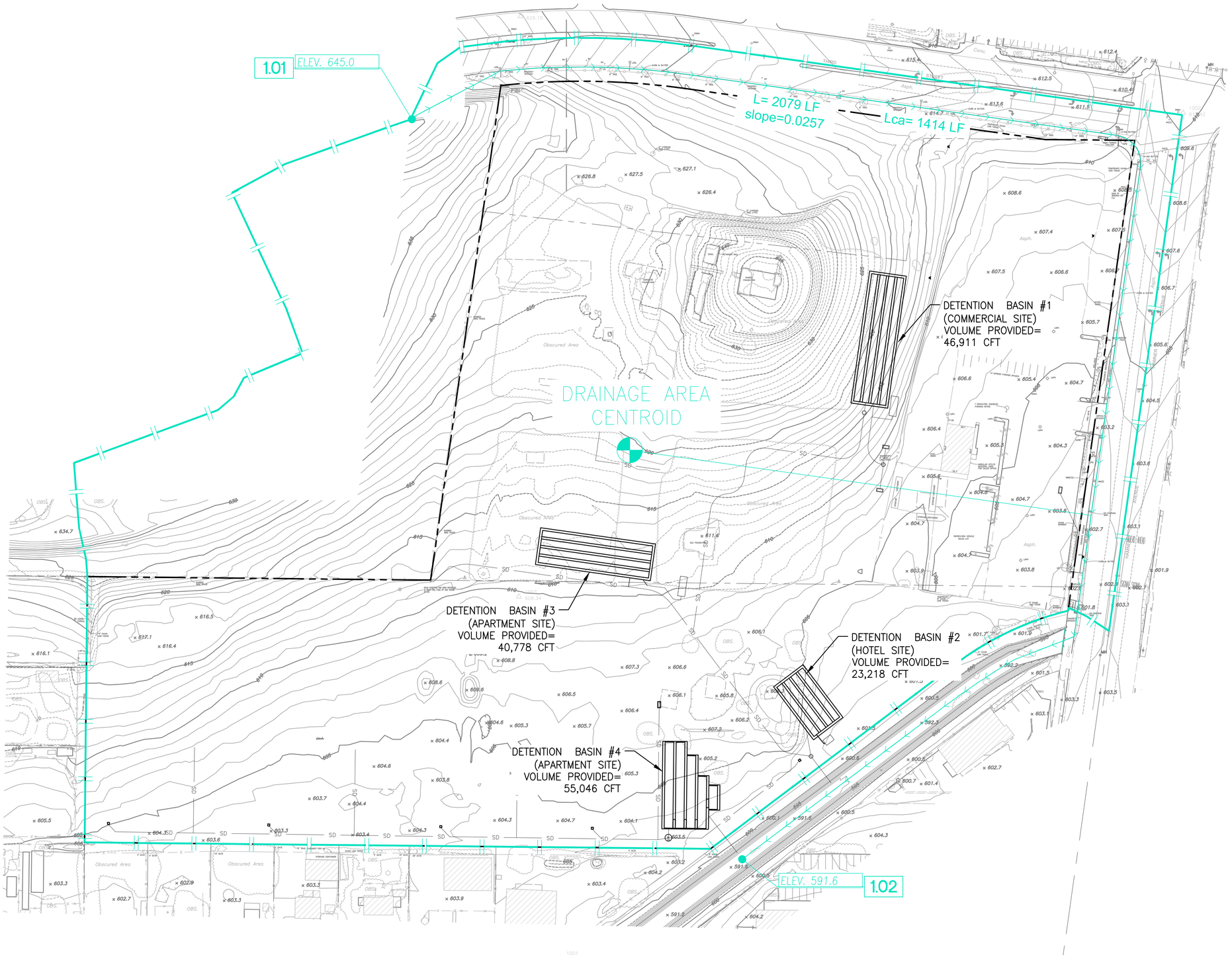
FUSCOE ENGINEERING
2850 Inland Empire Blvd., Suite B
Ontario, California 91764
tel 909.581.0676 ◦ fax 909.581.0696
www.fuscoe.com

JOB NO. 1655-003
DRAWN BY: MAS
SHEET 1 of 1

F:\PROJECTS\1655\003_LSI\PROP_TXDD\REPORTS\HYDROLOGY\EXHIBITS\1655-003-01-HYD.DWG (04-22-2020 10:28:19PM) Plotted by Luis Figueroa

APPENDIX 8

UNIT HYDROGRAPH AND DETENTION BASIN EXHIBIT



LEGEND

- DRAINAGE AREA BOUNDARY
- LONGEST WATERCOURSE LINE
- 1.01 ELEV. 645.0 — SURFACE FLOW ELEVATION

60' 0' 20' 40' 60' 120'
SCALE: 1" = 60'

NORCO VALLEY SQUARE

EXHIBIT
PRE AND POST DEVELOPMENT
SYNTHETIC UNIT HYDROGRAPH
AND PROPOSED UNDERGROUND
DETENTION BASINS

FUSCOE ENGINEERING
2850 Inland Empire Blvd., Suite B
Ontario, California 91764
tel 909.581.0676 ◦ fax 909.581.0696
www.fuscoe.com

JOB NO. 1655-003
DRAWN BY: MAS
SHEET 1 of 1

C:\PROJECTS\1655-003_SUPPORT FILES\EXPERTS\HYDROLOGY\EXHIBIT\1655-003-01-HYD.DWG [04-23-2020 7:30:29PM] Plotted by: Mayesdelin Sotelo

CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14793
System Description:	Commercial Site
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	46,700 cf
Limiting Length:	180 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

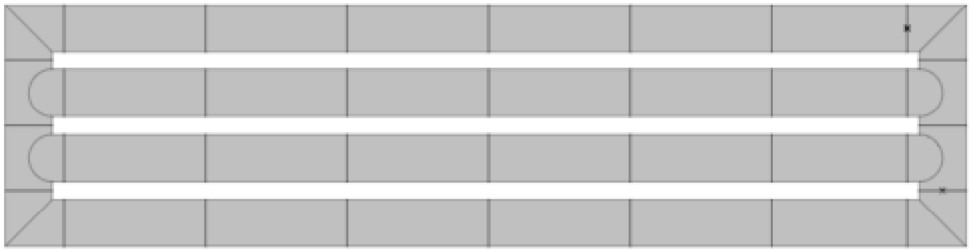
Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	163 x 41 ft
Length Per Barrel:	147 ft
Length Per Header:	41 ft
Pipe Storage:	33,677 cf
Structural Backfill Zone Storage:	13,233 cf
Total Storage Provided:	46,911 cf
Percent Of Required Storage:	100.45 %
Total CMP Footage:	670 ft
Approximate CMP Piece Count:	32
Approximate Coupling Bands:	34
Approximate Truckloads:	16
Total Excavation:	3,972 cy
Structural Backfill:	1,400 cy
Pavement Volume:	98 cy
Remaining Backfill To Pavement:	1,226 cy

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14794
System Description:	Hotel Site
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	78 x 41 ft
Length Per Barrel:	62 ft
Length Per Header:	41 ft
Pipe Storage:	16,587 cf
Structural Backfill Zone Storage:	6,630 cf
Total Storage Provided:	23,218 cf
Percent Of Required Storage:	100.95 %
Total CMP Footage:	330 ft
Approximate CMP Piece Count:	16
Approximate Coupling Bands:	18
Approximate Truckloads:	8
Total Excavation:	1,974 cy
Structural Backfill:	702 cy
Pavement Volume:	49 cy
Remaining Backfill To Pavement:	609 cy

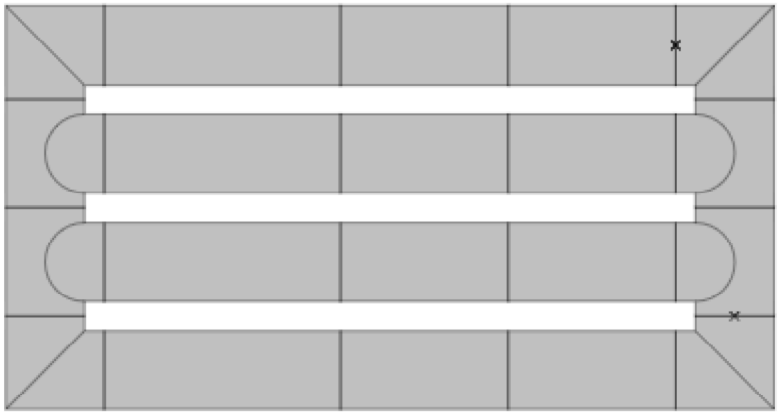
Design Parameters

Storage Volume:	23,000 cf
Limiting Length:	90 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14792
System Description:	Residential #1
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	40,600 cf
Limiting Length:	180 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

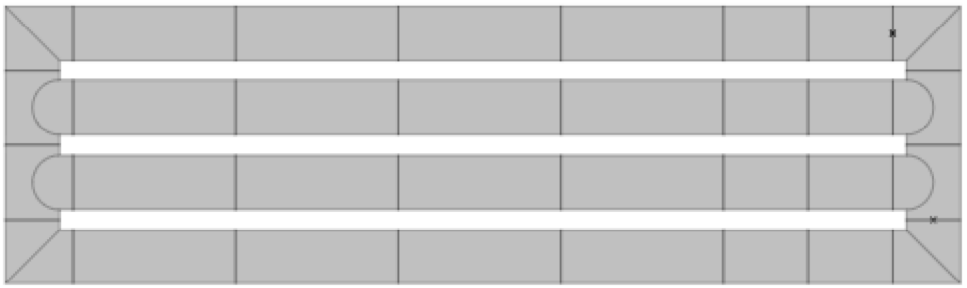
Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	141 x 41 ft
Length Per Barrel:	125 ft
Length Per Header:	41 ft
Pipe Storage:	29,254 cf
Structural Backfill Zone Storage:	11,524 cf
Total Storage Provided:	40,778 cf
Percent Of Required Storage:	100.44 %
Total CMP Footage:	582 ft
Approximate CMP Piece Count:	28
Approximate Coupling Bands:	30
Approximate Truckloads:	14
Total Excavation:	3,455 cy
Structural Backfill:	1,219 cy
Pavement Volume:	85 cy
Remaining Backfill To Pavement:	1,066 cy

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14786
System Description:	Residential #2
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/16/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	12 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	55,000 cf
Limiting Length:	200 ft
Limiting Width:	70 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

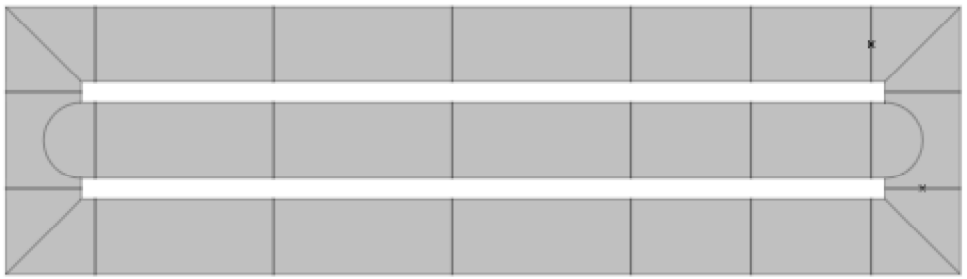
Pipe Detail

Material:	Steel
Shape:	Round
Size:	132 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	12
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	3
CMP Footprint (LxW):	139 x 39 ft
Length Per Barrel:	117 ft
Length Per Header:	39 ft
Pipe Storage:	40,769 cf
Structural Backfill Zone Storage:	14,277 cf
Total Storage Provided:	55,046 cf
Percent Of Required Storage:	100.09 %
Total CMP Footage:	429 ft
Approximate CMP Piece Count:	19
Approximate Coupling Bands:	20
Approximate Truckloads:	19
Total Excavation:	3,263 cy
Structural Backfill:	1,511 cy
Pavement Volume:	81 cy
Remaining Backfill To Pavement:	161 cy

Draftboard



APPENDIX 9

SUPPORTING DATA
NOAA PRECIPITATION DATA
NRCS HYDROLOGIC SOIL MAP

NOAA Atlas 14, Volume 6, Version 2
Location name: Norco, California, USA*
Latitude: 33.9153°, Longitude: -117.562°
Elevation: 622.48 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.099 (0.082-0.119)	0.133 (0.111-0.161)	0.180 (0.149-0.218)	0.218 (0.180-0.267)	0.272 (0.217-0.345)	0.315 (0.245-0.408)	0.359 (0.273-0.477)	0.406 (0.299-0.556)	0.471 (0.332-0.673)	0.522 (0.356-0.774)
10-min	0.141 (0.118-0.171)	0.191 (0.159-0.231)	0.257 (0.214-0.312)	0.313 (0.258-0.383)	0.390 (0.311-0.495)	0.451 (0.352-0.585)	0.515 (0.391-0.684)	0.582 (0.429-0.796)	0.675 (0.476-0.965)	0.748 (0.510-1.11)
15-min	0.171 (0.143-0.207)	0.231 (0.193-0.279)	0.311 (0.259-0.378)	0.378 (0.312-0.463)	0.472 (0.376-0.598)	0.546 (0.425-0.707)	0.622 (0.473-0.828)	0.703 (0.519-0.963)	0.816 (0.576-1.17)	0.905 (0.617-1.34)
30-min	0.251 (0.209-0.303)	0.338 (0.282-0.409)	0.456 (0.380-0.554)	0.554 (0.458-0.679)	0.692 (0.551-0.877)	0.800 (0.624-1.04)	0.913 (0.693-1.21)	1.03 (0.761-1.41)	1.20 (0.845-1.71)	1.33 (0.904-1.97)
60-min	0.369 (0.309-0.446)	0.498 (0.416-0.603)	0.672 (0.559-0.815)	0.817 (0.674-0.999)	1.02 (0.812-1.29)	1.18 (0.918-1.53)	1.34 (1.02-1.79)	1.52 (1.12-2.08)	1.76 (1.24-2.52)	1.95 (1.33-2.90)
2-hr	0.546 (0.457-0.660)	0.727 (0.607-0.879)	0.967 (0.805-1.17)	1.17 (0.963-1.43)	1.44 (1.15-1.83)	1.66 (1.29-2.15)	1.88 (1.43-2.50)	2.12 (1.56-2.90)	2.44 (1.72-3.49)	2.69 (1.83-3.99)
3-hr	0.676 (0.565-0.817)	0.898 (0.750-1.09)	1.19 (0.992-1.45)	1.44 (1.18-1.76)	1.77 (1.41-2.24)	2.03 (1.58-2.63)	2.30 (1.75-3.06)	2.58 (1.91-3.54)	2.97 (2.10-4.25)	3.27 (2.23-4.85)
6-hr	0.947 (0.792-1.14)	1.26 (1.06-1.53)	1.69 (1.40-2.04)	2.03 (1.68-2.48)	2.50 (2.00-3.17)	2.87 (2.24-3.72)	3.25 (2.47-4.32)	3.64 (2.69-4.99)	4.18 (2.95-5.98)	4.60 (3.13-6.82)
12-hr	1.22 (1.02-1.47)	1.67 (1.40-2.02)	2.27 (1.89-2.75)	2.76 (2.28-3.38)	3.43 (2.73-4.35)	3.95 (3.08-5.12)	4.48 (3.40-5.95)	5.03 (3.71-6.88)	5.77 (4.08-8.26)	6.36 (4.33-9.43)
24-hr	1.59 (1.40-1.83)	2.25 (1.99-2.60)	3.12 (2.75-3.61)	3.83 (3.35-4.47)	4.79 (4.06-5.78)	5.54 (4.59-6.81)	6.30 (5.10-7.94)	7.09 (5.58-9.17)	8.16 (6.17-11.0)	8.99 (6.58-12.5)
2-day	1.99 (1.76-2.29)	2.83 (2.50-3.27)	3.95 (3.48-4.57)	4.86 (4.25-5.67)	6.10 (5.16-7.35)	7.06 (5.86-8.69)	8.04 (6.51-10.1)	9.05 (7.14-11.7)	10.4 (7.90-14.1)	11.5 (8.43-16.1)
3-day	2.17 (1.92-2.51)	3.11 (2.74-3.59)	4.34 (3.82-5.02)	5.35 (4.68-6.24)	6.73 (5.69-8.11)	7.80 (6.47-9.59)	8.89 (7.20-11.2)	10.0 (7.90-13.0)	11.6 (8.76-15.6)	12.8 (9.36-17.8)
4-day	2.36 (2.09-2.73)	3.38 (2.99-3.91)	4.74 (4.17-5.48)	5.85 (5.11-6.82)	7.37 (6.24-8.88)	8.55 (7.09-10.5)	9.76 (7.90-12.3)	11.0 (8.68-14.3)	12.7 (9.64-17.2)	14.1 (10.3-19.6)
7-day	2.71 (2.40-3.13)	3.88 (3.43-4.48)	5.44 (4.79-6.29)	6.72 (5.87-7.84)	8.49 (7.19-10.2)	9.87 (8.19-12.1)	11.3 (9.15-14.2)	12.8 (10.1-16.5)	14.8 (11.2-20.0)	16.4 (12.0-22.9)
10-day	2.93 (2.59-3.37)	4.18 (3.69-4.83)	5.86 (5.17-6.79)	7.26 (6.35-8.47)	9.20 (7.79-11.1)	10.7 (8.89-13.2)	12.3 (9.96-15.5)	13.9 (11.0-18.1)	16.2 (12.3-21.9)	18.0 (13.2-25.2)
20-day	3.49 (3.09-4.03)	4.99 (4.41-5.76)	7.03 (6.19-8.14)	8.75 (7.65-10.2)	11.2 (9.46-13.5)	13.1 (10.9-16.1)	15.2 (12.3-19.1)	17.3 (13.6-22.4)	20.4 (15.4-27.4)	22.8 (16.7-31.8)
30-day	4.12 (3.65-4.76)	5.87 (5.18-6.77)	8.27 (7.29-9.58)	10.3 (9.03-12.1)	13.3 (11.2-16.0)	15.7 (13.0-19.3)	18.2 (14.7-22.9)	20.9 (16.5-27.0)	24.7 (18.7-33.3)	27.8 (20.4-38.8)
45-day	4.89 (4.33-5.64)	6.88 (6.08-7.95)	9.69 (8.54-11.2)	12.1 (10.6-14.1)	15.6 (13.2-18.9)	18.5 (15.4-22.8)	21.6 (17.5-27.3)	25.0 (19.7-32.4)	29.9 (22.6-40.3)	33.8 (24.8-47.2)
60-day	5.65 (5.00-6.52)	7.85 (6.94-9.07)	11.0 (9.68-12.7)	13.7 (12.0-16.0)	17.8 (15.0-21.4)	21.1 (17.5-26.0)	24.7 (20.0-31.1)	28.7 (22.6-37.1)	34.4 (26.1-46.4)	39.2 (28.7-54.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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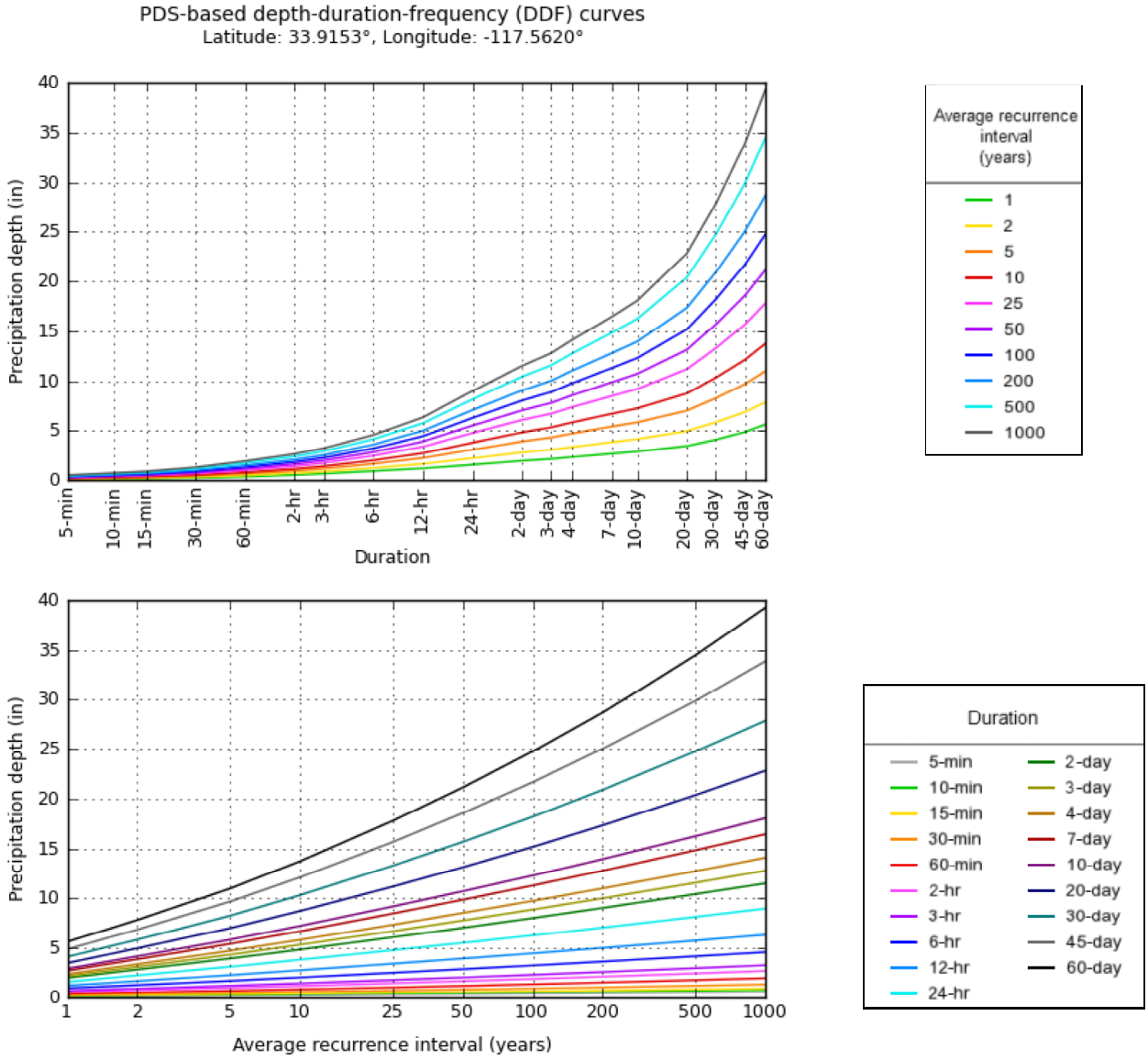
PF graphical



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Fri Apr 10 18:39:27 2020

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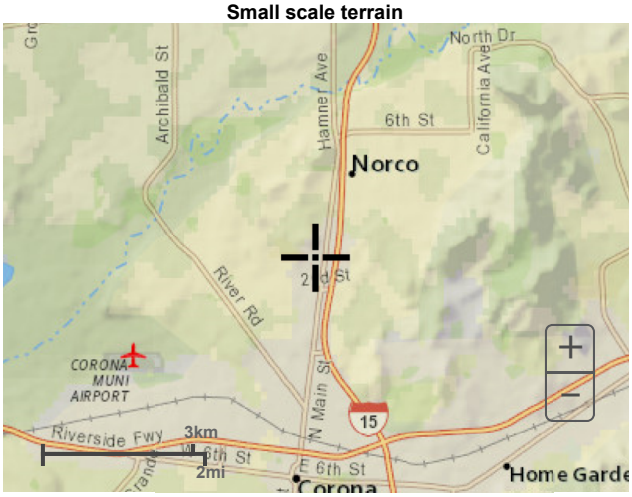
Maps & aerials

Small scale terrain



Large scale terrain

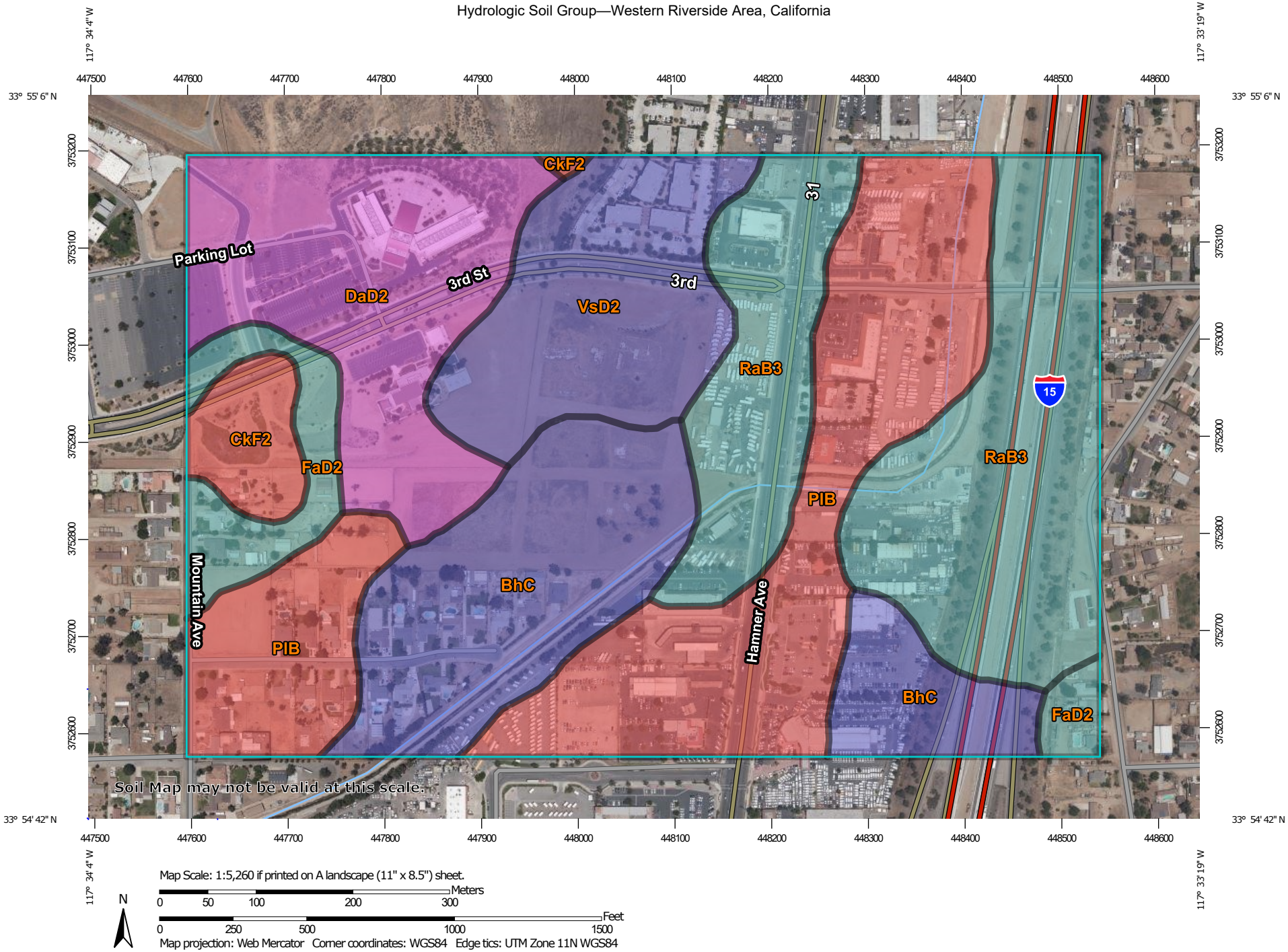
Large scale map

Large scale aerial

Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer


117° 34' 4" W
117° 33' 19" W
33° 55' 6" N
33° 54' 42" N
447500
447600
447700
447800
447900
448000
448100
448200
448300
448400
448500
448600
3753200
3753100
3753000
3752900
3752800
3752700
3752600
CkF2
Parking Lot
3rd St
3rd
DaD2
VsD2
31
RaB3
15
CkF2
FaD2
RaB3
PIB
Mountain Ave
BhC
Hamner Ave
PIB
BhC
FaD2
Soil Map may not be valid at this scale.
Map Scale: 1:5,260 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 12, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 10, 2018—Jun 5, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BhC	Buchenau loam, slightly saline-alkali, 2 to 8 percent slopes	B	24.7	17.0%
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded	D	4.2	2.9%
DaD2	Delhi fine sand, 2 to 15 percent slopes, wind-eroded	A	21.8	15.0%
FaD2	Fallbrook sandy loam, 8 to 15 percent slopes, eroded	C	6.8	4.7%
PlB	Placentia fine sandy loam, 0 to 5 percent slopes	D	35.5	24.4%
RaB3	Ramona sandy loam, 0 to 5 percent slopes, severely eroded	C	35.5	24.5%
VsD2	Vista coarse sandy loam, 8 to 15 percent slopes, eroded	B	16.7	11.5%
Totals for Area of Interest			**145.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix J

Water Quality Management Plan

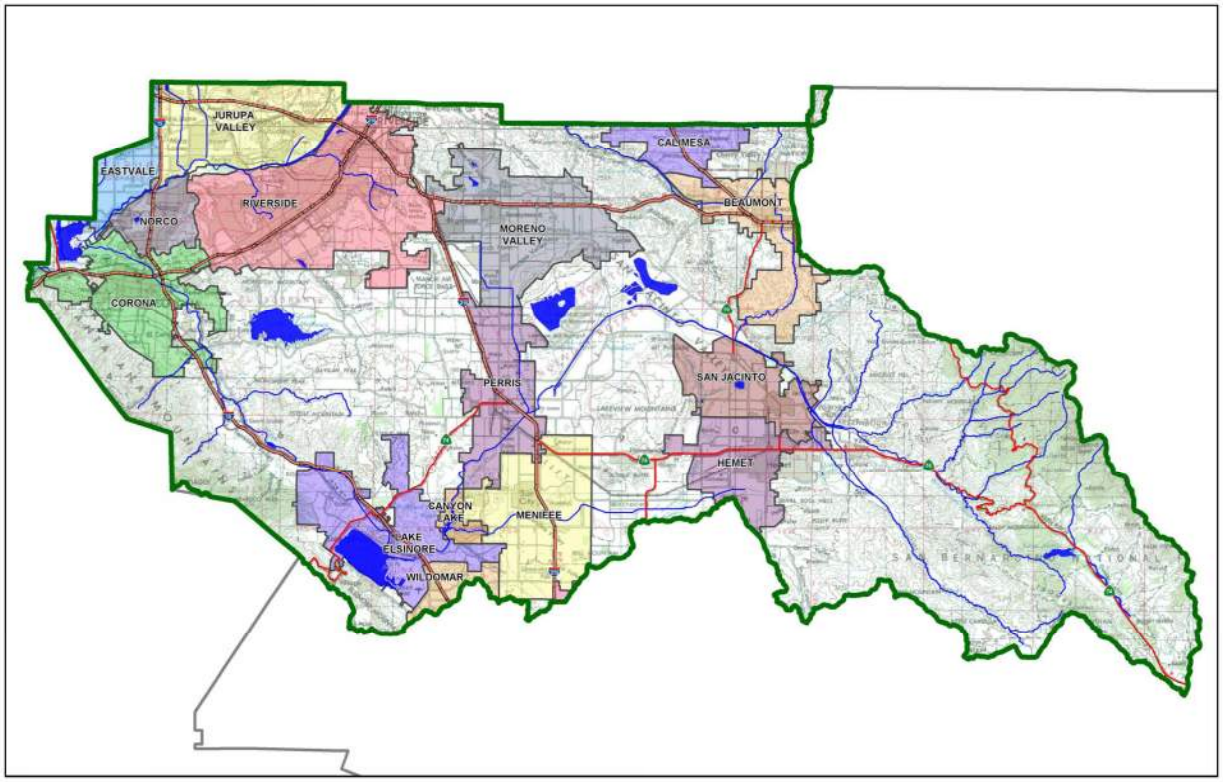
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: Norco Valley Square Mixed use Development

Development No: TBD

Design Review/Case No: TBD



☒ **Preliminary**
☐ **Final**

Original Date Prepared: April 22, 2020

Revision Date(s): Insert text here

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
Template revised June 30, 2016

Contact Information:

Prepared for: Frontier Communities, 215 East Convention Centerway, Suite 114, Ontario, CA 91764

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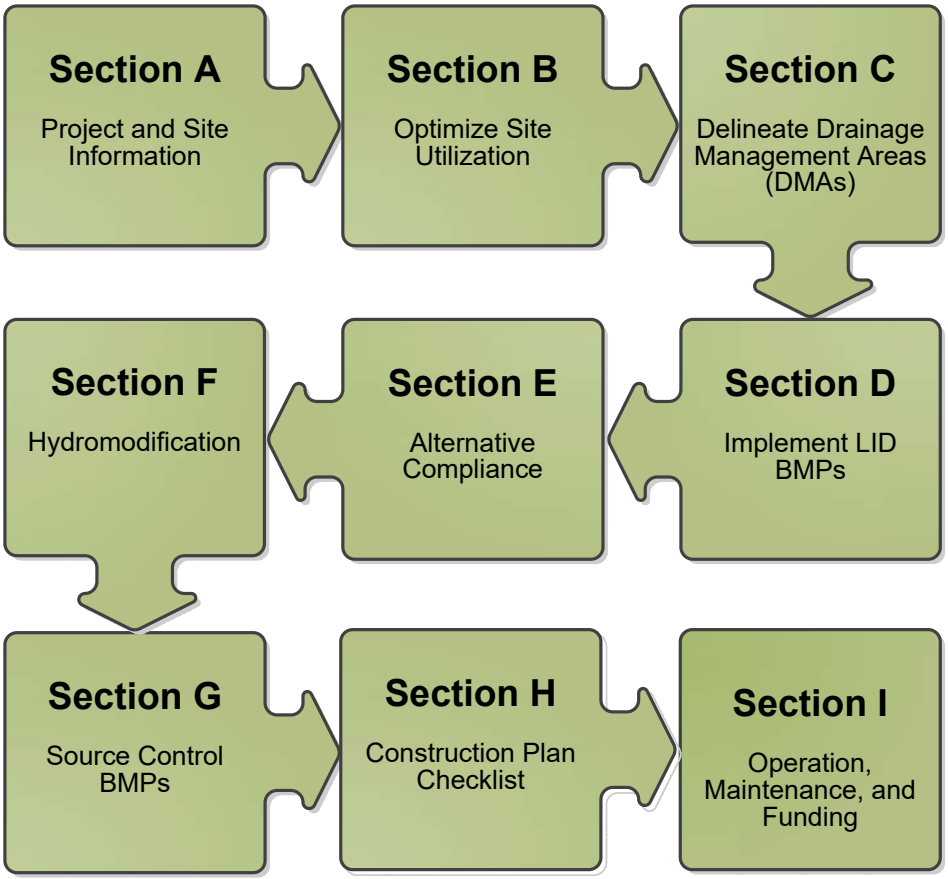
2850 Inland Empire Blvd., Building B
Ontario, CA 91764,
Ph: (909) 581.0676
Attn: Moyenuddin Sirajee

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Frontier Communities by Fuscoe Engineering, Inc. for the Norco Valley Square Mixed Use Development project.

This WQMP is intended to comply with the requirements of City of Norco for Code 15.70 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Norco Water Quality Ordinance (Municipal Code Section15.70).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	Date
Moyenuddin Sirajee Preparer's Printed Name	Senior Engineer Preparer's Title/Position

Preparer's Licensure: PE 63867, Exp. 09.30.2020

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Mixed use (Apartment, Retail and Hotel)
Planning Area:	Housing Development Overlay
Community Name:	Norco
Development Name:	Norco Valley Square
PROJECT LOCATION	
Latitude & Longitude (DMS): latitude 33.9153°, longitude -117.562°	
Project Watershed and Sub-Watershed: Watershed: Temescal Wash, Sub-Watershed: Oak Avenue Draw-Temescal Wash	
Gross Acres: 19.1 Acres	
APN(s): 126-050-002, 126-050-004 and 129-380-010	
Map Book and Page No.: Insert text here	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Apartment, Retail and Hotel
Proposed or Potential SIC Code(s)	1522, 5331, 5812, 7011
Area of Impervious Project Footprint (SF)	93,024
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	574,080
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	Insert text here.
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	A, B, C and D
What is the Water Quality Design Storm Depth for the project?	0.78 inch

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Santa Ana River Reach-3	**Pathogens**	**AGR, GWR, REC1, REC2, WILD, WARM, RARE**	**4 Miles**
Prado basin management zone	None	REC1, REC2, WARM, WILD, RARE	5 Miles
Santa Ana River, Reach 2	None	AGR, GWR, REC1, REC2, WILD, WARM, RARE	7 Miles
Santa Ana River, Reach 1	None	REC1, REC2, WILD, WARM	Not a water body classified as RARE
Tidal Prism of Santa Ana River (to within 1000' of Victoria Street) and Newport Slough	None	REC1, REC2, COMM, WILD, RARE, MAR	31 Miles
Pacific Ocean Nearshore Zone	None	IND, NAV, REC1, REC2, COMM, WILD, RARE, SPWN, MAR, SHEL	35 Miles
Pacific Ocean Offshore Zone	None	IND, NAV, REC1, REC2, COMM, WILD, RARE, SPWN, MAR	38 Miles

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Norco Conditional Use Permit City of Norco Design Review City of Norco Building Permit City of Norco: Grading and Encroachment Permit City of Norco Construction Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e. no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes, it will preserve the current drainage patterns. The entire site currently drains into County maintained North Norco Channel. The proposed drainage system, through onsite series of grate inlets and SD systems, will discharge into same County maintained North Norco Channel.

Did you identify and protect existing vegetation? If so, how? If not, why?

Most of the project area in current condition is undeveloped with few scattered trees. Due to the nature of the project, existing vegetation cannot be preserved. However Ornamental landscaping has been incorporated into the design to the maximum extent feasible.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Natural infiltration capacity will be preserved to the maximum extent possible. A site infiltration test reveals that most of the "Test Site" has unfavorable infiltration rate (e.g., less than 1.6 inches/hour). However, in one location the infiltration rate was found to be 2.1 inch/hour where an underground infiltration vault has been proposed to infiltrate portion of the project Design Capture Volume.

Did you identify and minimize impervious area? If so, how? If not, why?

Due to the nature of the project, there will be significant increase in impervious surface. Impervious surfaces were limited to the areas needed for the development and satisfy Agency Code. As an alternative Ornamental landscaping has been incorporated into the design to the maximum extent feasible.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Due to the nature of the development and site constraints, it is not feasible to direct runoff from impervious areas to adjacent pervious area.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
DMA-1			
DMA 1.1	Roofs	15,170	Type D
DMA 1.2	Asphalt and Concrete	108,934	Type D
DMA 1.3	Ornamental Landscape	79,143	Type D
DMA 1.4	DG	13,509	Type D
Total		216,756	
DMA-2			
DMA 2.1	Roofs	17,053	Type D
DMA 2.2	Asphalt and Concrete	55,000	Type D
DMA 2.3	Ornamental Landscape	34,460	Type D
DMA 2.4	DG	2,102	Type D
Total		108,615	
DMA-3			
DMA 3.1	Roofs	58,849	Type D
DMA 3.2	Asphalt and Concrete	110,083	Type D
DMA 3.3	Ornamental Landscape	35,550	Type D
DMA 3.4	DG	950	Type D
Total		205,432	
DMA-4			
DMA 4.1	Roofs	88,860	Type D
DMA 4.2	Asphalt and Concrete	108,522	Type D
DMA 4.3	Ornamental Landscape	70,739	Type D
DMA 4.4	DG	9,508	Type D
Total		277,629	
DMA-5			
DMA 5.1	Roofs	0	
DMA 5.2	Asphalt and Concrete	9,209	Type D
DMA 5.3	Ornamental Landscape	8,569	Type D
DMA 5.4	DG	1,168	Type D
Total		18,946	

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2]*If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA-6	2278	Ornamental Landscape with low water use species	Per City requirements

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					**Receiving Self-Retaining DMA**		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Impervious fraction [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA-1	LID-1 (Proprietary "Modular Wetland" by Bio-Clean)
DMA-2	LID-2 (Proprietary "Modular Wetland" by Bio-Clean)
DMA-3	LID-3 (Proprietary "Modular Wetland" by Bio-Clean)
DMA-4	LID-4 (Proprietary Infiltration Chamber by Contech)
DMA-5	LID-5 (Proprietary "Modular Wetland" by Bio-Clean)

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA-1, DMA-2, DMA-4, DMA-5		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?	X	
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: Insert Area (Acres)

Type of Landscaping (Conservation Design or Active Turf): List Landscaping Type

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: EIATIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: Insert Area (Acres)

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
Insert Area (Acres)	Insert Area (Acres)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: Number of daily Toilet Users

Project Type: Enter 'Residential', 'Commercial', 'Industrial' or 'Schools'

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: TUTIA Factor

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: Required number of toilet users

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	**Projected number of toilet users (Step 1)**
Insert Area (Acres)	Insert Area (Acres)

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

Insert narrative description here.

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: Enter Value

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: Minimum use required (gpd)

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
Minimum use required (gpd)	Projected Average Daily Use (gpd)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA-1	☐	☐	☒	☐	☐
DMA-2	☐	☐	☒	☐	☐
DMA-3	☐	☐	☒	☐	☐
DMA-4	☒	☐	☐	☐	☐
DMA-5	☐	☐	☒	☐	☐
	☐	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

For DMA-1, DMA-2, DMA-3 and DMA-5 proprietary Bioretention unit "Modular Wetland" will be installed. For DMA-4 underground infiltration chamber system will be installed. The location and sizing of these BMPs can be found in Appendix-1 and Appendix-6

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Areas x Runoff Factor**	***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]			
						Design Storm Depth (in)	*Design Capture Volume,* $\mathbf{V_{BMP}}$ *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{12}$	[G]

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

N/A

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☒ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☐	☐	☐	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	
Total Credit Percentage[1]	

[1]*Cannot Exceed 50%*
[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Area x Runoff Factor**		***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]

[1] *Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.*
[2] *Cross Reference Table E.1 above to populate this column.*
[3] *As documented in a Co-Permittee Approved Study and provided in Appendix 6.*

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	N/A	N/A	N/A
Volume (Cubic Feet)	N/A	N/A	N/A

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Based on the Riverside County GIS Mapping, North Norco Channel is not exempt for Hydromodification. Stormwater runoff from DMA 4 will be mitigated through Infiltration BMP 4. The post-development hydrograph for the project site will not exceed the pre-development hydrograph by 10% for the 2-year return frequency storm. This will be achieved through four (4) onsite detention/Retention basin and limiting the outflow from the site. All related calculations are attached in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

TABLE H-1 WILL BE POPULATED IN FINAL WQMP

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: The will be provided on Final WQMP.

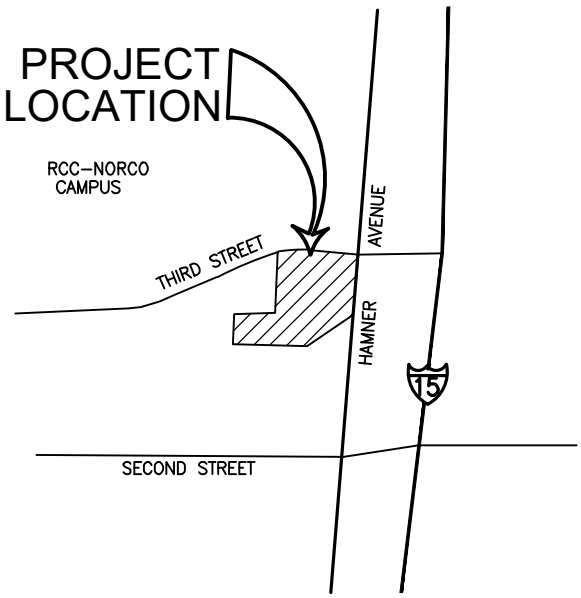
Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

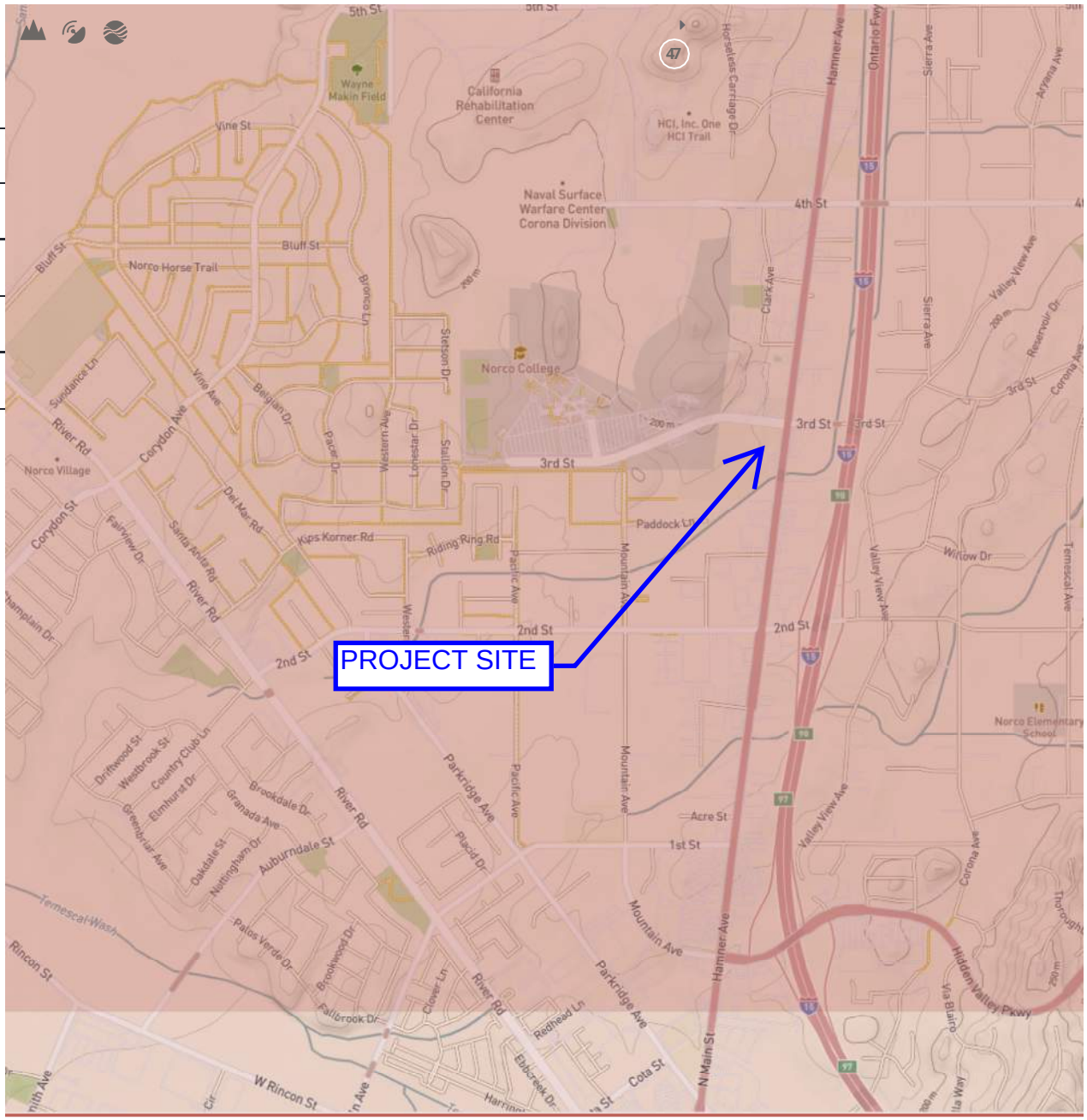
Location Map, WQMP Site Plan and Receiving Waters Map



VICINITY MAP

NOT TO SCALE

THOMAS GUIDE, PAGE– , GRID– 2006
SAN BERNARDINO & RIVERSIDE COUNTY EDITION


PROJECT SITE
5th St
Wayne Makin Field
California Rehabilitation Center
Vine St
HCI, Inc. One HCI Trail
Naval Surface Warfare Center Corona Division
4th St
Bluff St
Norco Horse Trail
Norco College
3rd St
Norco Village
Corydon Ave
River Rd
Kips Korner Rd
Riding Ring Rd
Paddock Ln
Willow Dr
2nd St
Norco Elementary School
Parkridge Ave
Pacific Ave
Mountain Ave
Acre St
1st St
Auburndale St
Brookdale Dr
Granada Ave
Temescal Wash
Rincon St
Palos Verde Dr
Brookwood Dr
Clover Ln
Pallbrook Dr
Redhead Ln
Cota St
N Main St
W Rincon St
Hamner Ave
Valley View Ave
Corona Ave
Hidden Valley Pkwy
Lat: 33° 54' 56" N Long: 117° 33' 40" W
DMS DD MGR UTM
Scale 1:18,056
Map Records: 47
Leaflet © Mapbox © OpenStreetMap | Improve

DMA SCHEDULE						
Site/Surface Type	**ROOF**	**AC**	**PCC**	**LANDSCAPE**	**DG**	**TOTAL**
Commercial (DMA-1)	15170	83342	25592	79143	13509	216756
Hotel (DMA-2)	17053	50377	4623	34460	2102	108615
Residential-1 (DMA-3)	58849	78377	31706	35550	950	205432
Residential-2 (DMA-4)	88860	73204	35318	70739	9508	277629
Easterly DWY (DMA-5)	0	8086	1123	8569	1168	18946
Selft treated (DMA-6)	0	0	0	2278	0	2278
Not treated	0	2081	319	152	0	2552
Total (sf)	**179932**	**295467**	**98681**	**230891**	**27237**	**832208**
Total (acre)	**4.1**	**6.8**	**2.3**	**5.3**	**0.6**	**19.1**

LID (MODULAR WETLAND) SCHEDULE				
DMA ID	**Q BMP (cfs)**	**LID ID**	**MODULAR WETLAND SIZE (L'xW')**	**Tretment Capacity**
DMA-1	**0.6**	**LID-1**	**9X25**	**0.693**
DMA-2	**0.3**	**LID-2**	**8X12**	**0.346**
DMA-3	**0.7**	**LID-3**	**9X25**	**0.693**
DMA-4	**N/A**	**N/A**	**N/A**	**N/A**
DMA-5	**0.04**	**LID-5**	**4X4**	**0.052**

LID (INFILTRATION CHAMBER) SCHEDULE				
DMA ID	**V BMP (cft)**	**LID-ID**	**INFILTRATION CHAMBER FOOTPRINT**	**STORAGE CAPACITY (cft)**
DMA-4	**12125**	**LID-4**	**6157 SF**	**55,000**
THIS BASIN WILL ALSO WORK AS DETENTION BASIN TO OFFSET POST DEVELOPMENT FLOW. THUS THE PROPOSED CAPACITY IS MUCH LARGER THAN Vbmp REQUIRED				

LEGEND

- PROJECT BOUNDARY /AREA OF DISTURBANCE
- DMA BOUNDARY LINE
- X.1 ROOF (See DMA ID convention below)
- X.2 ASPHALT CONCRETE
- X.2 CEMENT CONCRETE
- X.3 ORNAMENTAL LANDSCAPE
- X.4 DECOMPOSED GRANITE (DG)
- CATCH BASIN
- SD — PROPOSED STORM DRAIN
- DRAINAGE FLOW DIRECTION
- UNDERGROUND INFILTRATION AND OR DETENTION CHAMBER SYSTEM
- PROPRIETARY BIORETENTION SYSTEM (MODULAR WETLAND BY BIO CLEAN ENVIRONMENTAL)
- CDS UNIT/PRE-TREATMENT (BY CONTECH)

DMA ID convention

X.1
- DMA ID NUMBER (1, 2, 3 ETC)
- SURFACE TYPE NUMBER
  1 FOR ROOF
  2 FOR ASPHALT & CONCRETE
  3 FOR ORNAMENTAL LANDSCAPE
  4 FOR DG

60' 0' 20' 40' 60' 120'

SCALE: 1" = 60'

NORCO VALLEY SQUARE

WQMP SITE PLAN

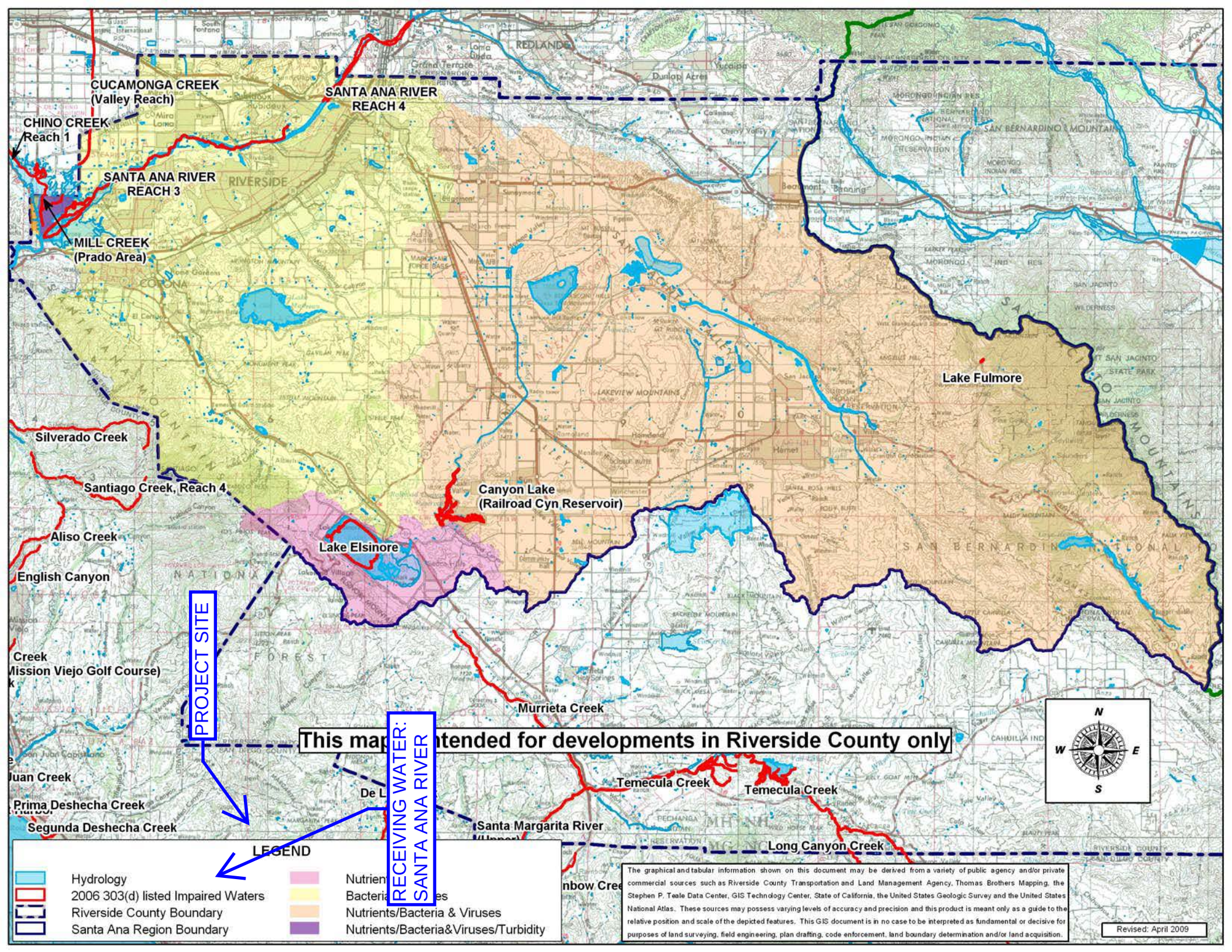
FUSCOE ENGINEERING
2850 Inland Empire Blvd., Suite B
Ontario, California 91764
tel 909.581.0676 ◦ fax 909.581.0696
www.fuscoe.com

JOB NO. 1655-003

DRAWN BY: MAS

SHEET 1 of 1

G:\PROJECTS\1655\003_SUPPORT FILES\REPORTS\WQMP\DWG\1655-003-01 WQMP.DWG (04-23-2020 10:54:14 PM) Plotted by: Luis Figueroa

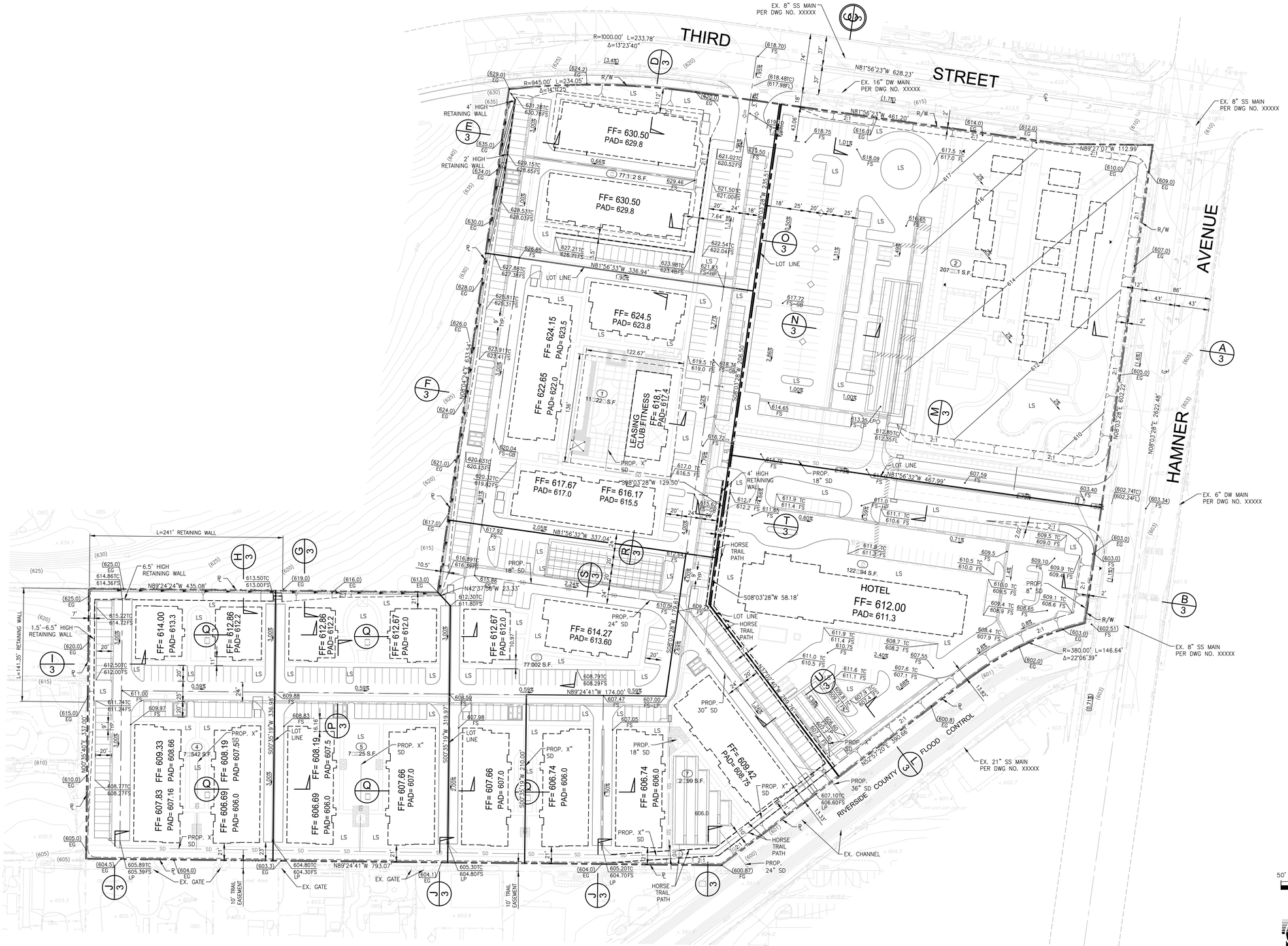

CUCAMONGA CREEK
(Valley Reach)
SANTA ANA RIVER
REACH 4
CHINO CREEK
Reach 1
SANTA ANA RIVER
REACH 3
MILL CREEK
(Prado Area)
Lake Fulmore
Silverado Creek
Santiago Creek, Reach 4
Canyon Lake
(Railroad Cyn Reservoir)
Aliso Creek
Lake Elsinore
English Canyon
Murrieta Creek
PROJECT SITE
RECEIVING WATER:
SANTA ANA RIVER
This map intended for developments in Riverside County only
Temecula Creek
Temecula Creek
Prima Deshecha Creek
Segunda Deshecha Creek
Santa Margarita River
Long Canyon Creek
N
W
E
S
LEGEND
Hydrology
2006 303(d) listed Impaired Waters
Riverside County Boundary
Santa Ana Region Boundary
Nutrients/Bacteria & Viruses
Nutrients/Bacteria&Viruses/Turbidity
The graphical and tabular information shown on this document may be derived from a variety of public agency and/or private commercial sources such as Riverside County Transportation and Land Management Agency, Thomas Brothers Mapping, the Stephen P. Teale Data Center, GIS Technology Center, State of California, the United States Geologic Survey and the United States National Atlas. These sources may possess varying levels of accuracy and precision and this product is meant only as a guide to the relative position and scale of the depicted features. This GIS document is in no case to be interpreted as fundamental or decisive for purposes of land surveying, field engineering, plan drafting, code enforcement, land boundary determination and/or land acquisition.
Revised: April 2009

Appendix 2: Construction Plans

Grading and Drainage Plans

TENTATIVE PARCEL MAP NO. XXXXX
IN THE CITY OF NORCO
FOR FINANCIAL PURPOSES

SHEET 2 OF 4
GROSS AREA: 19.10 ACRES
NET AREA: X.XX ACRES
NUMBER OF LOTS: 8



DATE PREPARED: APRIL 2020

FUSCOE ENGINEERING
2850 Inland Empire Boulevard, Suite B
Ontario, California 91764
tel 909.581.0676 • fax 909.581.0696
www.fuscoe.com

JN 1655-003

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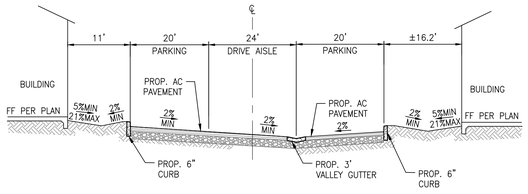
TENTATIVE PARCEL MAP NO. XXXXX
IN THE CITY OF NORCO
FOR FINANCIAL PURPOSES

GROSS AREA: 19.10 ACRES
NET AREA: X.XX ACRES
NUMBER OF LOTS: 8



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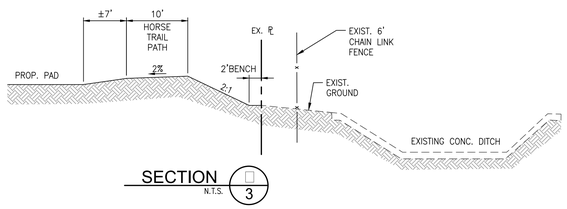

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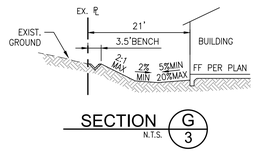

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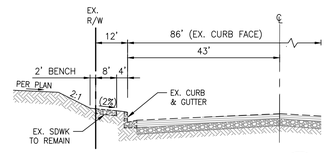

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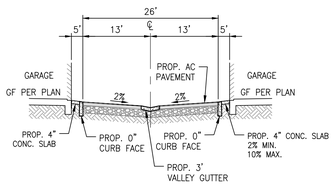

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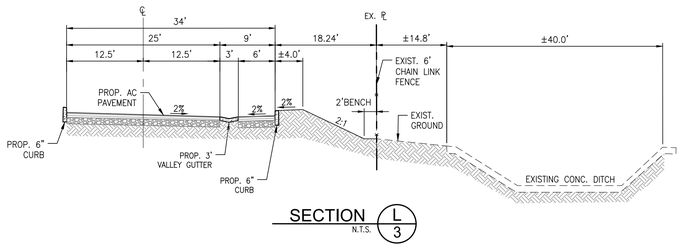

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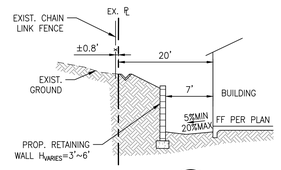

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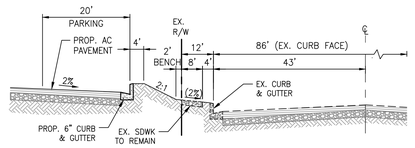

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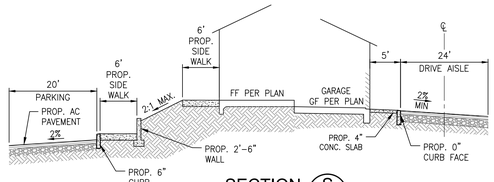

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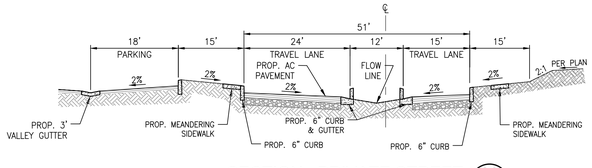

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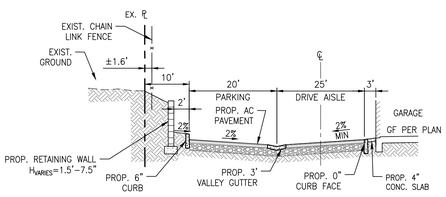

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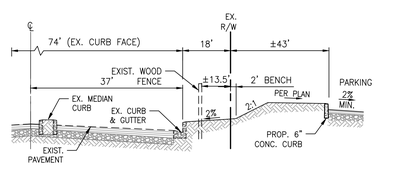

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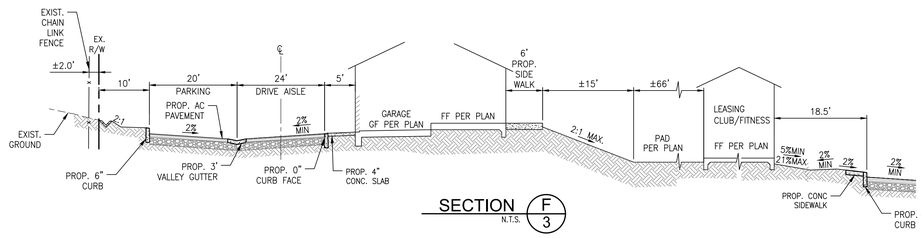

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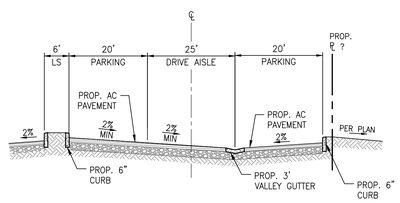

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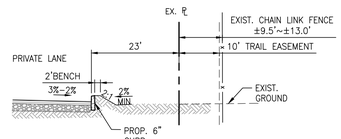

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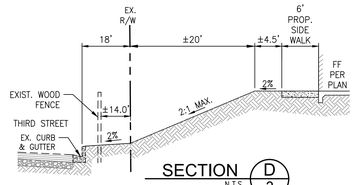

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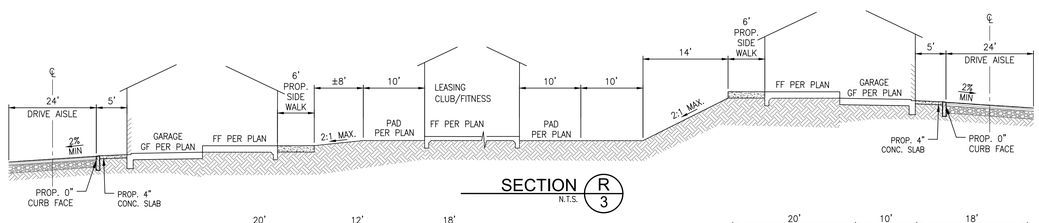

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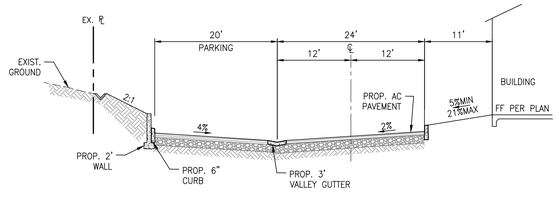

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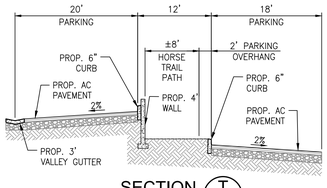

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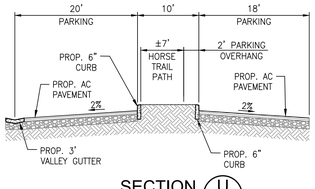

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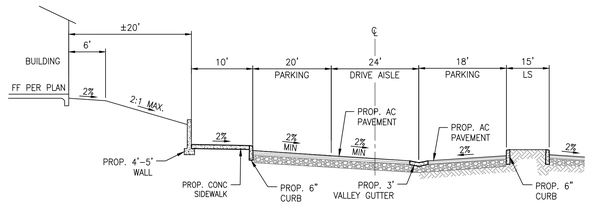

SECTION O N.T.S. 3

DATE PREPARED: APRIL 2020

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JN 1655-003

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Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

GeoTek, Inc.
1548 North Maple Street, Corona, California 92880
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

April 21, 2020
Project No. 2250-CR

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764

Attention: Mr. Tim Nguyen

Subject: Infiltration Evaluation
Proposed Multi-Family Residential/Commercial Development
SWC 3rd Street and Hamner Avenue
Norco, Riverside County, California

References: See Page 5

Dear Mr. Nguyen:

As requested and authorized, GeoTek, Inc. (GeoTek) has performed an infiltration evaluation associated with the proposed residential/commercial development to be located in the city of Norco, Riverside County, California. The intent of this study is to evaluate the infiltration properties of the underlying soils within proposed storm water disposal areas. This report presents the results of the testing completed by GeoTek.

Site Description

The site is an irregular shaped 19.1 acre property located adjacent to the southwest corner of the intersection of 3rd Street and Hamner Avenue in Norco, Riverside County, California. At the time of our field exploration, the east portion of the site was occupied by Norco RV Center, a sales lot for trailers. Norco RV Center consisted of a sales office (mobile facility), a storage shed and paved parking/drive areas. The remainder of the site was generally vacant land. Remnants of several concrete slabs and walls were observed in the central portion of the site. Some large trees were observed in the southeastern portion of the site. A small knoll is located in the north-central portion of the property.

Infiltration Testing

Four percolation test borings (Boring I-1, I-2, I-3 and I-4) were excavated with a track mounted hollow stem auger drill rig within the proposed stormwater disposal areas, as indicated to us by the project civil engineer, Fuscoe Engineering, to depths of approximately 8 feet, 8 feet, 7 feet and 11 feet, respectively, below ground surface (bgs). The borings were each approximately 8-inches in diameter. A four-inch diameter slotted PVC pipe encapsulated in filter sock was inserted into each of the test holes. The annular space between the test hole sidewalls and PVC pipe was filled with gravel.

The soils encountered in our borings generally consisted of silty sand, clayey sand and clayey silt. Granitic bedrock (granodiorite) was encountered at a depth of 7 feet in Boring I-1. The logs of the borings are presented in Appendix A.

Groundwater was not encountered nor observed in our borings for the infiltration evaluation. However, groundwater was encountered within Boring B-6 at a depth of about 27.5 feet below grade at the time of drilling during our geotechnical evaluation for the project (GeoTek, 2019). Groundwater was not encountered within any of the other borings drilled at this site during our geotechnical evaluation for the project (GeoTek, 2019). Based on a review of groundwater depths noted on the State GeoTracker website, and a review of the depth to water on the map prepared by Carson and Matti (Carson and Matti, 1985), we estimate a historic high groundwater depth of 25 feet at the site.

Subsequent to pre-soaking the test holes in general conformance with the referenced document (County of Riverside, 2011), percolation testing was performed in the lower 20 inches in the percolation boring by a representative from our firm. The percolation testing was conducted in general conformance with the referenced document from the County of Riverside. The percolation rate was converted to an infiltration rate via the Porchet Method.

The infiltration rates for the borings are presented in the follow table, after the water level had stabilized.

Boring No.	Infiltration Rate (inches per hour)	Depth of Boring (feet)
Boring I-1	0.2	8
Boring I-2	2.1	10
Boring I-3	1.5	7
Boring I-4	0.2	11

Copies of the percolation data sheets and infiltration conversion sheets (Porchet Method) are included in Appendix B. The reported infiltration rates are the measured rates without any factor of safety applied. Over the lifetime of the infiltration areas, the infiltration rates may be affected by silt build up and biological activities, as well as local variations in near surface soil conditions. A suitable factor of safety should be applied to the field rate in designing the infiltration system.

It should be noted that the infiltration rates provided above were performed in relatively undisturbed native soils. Infiltration rates will vary and are mostly dependent on the underlying consistency of the site soils and relative density. Infiltration rates will be impacted by weight of equipment travelling over the soils, placement of engineered fill and other various factors. GeoTek, Inc. assumes no responsibility or liability for the ultimate design or performance of the storm water facility.

LIMITATIONS

The materials observed on the project site appear to be representative of the basin area; however, soil materials vary in character between excavations and natural outcrops or conditions exposed during site construction. Site conditions may vary due to seasonal changes or other factors. GeoTek, Inc. assumes no responsibility or liability for work, testing or recommendations performed or provided by others.

Our conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty is expressed or implied. Standards of practice are subject to change with time.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to contact our office.

Respectfully submitted,
GeoTek, Inc.

Edward H. LaMont
CEG 1892, Exp. 07/31/20
Principal Geologist

Gaby M. Bogdanoff
GE 3133, Exp. 06/30/20
Project Engineer

Anna M. Scott
Project Geologist

Enclosures: Figure 1 – Boring Location Map
Appendix A – Logs of Exploratory Borings
Appendix B – Percolation Data Sheets and Conversion Sheets (Porchet Method)

Distribution: (1) Addressee via email (PDF file)

G:\Projects\2201 to 2250\2250CR Frontier Enterprises Norco Multi-Family Mixed Use\Infiltration Evaluation\2250CR Infiltration Evaluation Norco Mixed-Use Project.doc

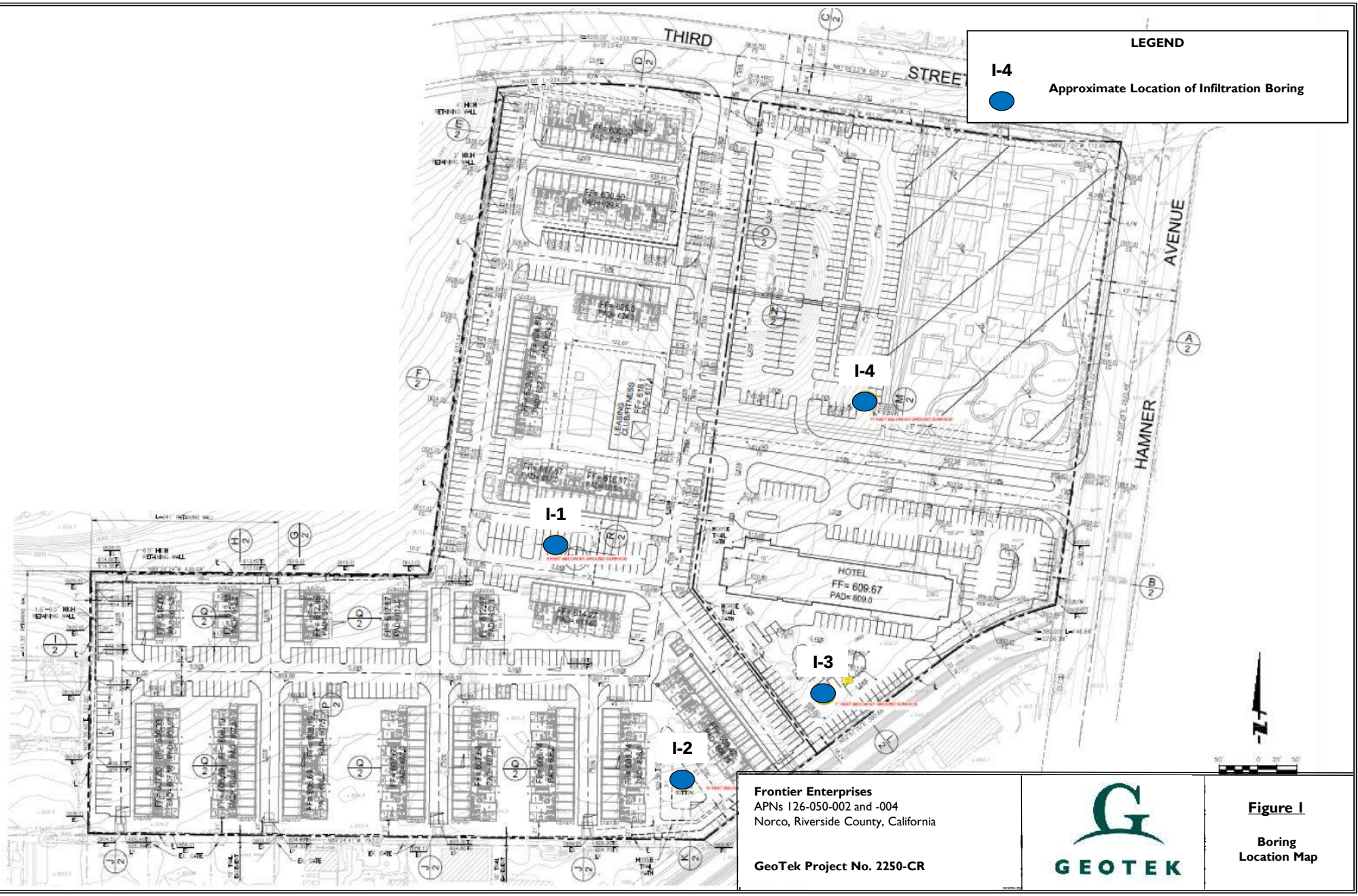
REFERENCES

Carson, S. E. and Matti, J. C., 1985, "Contour Map Showing Minimum Depth to Groundwater, Upper Santa Ana River Valley, California, 1973-1979", USGS Map MF-1802.

Fuscoe Engineering, 2020, "Conceptual Grading Plan, Hamner Avenue Mixed Use," dated Mach 16.

GeoTek, Inc., 2019, "Geotechnical Evaluation, Proposed Multi-Family Residential/Commercial Development, SWC 3rd Street and Hamner Avenue, Norco, Riverside County, California," Project No. 2250-CR, dated November 5.

Riverside County, 2011, "Low Impact Development BMP Design Handbook, Appendix A – Infiltration Testing."



Frontier Enterprises
APNs 126-050-002 and -004
Norco, Riverside County, California

GeoTek Project No. 2250-CR

GEOTEK

Figure 1

Boring Location Map

APPENDIX A

LOGS OF EXPLORATORY BORINGS

Norco Mixed-Use Project
Norco, Riverside County, California
Project No. 2250-CR

GEOTEK

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: I-1** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
				SM	Silty clayey f-c SAND, brown, moist, hard			
5				SC	Clayey f-c SAND, light brown to brown, moist, dense			
					Granitic Bedrock: Granodiorite, breaks down to silty f-c SAND, gray, dry to slightly moist			
					BORING TERMINATED AT 8 FEET No groundwater encountered Boring backfilled with soil cuttings			
10								
15								
20								
25								
30								

LEGEND

Sample type: ---Ring; ---SPT; ---Small Bulk; ---Large Bulk; ---No Recovery; ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: I-2** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
				ML	Clayey SILT, brown to reddish brown, moist, trace fine to coarse grained sand, minor pin hole porosity (2-5%)			
5				SM	Silty clayey f-c SAND, brown to light brown, slightly moist			
					Silty f-m SAND, light brownish gray, slightly moist			
10					**BORING TERMINATED AT 8 FEET** No groundwater encountered Boring backfilled with soil cuttings			
15								
20								
25								
30								

LEGEND

Sample type: ---Ring; ---SPT; ---Small Bulk; ---Large Bulk; ---No Recovery; ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: I-3** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
				ML	Clayey SILT, brown to reddish brown, moist, trace fine to coarse grained sand, minor pin hole porosity (2-5%)			
				SM	Silty f-m SAND, light brownish gray, slightly moist			
5				SM/ML	Silty f-m SAND to f-m sandy SILT, light brownish gray, slightly moist			
					BORING TERMINATED AT 7 FEET No groundwater encountered Boring backfilled with soil cuttings			
10								
15								
20								
25								
30								

LEGEND

Sample type: ---Ring; ---SPT; ---Small Bulk; ---Large Bulk; ---No Recovery; ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:	Frontier Enterprises	**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	Norco Multi-Family Mixed Use	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Miguel
PROJECT NO.:	2250-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	CME 75
LOCATION:	See Exploration Location Maps			**DATE:**	10/15/2019

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	**BORING NO.: I-4** / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Older Alluvial Fan Deposits:			
				SM	Silty f-m SAND, brown, slightly moist to moist			
				SM/ML	Silty f-m SAND to f-m sandy SILT, light brown, slightly moist			
5					Same as above			
				SM	Silty f-c SAND, brown, slightly moist			
10								
					BORING TERMINATED AT 11 FEET			
					No groundwater encountered			
					Boring backfilled with soil cuttings			
15								
20								
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

APPENDIX B

PERCOLATION DATA AND CONVERSION SHEETS

Norco Mixed-Use Project
Norco, Riverside County, California
Project No. 2250-CR

GEOTEK

PERCOLATION DATA SHEET

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-1 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 96" Before Test: 96" After Test: 96"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
							PRESOAK 5 GAL
	933		96	20			BEGIN 4/20/2020
	958	25			18 1/2	1 1/2	1ST 25 MIN.
	1000		96	20			
	1025	25			18 1/2	1 1/2	2ND 25 MIN.
	1027		96	20			
	1057	30			18 1/4	1 3/4	1ST 30 MIN
	1059		96	20			
	1129	30			18 1/4	1 3/4	2ND 30 MIN
	1131		96	20			
	1201	30			18 1/2	1 1/2	3RD 30 MIN
	1203		96	20			
	1233	30			18 1/2	1 1/2	4TH 30 MIN.
	1235		96	20			
	105	30			18 1/2	1 1/2	5TH 30 MIN.
	107		96	20			
	137	30			18 3/4	1 1/4	6TH 30 MIN.
	139		96	20			
	209	30			18 3/4	1 1/4	7TH 30 MIN.

PERCOLATION DATA SHEET

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-1 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 96" Before Test: 96" After Test: 96"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
	211		96	20			
	241	30			18 3/4	1 1/4	8TH 30 MIN.
	243		96	20			
	313	30			18 3/4	1 1/4	9TH 30 MIN.
	315		96	20			
	345	30			19	1	10TH 30 MIN.
	347		96	20			
	417	30			19	1	11TH 30 MIN.
	419		96	20			
	449	30			19	1	12TH 30 MIN.

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-2 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 120" Before Test: 120" After Test: 120"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
							PRESOAK 5 GAL
	716		120	20			BEGIN 4/20/2020
	741	25			8	12	1ST 25 MIN.
	743		120	20			
	808	25			8	12	2ND 25 MIN.
	810		120	20			
	820	10			15	5	1ST 10 MIN.
	822		120	20			
	832	10			15½	4½	2ND 10 MIN.
	834		120	20			
	844	10			16	4	3RD 10 MIN.
	846		120	20			
	856	10			16¼	3¾	4TH 10 MIN.
	858		120	20			
	908	10			16¼	3¾	5TH 10 MIN.
	910		120	20			
	940	10			16½	3½	6TH 10 MIN.

PERCOLATION DATA SHEET

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-3 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 84" Before Test: 84" After Test: 84"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
							PRESOAK 5 GAL
	940		84	20			BEGIN 4/20/2020
	1005	25			12 3/4	7 1/4	1ST 25 MIN.
	1007		84	20			
	1032	25			12 3/4	7 1/4	2ND 25 MIN
	1034		84	20			
	1104	30			11 3/4	8 1/4	1ST 30 MIN.
	1106		84	20			
	1136	30			11 3/4	8 1/4	2ND 30 MIN.
	1138		84	20			
	1208	30			11 3/4	8 1/4	3RD 30 MIN.
	1240		84	20			
	1240	30			12	8	4TH 30 MIN.
	1242		84	20			
	112	30			12	8	5TH 30 MIN.
	114		84	20			
	144	30			12	8	6TH 30 MIN.
	146		84	20			
	216	30			12 1/4	7 3/4	7TH 30 MIN.

PERCOLATION DATA SHEET

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-3 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 84" Before Test: 84" After Test: 84"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
	218		84	20			
	248	30			12 1/2	7 1/2	8TH 30 MIN.
	250		84	20			
	320	30			12 3/4	7 1/4	9TH 30 MIN.
	322		84	20			
	352	30			12 3/4	7 1/4	10TH 30 MIN.
	354		84	20			
	424	30			13	7	11TH 30 MIN.
	426		84	20			
	456	30			13	7	12TH 30 MIN.

PERCOLATION DATA SHEET

APN 126-050-002 AND -004

Project: FRONTIER ENTERPRISES NORCO Job No.: 2250-CR

Test Hole No.: I-4 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 132" Before Test: 132" After Test: 132"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
							PRESOAK 5 GAL
	947		132	20			BEGIN 4/20/2020
	1012	25			18 1/4	1 3/4	1ST 25 MIN.
	1014		132	20			
	1039	25			18 1/4	1 3/4	2ND 25 MIN.
	1041		132	20			
	1111	30			18	2	1ST 30 MIN.
	1113		132	20			
	1143	30			18	2	2ND 30 MIN.
	1145		132	20			
	1215	30			18	2	3RD 30 MIN.
	1217		132	20			
	1247	30			18 1/4	1 3/4	4TH 30 MIN.
	1249		132	20			
	119	30			18 1/4	1 3/4	5TH 30 MIN.
	121		132	20			
	151	30			18 1/2	1 1/2	6TH 30 MIN.
	153		132	20			
	223	30			18 1/2	1 1/2	7TH 30 MIN.

Project: _____ Job No.: 2250-CR

Test Hole No.: I-4 Tested By: DVG Date: 4/20/2020

Depth of Hole As Drilled: 132" Before Test: 132" After Test: 132"

Reading No.	Time	Time Interval (Min)	Total Depth of Hole (Inches)	Initial Water Level (Inches)	Final Water Level (Inches)	Δ In Water Level (Inches)	Comments
	225		132	20			
	255	30			18 1/2	1 1/2	8TH 30 MIN.
	257		132	20			
	327	30			18 3/4	1 1/4	9TH 30 MIN.
	329		132	20			
	359	30			18 3/4	1 1/4	10TH 30 MIN.
	401		132	20			
	431	30			18 3/4	1 1/4	11TH 30 MIN.
	433		132	20			
	503	30			19	1	12TH 30 MIN.

Client:	**Frontier Enterprises**
Project:	**Norco Mixed-Use Project**
Project No:	**2250-CR**
Date:	**4/20/2020**

Boring No. **I-1**

Percolation Rate (Porchet Method)

Time Interval, Δt =	30	min
Final Depth to Water, D_F =	77	in
Test Hole Radius, r =	4	in
Initial Depth to Water, D_O =	76	in
Total Test Hole Depth, D_T =	96	in

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	20	in
$H_F = D_T - D_F$ =	19	in
$\Delta H = \Delta D = H_O - H_F$ =	1	in
$H_{avg} = (H_O+H_F)/2$ =	19.5	in

I_t = 0.2 **Inches per Hour**

GEOTEK

Client:	**Frontier Enterprises**
Project:	**Norco Mixed-Use Project**
Project No:	**2250-CR**
Date:	**4/20/2020**

Boring No. **I-2**

Percolation Rate (Porchet Method)

Time Interval, Δt =	10	min
Final Depth to Water, D_F =	104	in
Test Hole Radius, r =	4	in
Initial Depth to Water, D_O =	100	in
Total Test Hole Depth, D_T =	120	in

Equation - $I_t = \dfrac{\Delta H\,(60r)}{\Delta t\,(r+2H_{avg})}$

$H_O = D_T - D_O$ =	20	in
$H_F = D_T - D_F$ =	16.5	in
$\Delta H = \Delta D = H_O - H_F$ =	3.5	in
$H_{avg} = (H_O+H_F)/2$ =	18.25	in

I_t = 2.1 **Inches per Hour**

GEOTEK

Client:	**Frontier Enterprises**
Project:	**Norco Mixed-Use Project**
Project No:	**2250-CR**
Date:	**4/20/2020**

Boring No. **I-3**

Percolation Rate (Porchet Method)

Time Interval, Δt =	30	min
Final Depth to Water, D_F =	71	in
Test Hole Radius, r =	4	in
Initial Depth to Water, D_O =	64	in
Total Test Hole Depth, D_T =	84	in

Equation - $I_t = \dfrac{\Delta H\ (60r)}{\Delta t\ (r+2H_{avg})}$

$H_O = D_T - D_O$ =	20	in
$H_F = D_T - D_F$ =	13	in
$\Delta H = \Delta D = H_O - H_F$ =	7	in
$H_{avg} = (H_O+H_F)/2$ =	16.5	in

I_t = 1.5 **Inches per Hour**

GEOTEK

Client:	**Frontier Enterprises**
Project:	**Norco Mixed-Use Project**
Project No:	**2250-CR**
Date:	**4/20/2020**

Boring No. **I-4**

Percolation Rate (Porchet Method)

Time Interval, Δt =	30	min
Final Depth to Water, D_F =	113	in
Test Hole Radius, r =	4	in
Initial Depth to Water, D_O =	112	in
Total Test Hole Depth, D_T =	132	in

Equation - $I_t = \dfrac{\Delta H\,(60r)}{\Delta t\,(r+2H_{avg})}$

$H_O = D_T - D_O$ =	20	in
$H_F = D_T - D_F$ =	19	in
$\Delta H = \Delta D = H_O - H_F$ =	1	in
$H_{avg} = (H_O+H_F)/2$ =	19.5	in

I_t = 0.2 **Inches per Hour**

GEOTEK

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

DMA SCHEDULE						
Site/Surface Type	**ROOF**	**AC**	**PCC**	**LANDSCAPE**	**DG**	**TOTAL**
Commercial (DMA-1)	15170	83342	25592	79143	13509	216756
Hotel (DMA-2)	17053	50377	4623	34460	2102	108615
Residential-1 (DMA-3)	58849	78377	31706	35550	950	205432
Residential-2 (DMA-4)	88860	73204	35318	70739	9508	277629
Easterly DWY (DMA-5)	0	8086	1123	8569	1168	18946
Selft treated (DMA-6)	0	0	0	2278	0	2278
Not treated	0	2081	319	152	0	2552
Total (sf)	**179932**	**295467**	**98681**	**230891**	**27237**	**832208**
Total (acre)	**4.1**	**6.8**	**2.3**	**5.3**	**0.6**	**19.1**

Site= 0.78

R 07 W | R 06 W | R 05 W | R 04 W | R 03 W | R 02 W | R 01 W | R 01 E | R 02 E | R 03 E | R 04 E | R 05 E

T 01 S | T 02 S | T 03 S | T 04 S | T 05 S | T 06 S | T 07 S | T 08 S

06	05	04	03	02	01
07	08	09	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

0.85 MiraLoma
0.61 RiversideNorth
0.54 RiversideSouth
0.68 PigeonPass
0.66 MorenoEast
0.85 Beaumont
0.88 PradoDam
0.51 Woodcrest
0.50 LakeMathews
0.68 PerrisReservoir
0.87 VistaGrandeGS
0.70 SanJacintoNWS
1.18 Idyllwild
0.58 SunCity
0.68 Winchester
0.90 HurkeyCreek
0.70 ElsinoreNWS
1.11 ElCarisoStation
0.77 WildomarLaCresta
0.52 SkinnerLake
0.65 Anza
0.77 SantaRosaPlateau
1.00 TemeculaNWS
0.64 AguangaValley

Santa Ana River Watershed

Santa Margarita Watershed

JURUPA VALLEY | EASTVALE | NORCO | CORONA | RIVERSIDE | MORENO VALLEY | CALIMESA | BEAUMONT | SAN JACINTO | PERRIS | CANYON LAKE | LAKE ELSINORE | WILDOMAR | MENIFEE | HEMET | MURRIETA | TEMECULA

N

Rain Gage Locations

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Isohyetal Map for the 85th Percentile 24 hour Storm Event

July 2011

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Fuscoe Engineering, Inc. | Date: 4/20/2020

Designed by: Moyenuddin Sirajee | Case No:

Company Project Number/Name: 1655-003

BMP Identification

BMP NAME / ID: LID-1: Modular Wetland (Commercial Site)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

	DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMAs	DMA-1	15170	Roofs	1	0.89	13531.6			
		83342	Concrete or Asphalt	1	0.892	74341.1			
		25592	Concrete or Asphalt	1	0.892	22828.1			
		79143	Ornamental Landscaping	0.1	0.110458	8742			
		13509	Decomposed Granite	0.4	0.279712	3778.6			
		216756	**Total**			**123221.4**	**0.20**	**0.6**	**0.6**

Notes:

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Fuscoe Engineering, Inc. | Date: 4/20/2020

Designed by: Moyenuddin Sirajee | Case No:

Company Project Number/Name: 1655-003

BMP Identification

BMP NAME / ID: LID-2: Modular Wetland (Hotel Site)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMA-2	17053	Roofs	1	0.89	15211.3			
	50377	Concrete or Asphalt	1	0.892	44936.3			
	4623	Concrete or Asphalt	1	0.892	4123.7			
	34460	Ornamental Landscaping	0.1	0.110458	3806.4			
	2102	Decomposed Granite	0.4	0.279712	588			
	108615	Total			68665.7	0.20	0.3	0.3

Notes:

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Fuscoe Engineering, Inc. | Date: 4/20/2020

Designed by: Moyenuddin Sirajee | Case No:

Company Project Number/Name: 1655-003

BMP Identification

BMP NAME / ID: LID-3: Modular Wetland (Residential Site #1)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

	DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMAs	DMA-3	58849	Roofs	1	0.89	52493.3			
		78377	Concrete or Asphalt	1	0.892	69912.3			
		31706	Concrete or Asphalt	1	0.892	28281.8			
		35550	Ornamental Landscaping	0.1	0.110458	3926.8			
		950	Decomposed Granite	0.4	0.279712	265.7			
		205432	**Total**			**154879.9**	**0.20**	**0.7**	**0.7**

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Fuscoe Engineering, Inc.	Date	4/20/2020
Designed by	Moyenuddin Sirajee	Case No	
Company Project Number/Name	1655-003		

BMP Identification

BMP NAME / ID: LID 4: Infiltration BMP 4 (Residential Site 2)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.78 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
DMA-4	*88860*	*Roofs*	*1*	*0.89*	*79263.1*			
	73204	*Concrete or Asphalt*	*1*	*0.89*	*65298*			
	35318	*Concrete or Asphalt*	*1*	*0.89*	*31503.7*			
	70739	*Ornamental Landscaping*	*0.1*	*0.11*	*7813.7*			
	9508	*Decomposed Granite*	*0.4*	*0.28*	*2659.5*			

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Fuscoe Engineering, Inc.	Date	4/20/2020
Designed by	Moyenuddin Sirajee	Case No	
Company Project Number/Name	1655-003		

BMP Identification

BMP NAME / ID: LID-5: Modular Wetland (Easterly Driveway)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall Intensity I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

	DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMAs	DMA-5	0	Roofs	1	0.89	0			
		8086	Concrete or Asphalt	1	0.892	7212.7			
		1123	Concrete or Asphalt	1	0.892	1001.7			
		8569	Ornamental Landscaping	0.1	0.110458	946.5			
		1168	Decomposed Granite	0.4	0.279712	326.7			
		18946	**Total**			**9487.6**	**0.20**	**0**	**0.037**

Notes:

Bio Clean

A Forterra Company

Modular Wetlands® System Linear

A Stormwater Biofiltration Solution

OVERVIEW

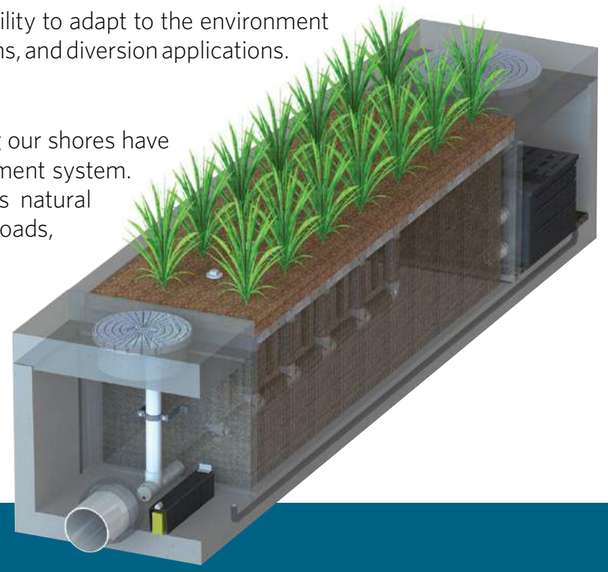
The Bio Clean Modular Wetlands® System Linear (MWS Linear) represents a pioneering breakthrough in stormwater technology as the only biofiltration system to utilize patented horizontal flow, allowing for a smaller footprint, higher treatment capacity, and a wide range of versatility. While most biofilters use little or no pretreatment, the Modular Wetlands System Linear incorporates an advanced pretreatment chamber that includes separation and pre-filter cartridges. In this chamber, sediment and hydrocarbons are removed from runoff before entering the biofiltration chamber, reducing maintenance costs and improving performance.

Horizontal flow also gives the system the unique ability to adapt to the environment through a variety of configurations, bypass orientations, and diversion applications.

The Urban Impact

For hundreds of years, natural wetlands surrounding our shores have played an integral role as nature's stormwater treatment system. But as cities grow and develop, our environment's natural filtration systems are blanketed with impervious roads, rooftops, and parking lots.

Bio Clean understands this loss and has spent years re-establishing nature's presence in urban areas, and rejuvenating waterways with the MWS Linear.



PERFORMANCE

The Modular Wetlands® System Linear continues to outperform other treatment methods with superior pollutant removal for TSS, heavy metals, nutrients, hydrocarbons, and bacteria. Since 2007 the MWS Linear has been field tested on numerous sites across the country and is proven to effectively remove pollutants through a combination of physical, chemical, and biological filtration processes. In fact, the MWS Linear harnesses some of the same biological processes found in natural wetlands in order to collect, transform, and remove even the most harmful pollutants.

66% REMOVAL OF DISSOLVED ZINC	**69%** REMOVAL OF TOTAL ZINC	**38%** REMOVAL OF DISSOLVED COPPER	**64%** REMOVAL OF TOTAL PHOSPHORUS	
45% REMOVAL OF NITROGEN	**50%** REMOVAL OF TOTAL COPPER	**95%** REMOVAL OF MOTOR OIL	**67%** REMOVAL OF ORTHO PHOSPHORUS	**85%** REMOVAL OF TSS

APPROVALS

The Modular Wetlands® System Linear has successfully met years of challenging technical reviews and testing from some of the most prestigious and demanding agencies in the nation and perhaps the world. Here is a list of some of the most high-profile approvals, certifications, and verifications from around the country.

Washington State Department of Ecology TAPE Approved

The MWS Linear is approved for General Use Level Designation (GULD) for Basic, Enhanced, and Phosphorus treatment at 1 gpm/ft^2 loading rate. The highest performing BMP on the market for all main pollutant categories.

California Water Resources Control Board, Full Capture Certification

The Modular Wetlands® System is the first biofiltration system to receive certification as a full capture trash treatment control device.

Virginia Department of Environmental Quality, Assignment

The Virginia Department of Environmental Quality assigned the MWS Linear the highest phosphorus removal rating for manufactured treatment devices to meet the new Virginia Stormwater Management Program (VSMP) regulation technical criteria.

Maryland Department of the Environment, Approved ESD

Granted Environmental Site Design (ESD) status for new construction, redevelopment, and retrofitting when designed in accordance with the design manual.

MASTEP Evaluation

The University of Massachusetts at Amherst – Water Resources Research Center issued a technical evaluation report noting removal rates up to 84% TSS, 70% total phosphorus, 68.5% total zinc, and more.

Rhode Island Department of Environmental Management, Approved BMP

Approved as an authorized BMP and noted to achieve the following minimum removal efficiencies: 85% TSS, 60% pathogens, 30% total phosphorus, and 30% total nitrogen.

Texas Commission on Environmental Quality

Atlanta Regional Commission

ADVANTAGES

- HORIZONTAL FLOW BIOFILTRATION
- GREATER FILTER SURFACE AREA
- PRETREATMENT CHAMBER
- PATENTED PERIMETER VOID AREA
- FLOW CONTROL
- NO DEPRESSED PLANTER AREA
- AUTO DRAINDOWN MEANS NO MOSQUITO VECTOR

OPERATION

The Modular Wetlands® System Linear is the most efficient and versatile biofiltration system on the market, and it is the only system with horizontal flow which:

- Improves performance
- Reduces footprint
- Minimizes maintenance

Figure 1 & Figure 2 illustrate the invaluable benefits of horizontal flow and the multiple treatment stages.

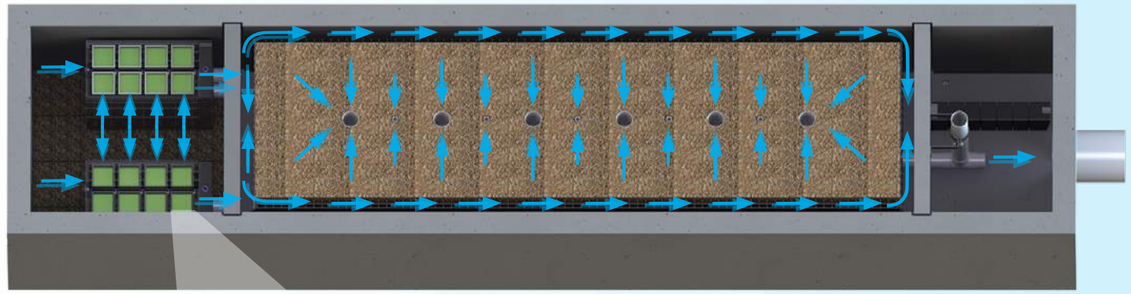


Figure 2,
Top View

2x to 3x more surface area than traditional downward flow bioretention systems.

1 PRETREATMENT

SEPARATION

- Trash, sediment, and debris are separated before entering the pre-filter boxes
- Designed for easy maintenance access

PRE-FILTER BOXES

- Over 25 sq. ft. of surface area per box
- Utilizes BioMediaGREEN™ filter material
- Removes over 80% of TSS and 90% of hydrocarbons
- Prevents pollutants that cause clogging from migrating to the biofiltration chamber

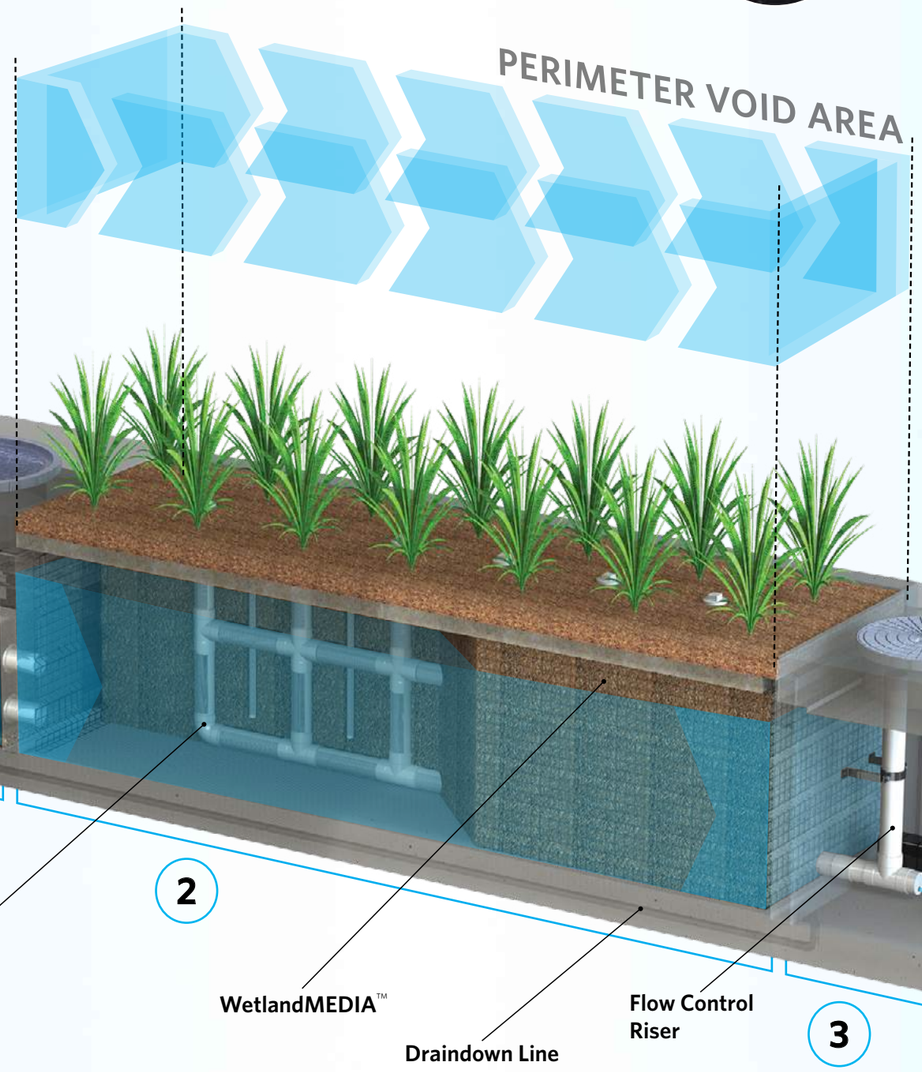


Figure 1

2 BIOFILTRATION

HORIZONTAL FLOW

- Less clogging than downward flow biofilters
- Water flow is subsurface
- Improves biological filtration

PATENTED PERIMETER VOID AREA

- Vertically extends void area between the walls and the WetlandMEDIA™ on all four sides
- Maximizes surface area of the media for higher treatment capacity

WETLANDMEDIA

- Contains no organics and removes phosphorus
- Greater surface area and 48% void space
- Maximum evapotranspiration
- High ion exchange capacity and lightweight

3 DISCHARGE

FLOW CONTROL

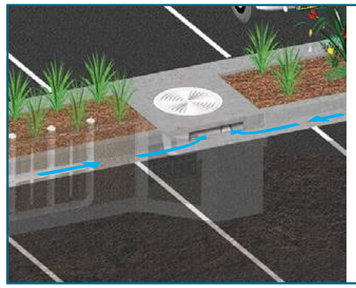
- Orifice plate controls flow of water through WetlandMEDIA™ to a level lower than the media's capacity
- Extends the life of the media and improves performance

DRAINDOWN FILTER

- The draindown is an optional feature that completely drains the pretreatment chamber
- Water that drains from the pretreatment chamber between storm events will be treated

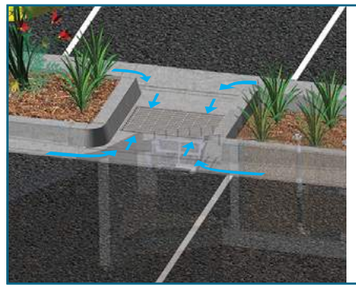
CONFIGURATIONS

The Modular Wetlands® System Linear is the preferred biofiltration system of civil engineers across the country due to its versatile design. This highly versatile system has available "pipe-in" options on most models, along with built-in curb or grated inlets for simple integration into your storm drain design.



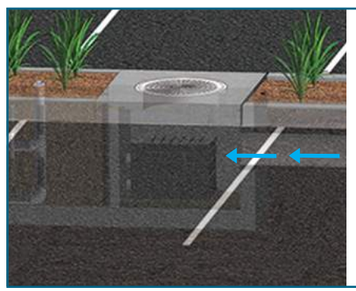
CURB TYPE

The Curb Type configuration accepts sheet flow through a curb opening and is commonly used along roadways and parking lots. It can be used in sump or flow-by conditions. Length of curb opening varies based on model and size.



GRATE TYPE

The Grate Type configuration offers the same features and benefits as the Curb Type but with a grated/drop inlet above the systems pretreatment chamber. It has the added benefit of allowing pedestrian access over the inlet. ADA-compliant grates are available to assure easy and safe access. The Grate Type can also be used in scenarios where runoff needs to be intercepted on both sides of landscape islands.



VAULT TYPE

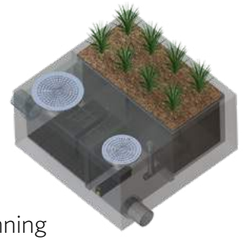
The system's patented horizontal flow biofilter is able to accept inflow pipes directly into the pretreatment chamber, meaning the Modular Wetlands® can be used in end-of-the-line installations. This greatly improves feasibility over typical decentralized designs that are required with other biofiltration/ bioretention systems. Another benefit of the "pipe-in" design is the ability to install the system downstream of underground detention systems to meet water quality volume requirements.

DOWNSPOUT TYPE

The Downspout Type is a variation of the Vault Type and is designed to accept a vertical downspout pipe from rooftop and podium areas. Some models have the option of utilizing an internal bypass, simplifying the overall design. The system can be installed as a raised planter, and the exterior can be stuccoed or covered with other finishes to match the look of adjacent buildings.

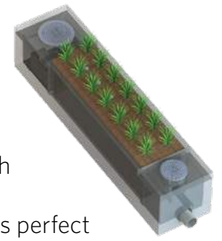
ORIENTATIONS

SIDE-BY-SIDE



The Side-By-Side orientation places the pretreatment and discharge chamber adjacent to one another with the biofiltration chamber running parallel on either side. This minimizes the system length, providing a highly compact footprint. It has been proven useful in situations such as streets with directly adjacent sidewalks, as half of the system can be placed under that sidewalk. This orientation also offers internal bypass options as discussed below.

END-TO-END



The End-To-End orientation places the pretreatment and discharge chambers on opposite ends of the biofiltration chamber, therefore minimizing the width of the system to 5 ft. (outside dimension). This orientation is perfect for linear projects and street retrofits where existing utilities and sidewalks limit the amount of space available for installation. One limitation of this orientation is that bypass must be external.

BYPASS

INTERNAL BYPASS WEIR (SIDE-BY-SIDE ONLY)

The Side-By-Side orientation places the pretreatment and discharge chambers adjacent to one another allowing for integration of internal bypass. The wall between these chambers can act as a bypass weir when flows exceed the system's treatment capacity, thus allowing bypass from the pretreatment chamber directly to the discharge chamber.

EXTERNAL DIVERSION WEIR STRUCTURE

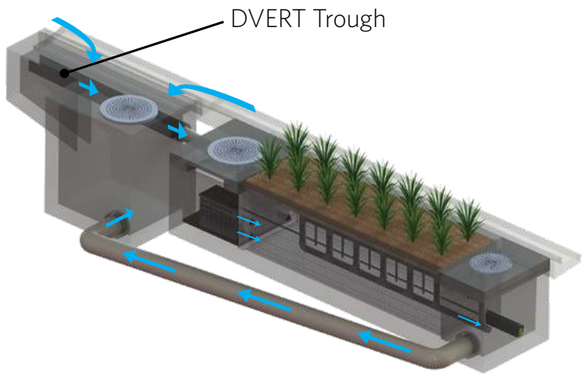
This traditional offline diversion method can be used with the Modular Wetlands® System Linear in scenarios where runoff is being piped to the system. These simple and effective structures are generally configured with two outflow pipes. The first is a smaller pipe on the upstream side of the diversion weir - to divert low flows over to the MWS Linear for treatment. The second is the main pipe that receives water once the system has exceeded treatment capacity and water flows over the weir.

FLOW-BY-DESIGN

This method is one in which the system is placed just upstream of a standard curb or grate inlet to intercept the first flush. Higher flows simply pass by the MWS Linear and into the standard inlet downstream.

DVERT LOW FLOW DIVERSION

This simple yet innovative diversion trough can be installed in existing or new curb and grate inlets to divert the first flush to the Modular Wetlands® System Linear via pipe. It works similar to a rain gutter and is installed just below the opening into the inlet. It captures the low flows and channels



them over to a connecting pipe exiting out the wall of the inlet and leading to the MWS Linear. The DVERT is perfect for retrofit and green street applications that allow the system to be installed anywhere space is available.

SPECIFICATIONS

FLOW-BASED DESIGNS

The Modular Wetlands® System Linear can be used in stand-alone applications to meet treatment flow requirements, and since it is the only biofiltration system that can accept inflow pipes several feet below the surface, it can be used not only in decentralized design applications but also as a large central end-of-the-line application for maximum feasibility.

MODEL #	DIMENSIONS	WETLANDMEDIA SURFACE AREA (sq. ft.)	TREATMENT FLOW RATE (cfs)
MWS-L-4-4	4′ x 4′	23	0.052
MWS-L-4-6	4′ x 6′	32	0.073
MWS-L-4-8	4′ x 8′	50	0.115
MWS-L-4-13	4′ x 13′	63	0.144
MWS-L-4-15	4′ x 15′	76	0.175
MWS-L-4-17	4′ x 17′	90	0.206
MWS-L-4-19	4′ x 19′	103	0.237
MWS-L-4-21	4′ x 21′	117	0.268
MWS-L-6-8	7′ x 9′	64	0.147
MWS-L-8-8	8′ x 8′	100	0.230
MWS-L-8-12	8′ x 12′	151	0.346
MWS-L-8-16	8′ x 16′	201	0.462
MWS-L-8-20	9′ x 21′	252	0.577
MWS-L-8-24	9′ x 25′	302	0.693
MWS-L-10-20	10' x 20'	302	0.693

DMA-2 HOTEL

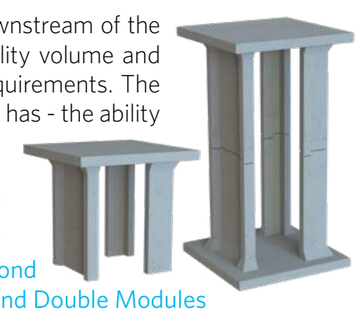
DMA-1 COMMERCIAL
DMA-3 RESIDENTIAL 1

VOLUME-BASED DESIGNS

HORIZONTAL FLOW BIOFILTRATION ADVANTAGE

MODULAR WETLANDS® SYSTEM LINEAR WITH URBANPOND™ PRESTORAGE

In the example above, the Modular Wetlands® System Linear is installed downstream of the UrbanPond storage system. The MWS Linear is designed for the water quality volume and will treat and discharge the required volume within local draindown time requirements. The MWS Linear's unique horizontal flow design, gives it benefits no other biofilter has - the ability to be placed downstream of detention ponds, extended dry detention basins, underground storage systems and permeable paver reservoirs. The system's horizontal flow configuration and built-in orifice control allows it to be installed with just 6" of fall between inlet and outlet pipe for a simple connection to projects with shallow downstream tie-in points.



UrbanPond
Single and Double Modules

DESIGN SUPPORT

Bio Clean engineers are trained to provide you with superior support for all volume sizing configurations throughout the country. Our vast knowledge of state and local regulations allow us to quickly and efficiently size a system to maximize feasibility. Volume control and hydromodification regulations are expanding the need to decrease the cost and size of your biofiltration system. Bio Clean will help you realize these cost savings with the MWS Linear, the only biofilter than can be used downstream of storage BMPs.

ADVANTAGES

- LOWER COST THAN FLOW-BASED DESIGN
- MEETS LID REQUIREMENTS
- BUILT-IN ORIFICE CONTROL STRUCTURE
- WORKS WITH DEEP INSTALLATIONS

APPLICATIONS

The Modular Wetlands® System Linear has been successfully used on numerous new construction and retrofit projects. The system's superior versatility makes it beneficial for a wide range of stormwater and waste water applications - treating rooftops, streetscapes, parking lots, and industrial sites.

INDUSTRIAL

Many states enforce strict regulations for discharges from industrial sites. The MWS Linear has helped various sites meet difficult EPA-mandated effluent limits for dissolved metals and other pollutants.

RESIDENTIAL

Low to high density developments can benefit from the versatile design of the MWS Linear. The system can be used in both decentralized LID design and cost-effective end-of-the-line configurations.

STREETS

Street applications can be challenging due to limited space. The MWS Linear is very adaptable, and it offers the smallest footprint to work around the constraints of existing utilities on retrofit projects.

PARKING LOTS

Parking lots are designed to maximize space and the Modular Wetlands'® 4 ft. standard planter width allows for easy integration into parking lot islands and other landscape medians.

COMMERCIAL

Compared to bioretention systems, the MWS Linear can treat far more area in less space, meeting treatment and volume control requirements.

MIXED USE

The MWS Linear can be installed as a raised planter to treat runoff from rooftops or patios, making it perfect for sustainable "live-work" spaces.

More applications include:

• Agriculture • Reuse • Low Impact Development • Waste Water

PLANT SELECTION

Abundant plants, trees, and grasses bring value and an aesthetic benefit to any urban setting, but those in the Modular Wetlands® System Linear do even more - they increase pollutant removal. What's not seen, but very important, is that below grade, the stormwater runoff/flow is being subjected to nature's secret weapon: a dynamic physical, chemical, and biological process working to break down and remove non-point source pollutants. The flow rate is controlled in the MWS Linear, giving the plants more contact time so that pollutants are more successfully decomposed, volatilized, and incorporated into the biomass of the Modular Wetlands'® micro/macro flora and fauna.

A wide range of plants are suitable for use in the Modular Wetlands®, but selections vary by location and climate. View suitable plants by visiting biocleanenvironmental.com/plants.

INSTALLATION

The Modular Wetlands® System Linear is simple, easy to install, and has a space-efficient design that offers lower excavation and installation costs compared to traditional tree-box type systems. The structure of the system resembles precast catch basin or utility vaults and is installed in a similar fashion.

The system is delivered fully assembled for quick installation. Generally, the structure can be unloaded and set in place in 15 minutes. Our experienced team of field technicians is available to supervise installations and provide technical support.

MAINTENANCE

Reduce your maintenance costs, man hours, and materials with the Modular Wetlands® System Linear. Unlike other biofiltration systems that provide no pretreatment, the MWS Linear is a self-contained treatment train which incorporates simple and effective pretreatment.

Maintenance requirements for the biofilter itself are almost completely eliminated, as the pretreatment chamber removes and isolates trash, sediments, and hydrocarbons. What's left is the simple maintenance of an easily accessible pretreatment chamber that can be cleaned by hand or with a standard vac truck. Only periodic replacement of low-cost media in the pre-filter boxes is required for long-term operation, and there is absolutely no need to replace expensive biofiltration media.

Bio Clean
A Forterra Company

5796 Armada Drive Suite 250
Carlsbad, CA 92008
855.566.3938
stormwater@forterrabp.com
biocleanenvironmental.com

01172020

CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14786
System Description:	Residential #2
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/16/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	12 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	55,000 cf
Limiting Length:	200 ft
Limiting Width:	70 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

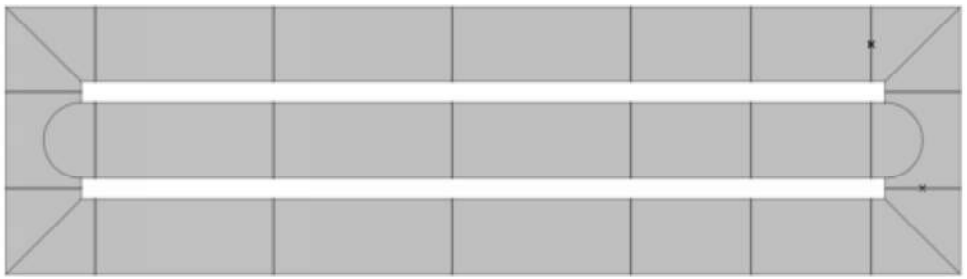
Pipe Detail

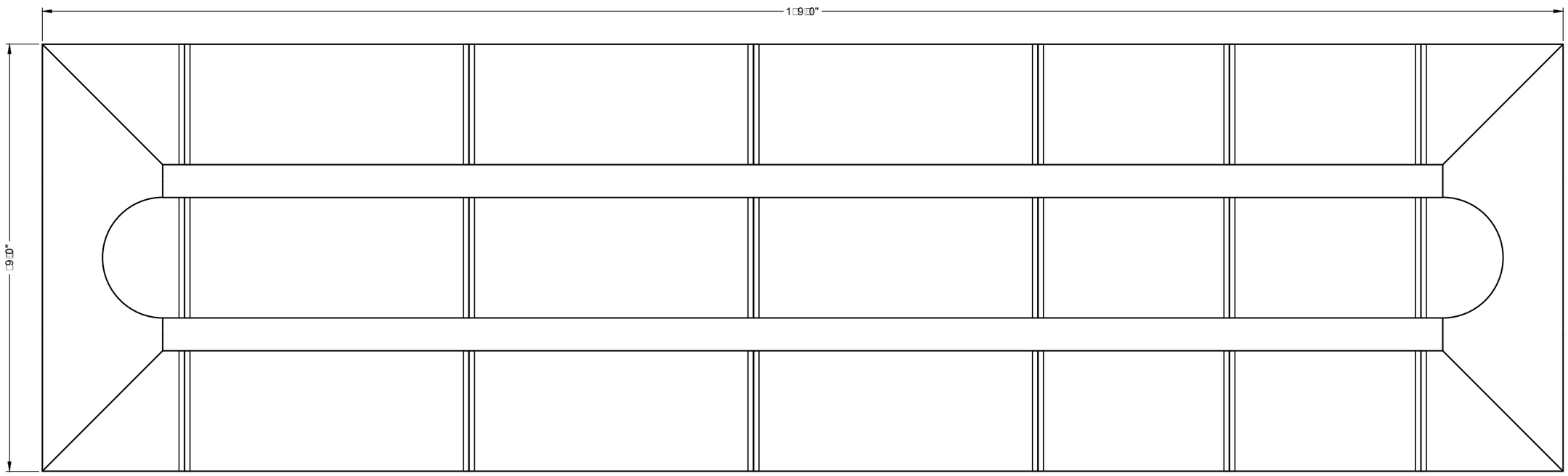
Material:	Steel
Shape:	Round
Size:	132 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	12
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	3
CMP Footprint (LxW):	139 x 39 ft
Length Per Barrel:	117 ft
Length Per Header:	39 ft
Pipe Storage:	40,769 cf
Structural Backfill Zone Storage:	14,277 cf
Total Storage Provided:	55,046 cf
Percent Of Required Storage:	100.09 %
Total CMP Footage:	429 ft
Approximate CMP Piece Count:	19
Approximate Coupling Bands:	20
Approximate Truckloads:	19
Total Excavation:	3,263 cy
Structural Backfill:	1,511 cy
Pavement Volume:	81 cy
Remaining Backfill To Pavement:	161 cy

Draftboard





ASSEMBLY
SCALE: 1" = 10□

PROJECT SUMMARY

CALCULATION DETAILS
- LENGTH PER BARREL = 117 FT
- LENGTH PER HEADER = □9 FT
- LOADING = H20 □ H25
- APPROX. CMP FOOTAGE = 429 FT

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED 55□000 CF
- PIPE STORAGE = 40□7□9 CF
- STRUCTURAL BAC□FILL STORAGE = 14□277 CF
- TOTAL STORAGE PROVIDED = 55□04□ CF

PIPE DETAILS
- DIAMETER = 1□2 IN
- CORRUGATION = 5" X 1" OR □" X 1"
- GAGE = 12
- COATING = ALUMINI□ED STEEL TYPE 2 □ALT2□
- WALL TYPE = PERFORATED
- BARREL SPACING = □□ IN

BACKFILL DETAILS
- WIDTH AT ENDS = □□ IN
- ABOVE PIPE = 12 IN
- WIDTH AT SIDES = □□ IN
- BELOW PIPE = □ IN

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

NOTES
- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS□DIMENSIONS□AND LOCATIONS OF RISERS AND INLETS□SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A99□.
- ALL RISERS AND STUBS ARE 2 ⅔" □ ½" CORRUGATION AND 1□GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND□OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN□QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE□TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.

T□e des□□a□d □for□a□b□s□o□ o□ □□s dra□□□ s pro□□ded as a ser□□e □o □□e pro□ec□o□ □er□e□□□eer a□d co□□rac□or □□ Co□□ec□E□□□eered Sol□□b□s LLC "CO□□ec□"□ Ne□□er □□s dra□□□□□or a□□ par□□ereof□□a□□e □sed□reprod□ced □□odf□ed □ a□□ □a□□er □□□o□□□e pr□r □r□e□ co□se□□of Co□□ec□. Fa□□re □o co□pl□s do□e a□□e □ser□s o□□ r□s□a□d Co□□ec□e□pressl□ d□scla□□s a□□ l□a□□□ or respo□s□□□□ for s□c□□se.

If d□screpa□c□es □e□ee□ □e s□pplied □for□a□b□ □po□ □□e□ □e dra□ □□ s □ased a□d ac□al f□eld co□d□□□s are e□co□□ered as s□□ □or□ pro□□esses □□ese d□screpa□c□es □s □□e repor□ed □ Co□□ec□ □□ed□a□□for re□a□□a□□ of □e des□□. Co□□ec□ accep□s □o la□□□ for des□□s □ased o□ □□ ss□□□co□ple□e or □acc□ra□e □for□a□b□s□pplied □o□□ers.

MARK	DATE	REVISION DESCRIPTION	BY

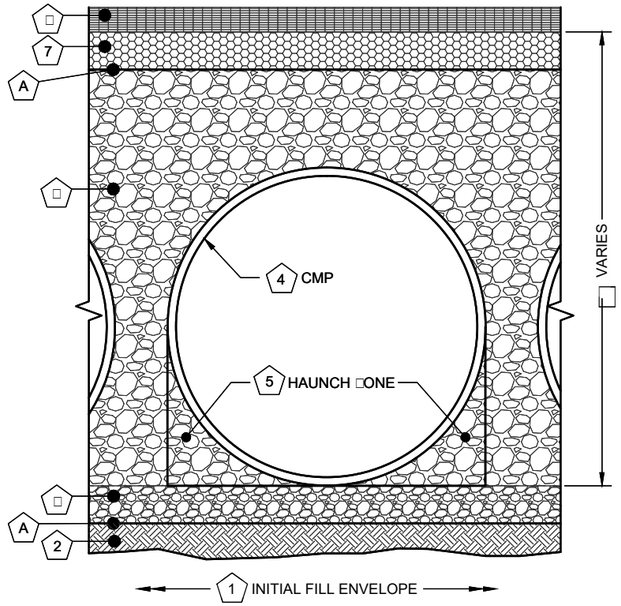
CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
□00□□□□1122 51□□45□7000 51□□45□799□FAX

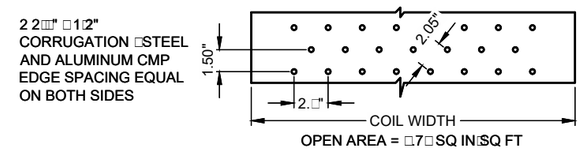
CONTECH CMP DETENTION SYSTEMS
CONTECH **DYODS** DRAWING

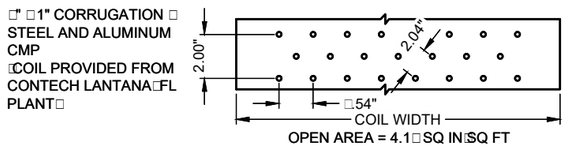
DYODS □147□□□1□0
PROJECT NAME: Norco S□□are M□□Use
Norco□CA
DESCRIPTION: RESIDENTIAL □2

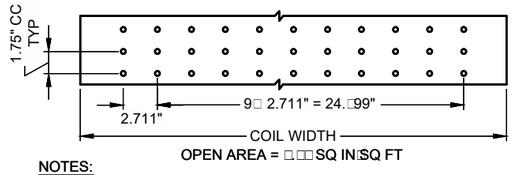
PROJECT No.:	SEQ. No.:	DATE:
147□□□1	0	4□20□2020
DESIGNED: DYODS	DRAWN: DYODS	
CHEC□ED:	APPROVED:	
SHEET NO.: D1		

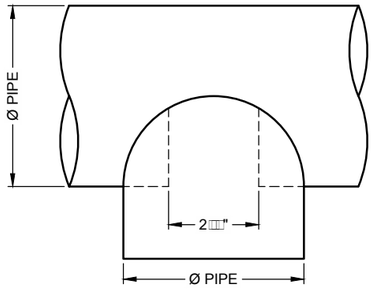
C:□DYODS□DATA□CPC□DYODS□147□□□1.DWG 4□20□2020 10:4□ AM

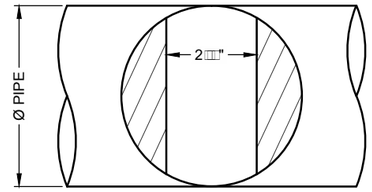


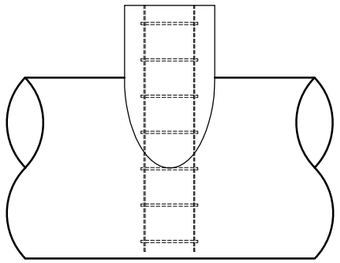


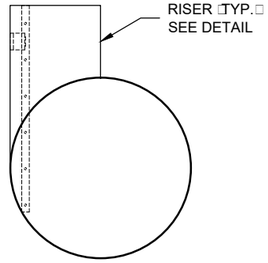


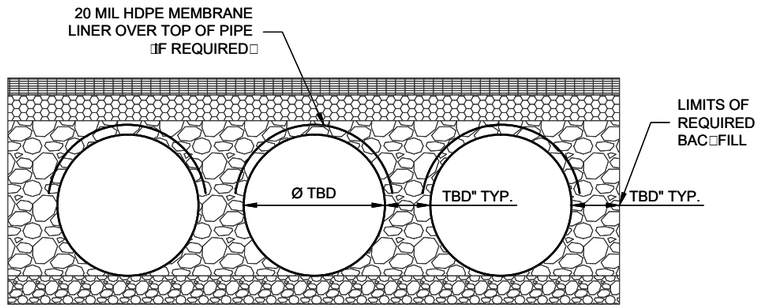












□
7
A
□
4 CMP
5 HAUNCH ZONE
VARIES
□
□
A
2
1 INITIAL FILL ENVELOPE

Infiltration Systems - CMP Infiltration & CMP Perforated Drainage Pipe				
	Material Location	Description	Material Designation	Designation
□	Rigid or Flexible Pavement (if applicable)			
7	Road Base (if applicable)			
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C□40 or C□45	Engineer Decision for consideration to prevent soil migration into varying soil types. Wrap the trench only.
□	Backfill	Infiltration pipe systems have a pipe perforation sized of 3/8” diameter. An open graded, free draining stone, with a particle size of ½” – 2 ½” diameter is recommended.	AASHTO M 145□ A□1 or AASHTO M 4□ □□□4	Material shall be worked into the pipe haunches by means of shovel slicing, rodding, air tamper, vibratory rod, or other effective methods. Compaction of all placed fill material is necessary and shall be considered adequate when no further yielding of the material is observed under the compactor, or under foot, and the Project Engineer or his representative is satisfied with the level of compaction”
□	Bedding Stone	Well graded granular bedding material w/ maximum particle size of □"	AASHTO M4□ □ □□57□4□4□7□5□ 5□□57	For soil aggregates larger than □□" a dedicated bedding layer is not required for CMP. Pipe may be placed on the trench bottom comprised of native suitable well graded & granular material. For Arch pipes it is recommended to be shaped to a relatively flat bottom or fine-grade the foundation to a slight v-shape. Soil aggregates less than □□" and unsuitable material should be over-excavated and re-placed with a 4"-□" layer of well graded & granular stone per the material designation.
A	Geotextile Layer	None	None	Contech does not recommend geotextiles be placed under the invert of Infiltration systems due to the propensity for geotextiles to clog over time.
□	Note: The listed AASHTO designations are for gradation only. The stone must also be angular and clean.			

1. MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT.

FOUNDATION/BEDDING PREPARATION

2. PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5. HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMLY COMPACTED WITHOUT SOFT SPOTS.

BACKFILL

MATERIAL SHALL BE PLACED IN □"-10" MAXIMUM LIFTS. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE DEFLECTIONS WITHIN THE SYSTEM AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT. MAINTAIN BALANCED LOADING ON ALL PIPES IN THE SYSTEM DURING ALL SUCH OPERATIONS.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

BACKFILL DETAIL

SCALE: N.T.S.

NOTE:
THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

2 2□□" □ 1□2" CORRUGATION □STEEL AND ALUMINUM CMP EDGE SPACING EQUAL ON BOTH SIDES

1.50"
2.05"
2.□"
COIL WIDTH

OPEN AREA = □.7□ SQ IN/SQ FT

□" □ 1" CORRUGATION □ STEEL AND ALUMINUM CMP □COIL PROVIDED FROM CONTECH LANTANA, FL PLANT□

2.00"
2.04"
□.54"
COIL WIDTH

OPEN AREA = 4.1□ SQ IN/SQ FT

5" □ 1" CORRUGATION □STEEL ONLY EDGE SPACING EQUAL ON BOTH SIDES

1.75" CC TYP
2.711"
9□ 2.711" = 24.□99"
COIL WIDTH

OPEN AREA = □.□□ SQ IN/SQ FT

NOTES:

1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
□. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
4. ALL HOLES Ø3/8".

TYPICAL PERFORATION DETAIL

SCALE: N.T.S.

Ø PIPE
2□□"
Ø PIPE
2□□"
Ø PIPE

PLAN **FRONT**

NOTE:
MANWAY DETAIL APPLICABLE FOR CMP SYSTEMS WITH DIAMETERS 4□" AND LARGER. MANWAYS MAY BE REQUIRED ON SMALLER SYSTEMS DEPENDING ON ACTUAL SITE SPECIFIC CONDITIONS.

TYPICAL MANWAY DETAIL

SCALE: N.T.S.

RISER (TYP.)
SEE DETAIL

ELEVATION **END**

NOTE:
LADDERS ARE OPTIONAL AND ARE NOT REQUIRED FOR ALL SYSTEMS.

TYPICAL RISER DETAIL

SCALE: N.T.S.

20 MIL HDPE MEMBRANE
LINER OVER TOP OF PIPE
(IF REQUIRED)
LIMITS OF
REQUIRED
BACKFILL
Ø TBD
TBD" TYP.
TBD" TYP.

TYPICAL SECTION VIEW

LINER OVER ROWS

SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

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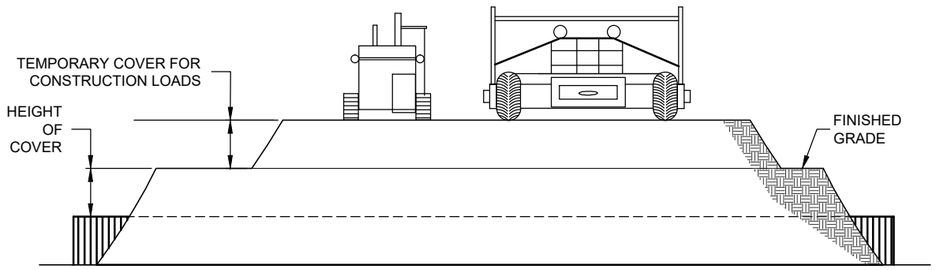
CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

DYODS □147□□□1□0
PROJECT NAME: Norco S□□are M□□Use
Norco□CA
DESCRIPTION: RESIDENTIAL □2

PROJECT No.:	SEQ. No.:	DATE:
147□□□1	0	4□20□2020
DESIGNED: DYODS	DRAWN: DYODS	
CHECKED:	APPROVED:	
SHEET NO.: D2		



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS□AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT□OF□COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN□ INCHES	AXLE LOADS □□ps□			
	1□50	50□75	75□110	110□150
	MINIMUM COVER □FT□			
12□42	2.0	2.5	□.0	□.0
4□72	□.0	□.0	□.5	4.0
7□120	□.0	□.5	4.0	4.0
12□144	□.5	4.0	4.5	4.5

□MINIMUM COVER MAY VARY□DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINI□ED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M□274 OR ASTM A□92.

THE GALVANI□ED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M□21□ OR ASTM A□929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M□24□ OR ASTM A□742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M□197 OR ASTM B□744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

NOTE:
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PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINI□ED TYPE 2: AASHTO M□□□ OR ASTM A□7□0

GALVANI□ED: AASHTO M□□□ OR ASTM A□7□0

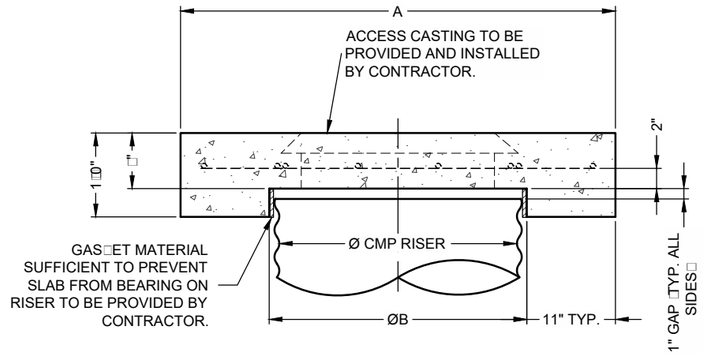
POLYMER COATED: AASHTO M□245 OR ASTM A□7□2

ALUMINUM: AASHTO M□19□ OR ASTM B□745

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S □NATIONAL CORRUGATED STEEL PIPE ASSOCIATION□FOR ALUMINI□ED TYPE 2□GALVANI□ED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES□SECTION 2□□DIVISION II DIVISION II OR ASTM A□79□ □FOR ALUMINI□ED TYPE 2□GALVANI□ED OR POLYMER COATED STEEL□OR ASTM B□7□□ □FOR ALUMINUM PIPE□AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

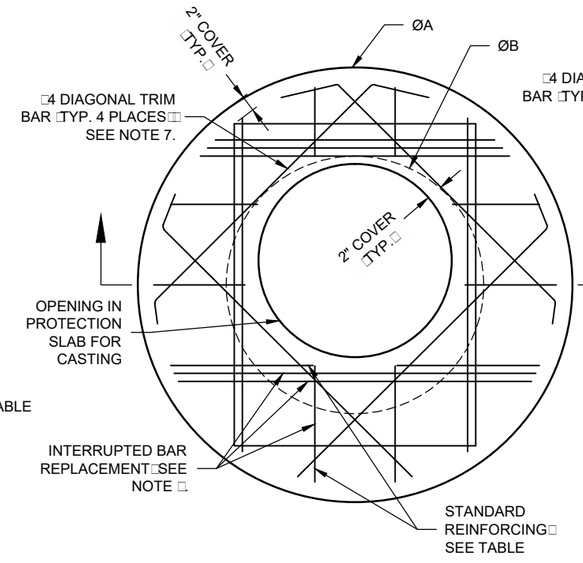
IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.



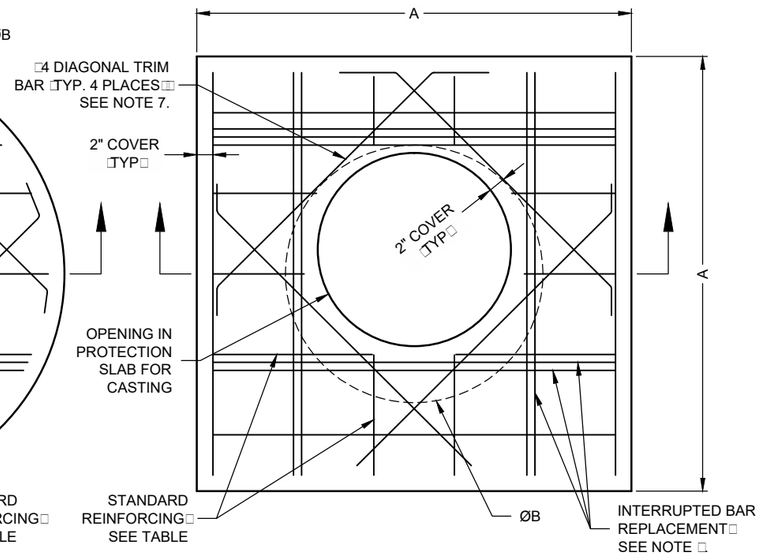
SECTION VIEW

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	□BEARING PRESSURE □PSF□
24"	Ø 4' 4X4□	2□"	□5 □ 12" OCEW □5 □ 12" OCEW	2□410 1□7□0
□0"	Ø 4'-6" 4□□" X 4□□"	□2"	□5 □ 12" OCEW □5 □ 12" OCEW	2□120 1□5□0
□□"	Ø 5' 5□X 5□	□□"	□5 □ 10" OCEW □5 □ 10" OCEW	1□□90 1□□50
42"	Ø 5'-6" 5□□" X 5□□"	44"	□5 □ 10" OCEW □5 □ 9" OCEW	1□720 1□210
4□"	Ø 6' □□X □□	50"	□5 □ 9" OCEW □5 □ □" OCEW	1□□00 1□100

□□ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO□17□□ EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1□MAX.
4. CONCRETE STRENGTH = □500 ps□
5. REINFORCING STEEL = ASTM A□15□GRADE □0.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED□ HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL □4 BARS□EXTEND BARS A MINIMUM OF 12" BEYOND OPENING□BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING□BINGHAMTON□NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

T□e des□□a□d □for□a□b□s□p□□ o□ □□s dra□□□s pro□□ded as a ser□□e □ □□e pro□ec□o□□er□e□□□eer a□d co□trac□or □□ Co□□ec□ E□□□eered Sol□□□o's LLC "Co□□ec□". Ne□□er □□s dra□□□□□or a□□par□□□ereof□□ a□□□e □sed□reprod□ced or □odified □ a□□□ a□□er □□o□□□e pr□r □□□e co□se□□of Co□□ec□. Fa□□re □o co□pl□ □s do□e a□□e □ser□s o□ r□s□a□d Co□□ec□e□press□d□scla□□s a□□ fa□□□□ or respo□s□□□□□ for s□□□se.

If d□screpa□□□es □e□ee□□e s□pplied □for□a□b□□po□□□□ □e dra□□□ s□based a□d ac□al f□eld co□d□□s are e□co□□ered as s□□ □or pro□□resses□□ese d□screpa□□es □s□□e reported □o Co□□ec□ □□ed□ate□y□for rea□a□□a□□ of □e des□□. Co□□ec□ accep□s □o □a□□□for des□□s □ased o□□□ □e□□□□□co□p□e□e or □acc□ra□e □for□a□b□□s□pplied □□o□ers.

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CONTECH CMP DETENTION SYSTEMS

CONTECH **DYODS** DRAWING

DYODS □147□□□1□0
PROJECT NAME: Norco S□□are M□□□Use
Norco□CA
DESCRIPTION: RESIDENTIAL □2

PROJECT No.:	SEQ. No.:	DATE:
147□□□1	0	4□20□2020
DESIGNED: DYODS	DRAWN: DYODS	
CHEC□ED:	APPROVED:	
SHEET NO.: D□		

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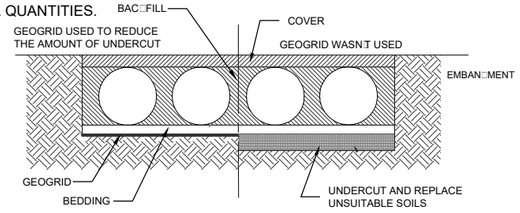
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG□TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE□CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES□NOT COVERED IN THIS GUIDE□ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BAC□FILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED□REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BAC□FILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES□WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES□USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

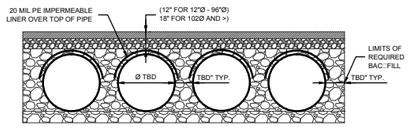


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON□POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME□ IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUIC□LY□PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE□S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED□SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE□A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

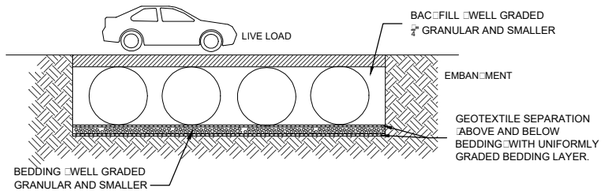
THE PROJECT□S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE□AND USE HIS□HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

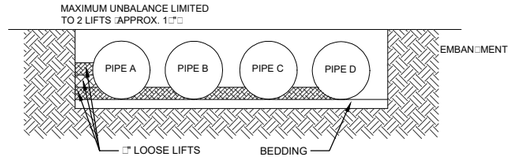
IF EXCAVATION IS REQUIRED□THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS□THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHEC□ USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WOR□ ENVIRONMENT AND PROPER BAC□FILL PLACEMENT AND COMPACTION TA□E CARE OF THIS CONCERN.



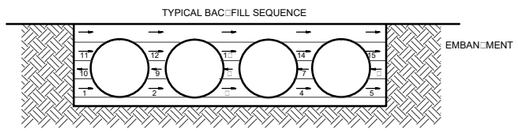
BACKFILL PLACEMENT

MATERIAL SHALL BE WOR□ED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL□SLICING□RODDING□AIR TAMPER□VIBRATORY ROD□OR OTHER EFFECTIVE METHODS.

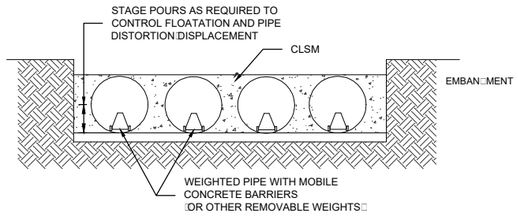


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD□COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR□OR UNDER FOOT□AND THE GEOTECHNICAL ENGINEER OF RECORD □OR REPRESENTATIVE THEREOF□IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS□CONVEYOR SYSTEMS□BAC□HOES WITH LONG REACHES OR DRAGLINES WITH STONE BUC□ETS MAY BE USED TO PLACE BAC□FILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED□ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL□AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BAC□FILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOC□PILED BAC□FILL DIRECTLY BEHIND THE BAC□HOE□AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOC□PILES ON TOP OF THE BAC□FILLED DETENTION SYSTEM SHOULD BE LIMITED TO □□TO 10□FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1□OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED□YOU MUST PREVENT PIPE FLOATATION. TYPICALLY□SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET□UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THIC□NESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM□THE OPPOSING WEIGHT OF THE PIPE□AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT□WHICH ALSO AFFECTS THE CLSM LIFT THIC□NESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THIC□NESS.

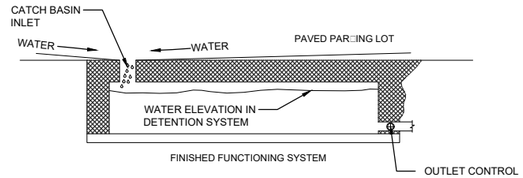


CONSTRUCTION LOADING

TYPICALLY□THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H□20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS□INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB□ IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE□CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW□GRADE□RAINFALL CAN RAPIDLY FILL THE EXCAVATION□POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS□IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE □EY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING□ QUARTERLY INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SI□E OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS□IN CLIMATES WHERE SANDING AND□OR SALTING OPERATIONS TA□E PLACE□AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE□ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED□SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS□INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES□ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION□IF EVIDENCE OF SALTING□DE□ICING AGENTS IS OBSERVED WITHIN THE SYSTEM□IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED□INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON□IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

T□e des□□a□d □for□a□b□s□o□ □□s dra□□□ s pro□ded as a ser□□e □o □e pro□ec□o□□er□e□□□eer a□d co□trac□or □□ Co□□ec□E□□□eered Sol□□□s LLC □"O□□ec□"□ Ne□□er □□s dra□□□□□or a□□par□□ereof □□ a□□e □sed□reprod□ced □r □odified □ a□□ a□□er □□□o□□□e pr□r □r□e□ co□se□□of Co□□ec□. Fa□re □o co□pl□ s□ do□e a□□e □ser□ o□□r□s□a□d Co□□ec□e□press□□ d□scla□□ s a□□□ la□□□ or respo□s□□□□ for s□c□□se.

If d□screpa□c□es □e□ee□ □e s□pplied □for□a□b□□po□□□□: □e dra□□□ s□ased a□d ac□al field co□d□□s are e□co□□ered as s□□ □or pro□□resses.□ese d□screpa□c□es □s□□e repor□ed □ Co□□ec□□□ed□a□□ for re□a□a□b□of □e des□□. Co□□ec□ accep□s □o la□□□ for des□□s □ased o□□ □s□□□co□ple□e or □acc□ra□e □for□a□b□s□pplied □□o□ers.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
□00□□□□1122 51□□45□7000 51□□45□799□FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH DYODS DRAWING

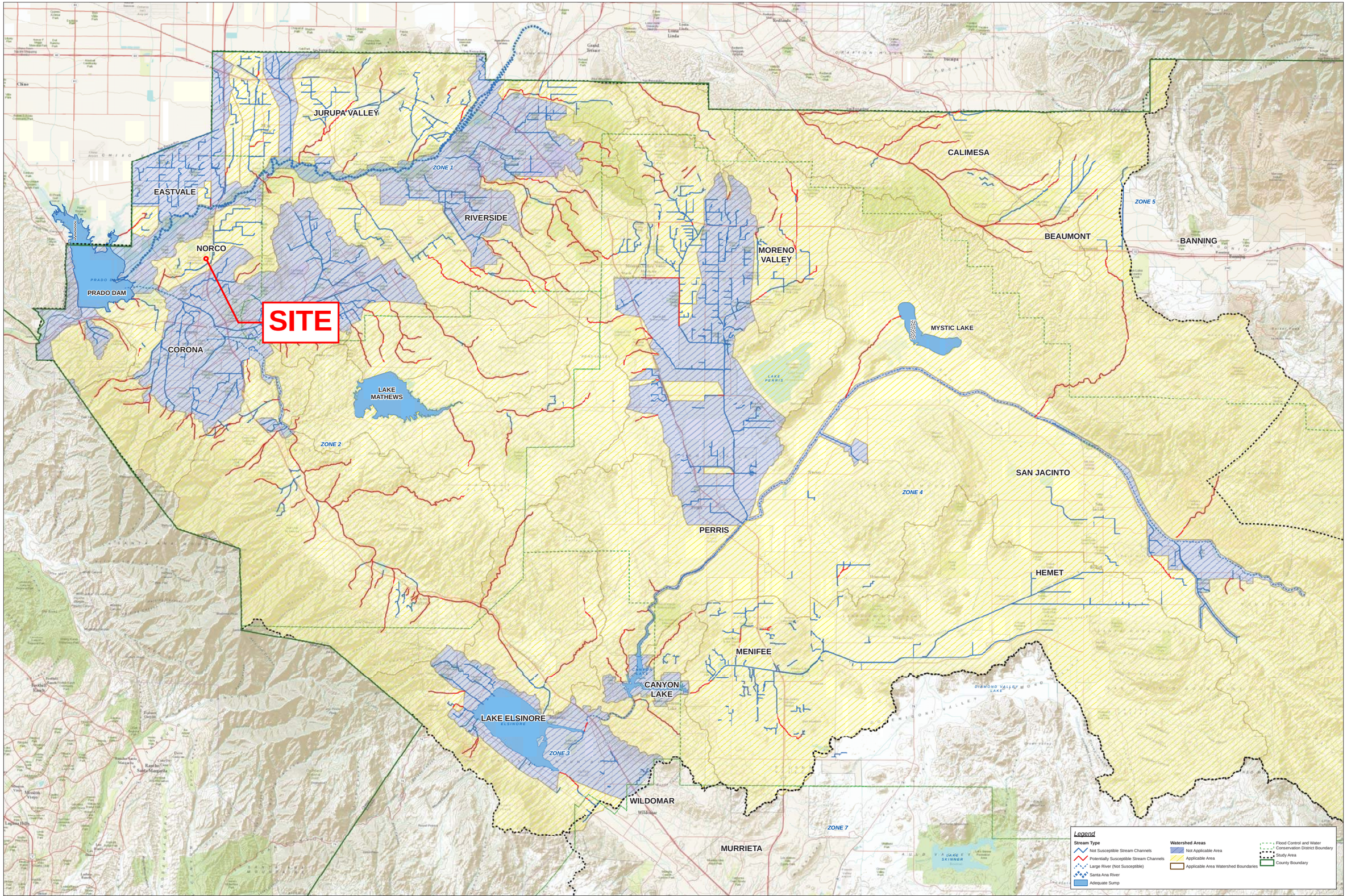
DYODS □147□□□1□0
PROJECT NAME: Norco S□□are M□□Use
Norco□CA
DESCRIPTION: RESIDENTIAL □2

PROJECT No.:	SEQ. No.:	DATE:
147□□□1	0	4□20□2020
DESIGNED: DYODS		DRAWN: DYODS
CHEC□ED:		APPROVED:
SHEET NO.: D4		

C:□DYODS□DATA□CPC□DYODS□147□□□1.DWG 4□20□2020 10:51 AM

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern



HCOC Applicability Map

Hydromodification Susceptibility Documentation Report and Mapping
Riverside County Flood Control and Water Conservation District

Map 2

Summery of UNIT Hydrograph Calculation

Comparison of Flood Volume for different Rain Event and Pre. Vs. Post. Delta Volume

Year/ Event	Pre/ Post	V total @ 1 Hr	V total @ 3 Hr	V total @ 6 Hr	V total @ 24 Hr
		cubic-ft	cubic-ft	cubic-ft	cubic-ft
2	Pre	17,618	21,787	27,360	44,275
	Post	36,110	61,971	86,773	154,714
Delta Volume=		**18,492**	**40,184**	**59,413**	**110,439**
5	Pre	37,490	47,859	58,036	71,645
	Post	52,667	88,363	122,132	219,943
Delta Volume=		**15,177**	**40,504**	**64,096**	**148,298**
10	Pre	51,059	65,027	78,842	104,923
	Post	65,354	107,732	148,806	269,716
Delta Volume=		**14,295**	**42,705**	**69,964**	**164,793**

Prorated Runoff Volume and Detention Volume for each site					
Site ID	Developed Site	Commercial Site DMA-1	Hotel Site DMA-2	Apartment Site	
				DMA-3	DMA-4
Tributary area (acre)	17.8	4.7	2.3	4.6	6.2
Site Imperviousness	0.839	0.9	0.9	0.8	0.8
Delta Volume (Cubic-ft)	164,793	46,658	22,833	40,592	54,710
Proposed Detention Storage (Cubic-ft)	165,953	46,911	23,218	40,778	55,046

CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14793
System Description:	Commercial Site
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	46,700 cf
Limiting Length:	180 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

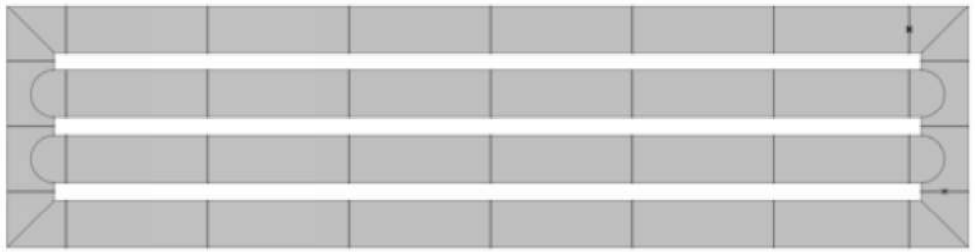
Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	163 x 41 ft
Length Per Barrel:	147 ft
Length Per Header:	41 ft
Pipe Storage:	33,677 cf
Structural Backfill Zone Storage:	13,233 cf
Total Storage Provided:	46,911 cf
Percent Of Required Storage:	100.45 %
Total CMP Footage:	670 ft
Approximate CMP Piece Count:	32
Approximate Coupling Bands:	34
Approximate Truckloads:	16
Total Excavation:	3,972 cy
Structural Backfill:	1,400 cy
Pavement Volume:	98 cy
Remaining Backfill To Pavement:	1,226 cy

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14794
System Description:	Hotel Site
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	23,000 cf
Limiting Length:	90 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

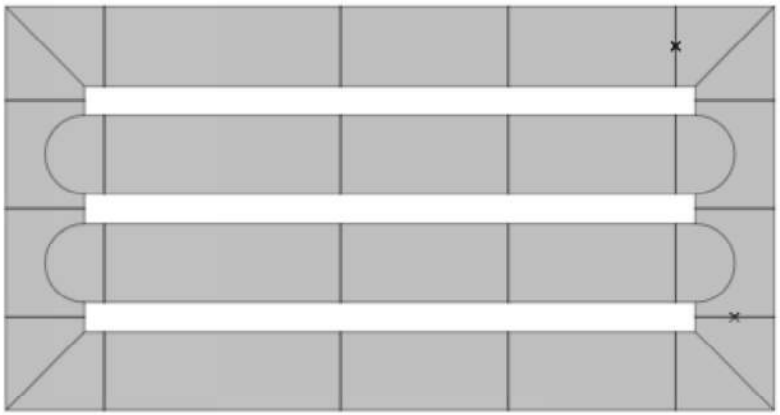
Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	78 x 41 ft
Length Per Barrel:	62 ft
Length Per Header:	41 ft
Pipe Storage:	16,587 cf
Structural Backfill Zone Storage:	6,630 cf
Total Storage Provided:	23,218 cf
Percent Of Required Storage:	100.95 %
Total CMP Footage:	330 ft
Approximate CMP Piece Count:	16
Approximate Coupling Bands:	18
Approximate Truckloads:	8
Total Excavation:	1,974 cy
Structural Backfill:	702 cy
Pavement Volume:	49 cy
Remaining Backfill To Pavement:	609 cy

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14792
System Description:	Residential #1
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/17/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	6 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	40,600 cf
Limiting Length:	180 ft
Limiting Width:	50 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

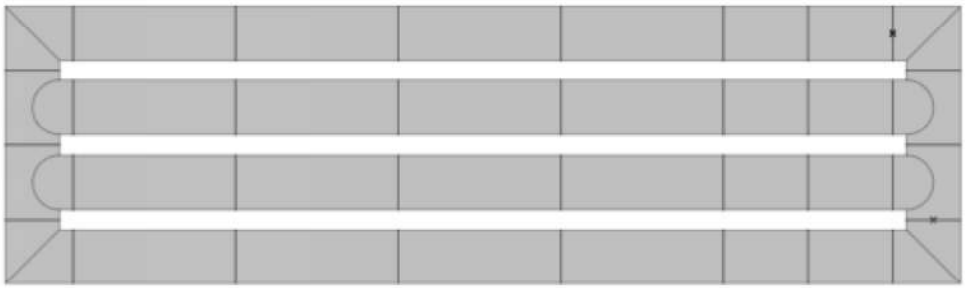
Pipe Detail

Material:	Steel
Shape:	Round
Size:	96 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	16
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	4
CMP Footprint (LxW):	141 x 41 ft
Length Per Barrel:	125 ft
Length Per Header:	41 ft
Pipe Storage:	29,254 cf
Structural Backfill Zone Storage:	11,524 cf
Total Storage Provided:	40,778 cf
Percent Of Required Storage:	100.44 %
Total CMP Footage:	582 ft
Approximate CMP Piece Count:	28
Approximate Coupling Bands:	30
Approximate Truckloads:	14
Total Excavation:	3,455 cy
Structural Backfill:	1,219 cy
Pavement Volume:	85 cy
Remaining Backfill To Pavement:	1,066 cy

Draftboard



CONTECH ENGINEERED SOLUTIONS

Detention or Infiltration System Designer

Design - CMP

DYODS® #	14786
System Description:	Residential #2
Project:	Norco Square Mix-Use
Application:	Infiltration (Perforated CMP)
Created:	04/16/2020
Modified:	04/17/2020

System Selection

Application:	Infiltration
System:	CMP - Perforated w/ Stone Backfill

Structural Backfill Detail

Stone Porosity:	35 %
Width At Ends:	36 in
Above Pipe:	12 in
Width At Sides:	36 in
Below Pipe:	6 in

Design Parameters

Storage Volume:	55,000 cf
Limiting Length:	200 ft
Limiting Width:	70 ft
Pavement Type:	Flexible Pavement
Pavement Depth:	4 in
Freeboard Depth:	0 in
Invert Depth:	13 ft

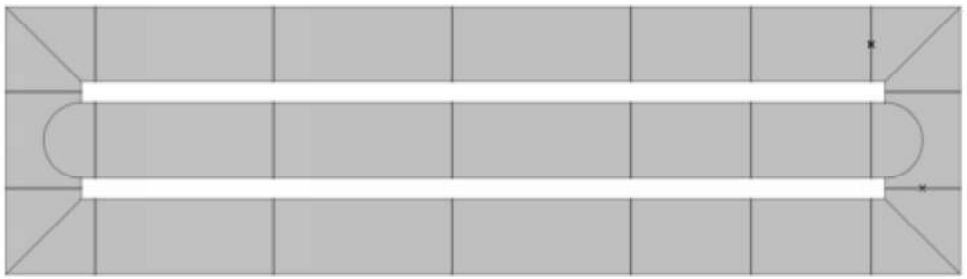
Pipe Detail

Material:	Steel
Shape:	Round
Size:	132 in
Corrugation:	5" x 1" or 3" x 1"
Gage:	12
Pipe Spacing:	36 in
Coating:	Aluminized Steel Type 2 (ALT2)
Layout:	Double Manifold

Calculations

Status:	OK
Barrel Count:	3
CMP Footprint (LxW):	139 x 39 ft
Length Per Barrel:	117 ft
Length Per Header:	39 ft
Pipe Storage:	40,769 cf
Structural Backfill Zone Storage:	14,277 cf
Total Storage Provided:	55,046 cf
Percent Of Required Storage:	100.09 %
Total CMP Footage:	429 ft
Approximate CMP Piece Count:	19
Approximate Coupling Bands:	20
Approximate Truckloads:	19
Total Excavation:	3,263 cy
Structural Backfill:	1,511 cy
Pavement Volume:	81 cy
Remaining Backfill To Pavement:	161 cy

Draftboard



Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Appendix K

Noise and Vibration Study

Norco Valley Square Project

Noise and Vibration Study

prepared for

Frontier Enterprises
2151 East Convention Center Way, Suite 114
Ontario, California 91764
Contact: Tim Nguyen

prepared by

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

April 2020

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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Appendix A Noise Measurement Data
Appendix B Roadway Construction Noise Model (RCNM) Results and Modeled Equipment
Appendix C Operational Equipment Specifications

1 Project Description and Impact Summary

1.1 Introduction

This study analyzes the potential noise and vibration impacts of the proposed Hamner Avenue Mixed Use Project (project) in the City of Norco, Riverside County, California. Rincon Consultants, Inc. (Rincon) prepared this study under contract to Frontier Enterprises to use in support of the environmental documentation for the project. The purpose of this study is to analyze the project's noise and vibration impacts related to both temporary construction activity and long-term operation of the project. Table 1 provides a summary of project impacts.

Table 1 Summary of Impacts

Issue	Level of Significance	Applicable Recommendations
Issue 1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Less Than Significant Impact (Construction) Less Than Significant Impact (Operation)	None
Issue 2: Generation of excessive ground-borne vibration or ground-borne noise levels.	Less Than Significant Impact	None
Issue 3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.	No Impact	None
Issue 4: Would the project conflict with land use compatibility guidelines for noise?	No conflicts	None

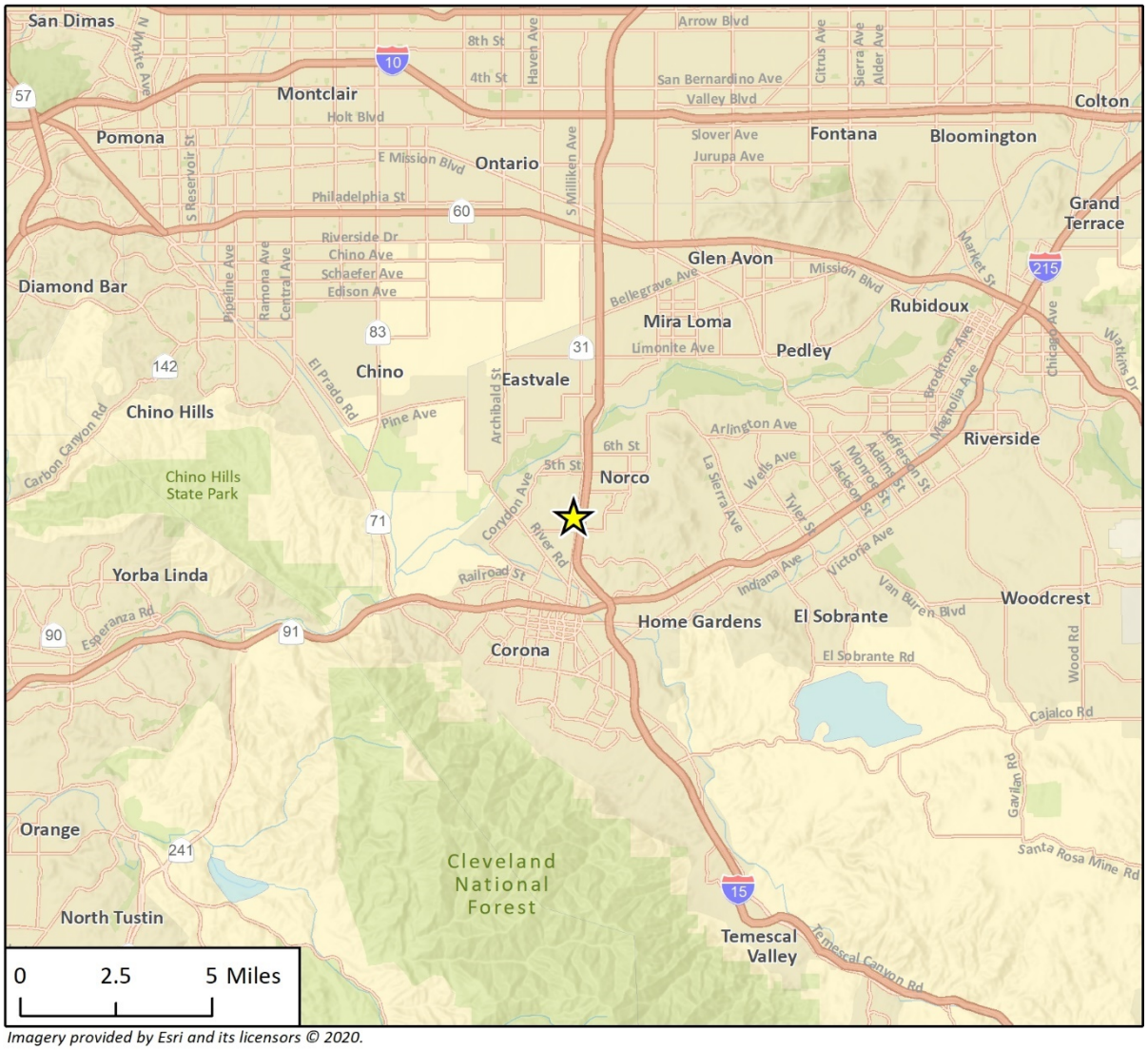
1.2 Project Summary

Project Location

The project site is located in western Riverside County, in the south central portion of the City of Norco. The City of Norco is located approximately 40 miles east of downtown Los Angeles, 20 miles west of downtown San Bernardino, and 20 miles northeast of Orange County. Regional access to the project site is provided via Interstate 15 (I-15) with the nearest on- and off-ramps located 0.4 mile southeast (east of the Second Street and Hamner Avenue intersection), and State Route 91 (SR-91) located approximately 2.5 miles to the south. The project site is located within the Corona North USGS 7.5-Minute Quadrangle and can be located within Section 12, Township 3 South, Range 7 West of the San Bernardino Baseline and Meridian. Figure 1 shows the regional location of the project site.

The project site is located in the southwest corner of Third Street and Hamner Avenue and consists of three parcels totaling approximately 19.1 acres. Figure 2 shows the location of the project site in its neighborhood context.

Figure 1 Regional Location



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Project Location

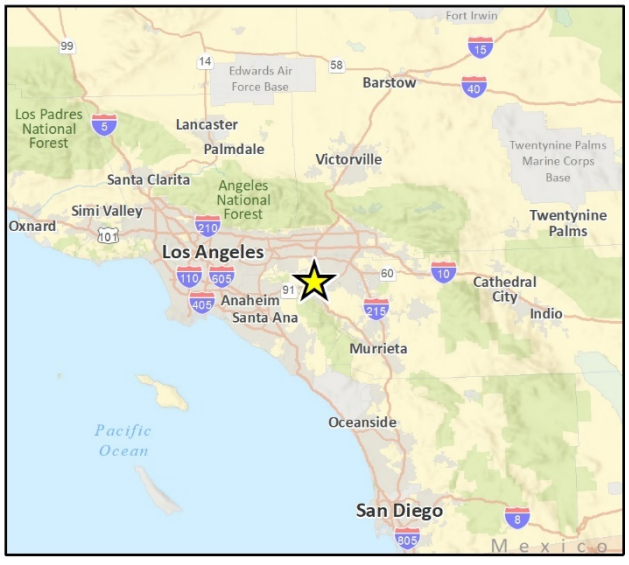

Figure 2 Project Vicinity

Imagery provided by Microsoft Bing and its licensors © 2020.

Fig 2 Project Location

The project site is mostly undeveloped. The easternmost portion of the project site, at the very southwest corner of the Third Street and Hamner Avenue intersection, is currently in use as a recreational vehicle (RV) sales lot (Norco RV Center located at 2350 Hamner Avenue). The remainder of the project site contains remnants of foundations with evidence of previous grading and development, but is mostly vegetated with a few scattered trees. There are no permanent structures on the project site.

Project Land Use Designation and Zoning

The project site has a City of Norco General Plan (Norco General Plan) land use designation of Specific Plan (SP) within the Housing Development Overlay (HDO). The project site has a zoning designation of Specific Plan as it is located within the Norco Auto Mall Specific Plan Area, as well as the HDO overlay zoning designation. However, the underlying zoning designation for the project site is Commercial General (C-G).

Project Description

The proposed mixed-use project would consist of mixed uses which include multi-family residential dwelling units, a hotel development, a food garden, and intermittent outdoor entertainment and recreation amenities (see Figure 3). The residential portion of the project would be constructed on approximately 11.3 acres on the western half of the project site. The hotel development, food garden, and outdoor entertainment and recreation space would be constructed on approximately 7.6 acres on the eastern half of the project site. The remaining 0.2 acre would be attributed to landscaping throughout the perimeter of the project site and parking islands.

The food garden would generally operate from 7:00 a.m. to 11:00 p.m. The outdoor entertainment amenities would be used intermittently, based on approvals by the City of temporary use and/or special events permits. The outdoor recreation amenities (e.g., farmers market and food stands, artist exhibit area, bocce courts and lawn game areas, open space park, and horse paddock) would be open to public use on a first-come first-serve basis between the hours of 7:00 a.m. to 11:00 p.m.

The project would provide a total of 581 parking spaces for residential uses, 211 parking spaces for commercial uses, and 76 parking spaces to be shared for all proposed uses. No underground parking is proposed. A total of 27 parking spaces would be accessible to persons with disabilities (10 for residential use and 17 for food garden and hotel use) and 15 anchored bicycle racks would be installed for bicycle parking (nine racks for food garden use and six racks for hotel use).

The main driveway for the project site would be located on Hamner Avenue, and the secondary access point would be located on Third Street. The main circulation flow would be via the main driveway on Hamner Avenue, which would provide access for all proposed uses. Secondary access would be from the Third Street driveway, which would primarily provide access to the proposed residential development and food garden. Hamner Avenue and Third Street have existing curb cuts where proposed driveways would be placed. Pedestrian access points are located along Third Street just west of the food garden, and on both sides of the main driveway located on Hamner Avenue.

Figure 3 Site Plan

2 Background

2.1 Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy. The perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (eight times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud ([10.5x the sound energy] Crocker 2007).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2017). Structures can substantially reduce exposure to noise as well. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean squared (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period (Crocker 2007).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (DNL), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours; it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by DNL and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the DNL/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

2.2 Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body starts from a low frequency of less than 1 Hz and goes to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (FTA 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2020). When a building is impacted by

vibration, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may actually amplify the vibration level due to structural resonances of the floors and walls.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in./sec.). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2020).

2.3 Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Norco's General Plan Noise Element defines noise sensitive receivers as hospitals, residences, convalescent homes, schools, churches, sensitive wildlife habitat, and the small plot agriculture/animal keeping/equestrian lifestyle (City of Norco 2003). Noise sensitive receivers near the site include single-family residences to the south and west.

Vibration sensitive receivers are similar to noise sensitive receivers, such as residences, and institutional uses, such as schools, churches, and hospitals. However, vibration sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment, affected by levels that may be well below those associated with human annoyance.

2.4 Project Noise Setting

The most common source of noise in the project site vicinity is vehicular traffic from Third Street and Hamner Avenue. The nearest sensitive receivers to the project site are single-family residences to the south and west.

To characterize ambient sound levels at and near the project site, three 15-minute sound level measurements were conducted on February 7, 2020, and one 24-hour measurement was conducted on February 7 through 8, 2020. Noise Measurement (NM) 1 was taken near the northern project boundary to ascertain noise levels from Third Street; NM 2 was taken to capture the noise levels off Hamner Avenue; and NM3 was taken to capture the ambient noise level within the approximate center of the project site. The 24-hour measurement was placed near NM 1 to capture roadway noise levels throughout the course of a day. Table 2 and Table 3 summarizes the results of the noise measurements, and Table 4 shows the recorded traffic volumes from NM 1 and NM 2. Detailed sound level measurement data are included in Appendix A.

Table 2 Project Site Noise Monitoring Results – Short Term

Measurement Location	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	L_{eq} (dBA)	L_{max} (dBA)
NM 1	Northern portion of project site, adjacent to Third Street	11:01 - 11:16 a.m.	Approximately 50 feet to centerline of Third Street	62	71
NM 2	Eastern boundary of project site, adjacent to Hamner Avenue	11:22 – 11:37 a.m.	Approximately 50 feet to centerline of Hamner Avenue	72	80
NM 3	Approximate center of project site	11:47 a.m. – 12:02 p.m.	Approximately 500 feet to centerline of Hamner Avenue	48	58

Detailed sound level measurement data are included in Appendix A.

Table 3 Project Site Noise Monitoring Results – Long Term

Sample Time	dBA L_{eq}	Sample Time	dBA L_{eq}
LT1 – Northern Boundary of Project Site, Adjacent to Third Street, February 6-7, 2020			
12:28 p.m.	64	12:28 a.m.	60
1:28 p.m.	67	1:28 a.m.	57
2:28 p.m.	65	2:28 a.m.	57
3:28 p.m.	65	3:28 a.m.	56
4:28 p.m.	66	4:28 a.m.	60
5:28 p.m.	63	5:28 a.m.	61
6:28 p.m.	66	6:28 a.m.	63
7:28 p.m.	62	7:28 a.m.	65
8:28 p.m.	62	8:28 a.m.	69
9:28 p.m.	66	9:28 a.m.	62
10:28 p.m.	66	10:28 a.m.	61
11:28 p.m.	59	11:28 a.m.	62
24-hour Noise Level			**64**

Source: Rincon Consultants, field measurements conducted on February 6 and 7, 2020, using ANSI Type II Integrating sound level meter. See Appendix A.

Table 4 Sound Level Monitoring Traffic Counts

Measurement	Roadway	Traffic	Autos[1]	Medium Trucks[2]	Heavy Trucks[3]
NM 1	Third Street	15-minute count	165	1	0
		One-hour Equivalent	660	4	0
Percent			**99%**	**1%**	**0%**
NM 2	Hamner Avenue	15-minute count	575	10	3
		One-hour Equivalent	2,300	40	12
Percent			**97%**	**2%**	**1%**

Note: Detailed sound level measurement data are included in Appendix A.

[1] Automobiles: all vehicles with two axles and four tires -- primarily designed to carry nine or fewer people (passenger cars, vans) or cargo (vans, light trucks) -- generally with gross vehicle weight less than 4,500 kg (9,900 lbs).

[2] Medium trucks: all cargo vehicles with two axles and six tires -- generally with gross vehicle weight between 4,500 kg (9,900 lbs) and 12,000 kg (26,400 lbs).

[3] Heavy trucks: all cargo vehicles with three or more axles -- generally with gross vehicle weight more than 12,000 kg (26,400 lbs).

2.5 Applicable Regulatory Setting

City of Norco General Plan

The Noise Element of the General Plan was adopted in 2003. The goal and policies of the noise element are intended to protect sensitive land uses and citizens form other more intensive land uses, and from point sources that produce high noise levels. The Noise Element contains a noise compatibility matrix consistent with State guidelines (shown in Table 5), which summarizes recommended criteria for assessing the compatibility of noise sources and receivers. The noise compatibility matrix identifies the normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses. For multi-family and hotel land uses, ambient noise levels up to 65 CNEL are considered normally acceptable and ambient noise levels up to 70 CNEL are considered conditionally acceptable. The Noise Element also lists the interior noise standard for residential areas as 45 CNEL.

Table 5 Land Use/Noise Compatibility Matrix (CNEL)

Land Use Categories	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential: low density, single family, duplex, mobile homes	<60	55-70	70-75	>75
Residential: multi-family	<65	60-70	70-75	>75
Transient lodging: motels, hotels	<65	60-70	70-80	–
Schools, libraries, churches, hospitals, nursing homes	<70	60-70	70-80	>80
Auditoriums, concert halls, amphitheaters	–	<70	>65	–
Sports areas, outdoor spectator sports	–	<75	>70	–
Playgrounds, neighborhood parks	<70	–	67-75	>73
Gold courses, riding stables, water recreation, cemeteries	<75	–	70-80	>80
Office buildings, business, commercial, professional offices	<70	67-73	>75	–
Industrial, manufacturing, utilities, agriculture	<75	70-80	>75	–

City of Norco Municipal Code

The City's Noise Ordinance, Chapter 9.07 - Noise Regulations of the Norco Municipal Code, sets forth regulations concerning the generation and control of noise. Section 9.07.020 exempts construction noise for private construction projects located within a quarter mile of an inhabited dwelling provided that construction does not occur between 7:00 p.m. and 7:00 a.m. Monday through Friday or 7:00 p.m. and 8:00 a.m. on Saturday and Sunday. In addition, Section 15.30.020 of the Norco Municipal Code states that construction activity, including the loading and unloading of materials, shall not occur before 6:30 a.m. or after 7:00 p.m. on weekdays.

Section 9.07.040 of the Norco Municipal Code sets exterior noise standards of various land uses for occupied property in the City. The exterior sound level for residential land uses is 55 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m. For nearby institutional uses such as the Norco College, the public facility exterior sound levels would apply of 65 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m.

Because the noise standards discussed above do not have a quantitative standard for construction noise, the FTA Transit Noise and Vibration Impact Assessment (2018) criteria are used. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} for an 8-hour period.

Section 9.07.060 of the City Municipal Code lists standards for "special sound sources":

- Sound Amplifying Equipment and Live Music. No person shall install, use or operate sound amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control:
  - Sound amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m.
  - Sound emanating from sound amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 100 feet from the equipment or music.

3 Methodology

3.1 Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2018). Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels.

Construction activity would result in temporary noise in the project area, exposing surrounding sensitive receivers to increased noise levels. The project would involve site preparation, grading, building construction, paving, and architectural coating. Construction noise would typically be higher during the heavier periods of initial construction (i.e., grading) and would be lower during the later construction phases. Typical heavy construction equipment during project grading could include dozers, excavators, loaders, scrapers, and graders. It is assumed that diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location. In addition, construction equipment would not be in constant use during the 8-hour operating day.

A potential construction scenario includes a dozer and a loader working to grade the site. Therefore, a dozer and a loader were analyzed together for construction noise impacts due to their likelihood of being used in conjunction at the same time and therefore a conservative scenario for the greatest noise generation during construction. At a distance of 100 feet, a dozer and a loader would generate a noise level of 73.6 dBA L_{eq} (RCNM calculations are included in Appendix B).

3.2 Groundborne Vibration

Operation of the proposed project would not include any substantial vibration sources. Thus, construction activities have the greatest potential to generate ground-borne vibration affecting nearby receivers, especially during grading and excavation of the project site. The greatest vibratory source during construction would be a dozer. Neither blasting nor pile driving would be required for construction of the proposed project. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2020, FTA 2018). Table 6 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018).

Table 6 Vibration Levels Measured during Construction Activities

Equipment	PPV at 25 ft. (in./sec.)
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

Source: FTA 2018

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, and excavation, are based on information contained in Caltrans' *Transportation and Construction Vibration Guidance Manual* and the Federal Transit Administration and the FTA *Transit Noise and Vibration Impact Assessment Manual* (Caltrans 2020; FTA 2018). Maximum recommended vibration limits by the American Association of State Highway and Transportation Officials (AASHTO) are identified in Table 7.

Table 7 AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in./sec.)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Source: Caltrans 2020

Based on AASHTO recommendations, limiting vibration levels to below 0.2 PPV in./sec. at residential structures would prevent structural damage regardless of building construction type. These limits are applicable regardless of the frequency of the source. However, as shown in Table 8 and Table 9 potential human annoyance associated with vibration is usually different if it is generated by a steady state or a transient vibration source.

Table 8 Human Response to Steady State Vibration

PPV (in./sec.)	Human Response
3.6 (at 2 Hz)–0.4 (at 20 Hz)	Very disturbing
0.7 (at 2 Hz)–0.17 (at 20 Hz)	Disturbing
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible

Source: Caltrans 2020

Table 9 Human Response to Transient Vibration

PPV (in./sec.)	Human Response
2.0	Severe
0.9	Strongly perceptible
0.24	Distinctly perceptible
0.035	Barely perceptible

Source: Caltrans 2020

As shown in Table 8, the vibration level threshold at which steady vibration sources are considered to be distinctly perceptible is 0.035 in./sec. PPV. This is roughly equivalent to the FTA identified threshold of 78 VdB for assessing impacts to residential land uses from infrequent events. This threshold is used for assessing passing trains in the FTA Manual. However, as shown in Table 9, the vibration level threshold at which transient vibration sources (such as construction equipment) are considered to be distinctly perceptible is 0.24 in./sec. PPV. This is roughly equivalent to 94 VdB. This analysis uses the distinctly perceptible threshold for purposes of assessing vibration impacts.

Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors and the vibration level threshold for human perception is assessed at occupied structures (FTA 2018). Therefore, vibration impacts are assessed at the structure of an affected property.

3.3 Operational Noise Sources

Live Events

As part of the food garden area, the project would have community gatherings, farmers markets, food trucks, a horse coral path, a children's playground, kiosks, bike rentals, lounge areas with fire pits, an artist exhibit area, a performing stage, and a bocce court/lawn game amenities. The main noise-generator out of these events would be where live music may be performed by bands or other amplified sound would occur; while these events would primarily occur at the performing stage in a central area of the food garden, they may occur at the open park area at the southern portion of the commercial area of the project. As this park area is closest to off-site noise-sensitive receivers and less shielded by food garden buildings, band noise was modeled at this location.

The Noise Navigator Sound Level Database lists over 1,700 measurement values for occupational, recreational and military noise sources, including over a dozen measurements for concerts (3M Personal Safety Division 2015). The musicians measured include a mix of rock and pop concerts. The anticipated band noise at the project site would be on a smaller scale in terms of equipment and speakers than the major concert venues measured and would also be for a family-oriented audience (i.e., heavy guitars and loud vocals from a rock concert would not be anticipated). Therefore, the value for a relatively mellow artist, Judy Collins, was chosen for the model of 80 dBA at a distance of 25 meters (82 feet). This represents a sound power level (SPL) of 115.9 dBA at the stage. This was modeled as three separate speakers with a combined SPL of 115.9 dBA located on the two sides of the stage and one at the back of the stage.

Mechanical Equipment

The primary mechanical equipment noise generator from the project would be heating, ventilation, and air conditioning (HVAC) units. The unit used in this analysis is a 5-ton Carrier 38HDR060 split system condenser (see Appendix C for manufacturer's specifications), and units were assumed to be located on the rooftops of each residential unit and commercial building. The hotel was assumed to contain 24 HVAC units based upon one ton of HVAC per 600 sf of building space. The manufacturer's noise data lists the unit as having a sound power level of 72.0 dBA.

Traffic Noise

Noise levels affecting the proposed project site would be primarily influenced by traffic noise from Hamner Avenue and Third Street. Future noise levels affecting the compatibility of the project site were estimated using the FHWA's Traffic Noise Model (TNM) traffic noise-reference levels and algorithms from SoundPLAN. Traffic noise-model inputs to SoundPLAN include the three-dimensional coordinates of the roadways, noise receivers, and topographic features or planned barriers that would affect noise propagation; vehicle volumes and speeds, by type of vehicle; and absorption factors.

Hamner Avenue is a four-lane roadway with a posted speed limit of 40 miles per hour (mph). Third Street is a four-lane roadway with a posted speed limit of 35 mph. Traffic volumes used for the noise analysis are shown in Table 10. The traffic counts used average daily trips (ADT) information provided in the project's traffic report (Urban Crossroads 2020).

Table 10 Existing and Future Traffic Volumes

	Traffic Counts (Average Daily Trips)					
Roadway/Segment	Existing	Existing + Project	Opening Year Cumulative (2023)	Opening Year Cumulative (2023) + Project	Horizon Year 2040	Horizon Year 2040 + Project
Third Street						
Windy Way to Project Driveway 1	7,200	7,200	7,800	7,800	10,900	10,900
Project Driveway 1 to Hamner Avenue	9,800	10,700	10,500	11,500	23,200	24,200
Hamner Avenue to Interstate 15	3,800	3,900	4,100	4,300	6,800	7,000
Hamner Avenue						
Fourth Street to Third Street	40,500	41,400	45,200	46,200	49,800	50,700
Third Street to Project Driveway 2	31,800	42,300	46,700	47,400	54,300	55,000
Project Driveway 2 to Second Street	41,400	44,000	46,800	49,100	54,400	56,800

Source: Urban Crossroads 2020

To determine the vehicle classification mix for modeling, the mix observed during the site visit as shown in Table 4 was used for Third Street and Hamner Avenue. Peak hour traffic was assumed to be 10 percent of the ADT. For the purposes of modeling, the peak hour traffic volume was inputted into the model to determine the peak hour L_{eq}. The CNEL is estimated to be equivalent to the peak hour L_{eq} when the peak hour is 10 percent of ADT.

Exterior traffic noise levels at the residential building façades of the 1st through 3rd floors and the hotel building façades of the 1st through 4th floors were calculated, with the first floor receivers placed at 5 feet above ground level and second through fourth floor receivers placed at 15 feet, 25 feet, and 35 feet above ground level, respectively.

Model Calibration

The measured noise levels (Table 2) were compared to a modeled noise level in SoundPLAN, using the observed traffic counts for model calibration (Table 4). Modeled noise within 3 dBA or less from the measured level is considered sufficiently accurate without adjustment. The modeled noise values for NM 1, NM 2, and NM 3 were 60, 69, and 51 dBA L_{eq}, respectively. The modeled noise value for NM 1, NM 2, and NM 3 are within 2 dBA, 3 dBA, and 3 dBA of the measured values, respectively. Therefore, the modeled noise levels are considered sufficiently accurate without adjustment.

3.4 Significance Thresholds

The following thresholds are based on City noise standards and Appendix G of the CEQA guidelines. Noise impacts would be considered significant if:

- **Issue 1 – Noise in Excess of Established Standards:** The project would result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
  - **Temporary:** Construction noise would be significant if:
    - Noise levels exceed the FTA criterion of 80 dBA L_{eq} for an 8-hour period; or
    - Construction noise is generated outside of allowable construction hours as stated in Section 9.07.020 of the Norco Municipal Code.
  - **Permanent:** Operational noise would be significant if:
    - Per Section 9.07.040 of the Norco Municipal Code, if the project's stationary noises sources generated noise levels exceeding 55 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m. at the nearby residential land uses or 65 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m. at the nearby college uses;
    - For traffic-related noise, impacts would be considered significant if project-generated traffic would result in exposure of sensitive receivers to an unacceptable increase in noise levels. For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 3 dB or more where the ambient noise level is 70 dBA CNEL or greater (i.e., those with-project conditions that fall within the "normally unacceptable" or "clearly unacceptable" land use categories). In addition, a significant impact would also occur if

project-related traffic increases the ambient noise environment of noise-sensitive locations by 5 dB or more regardless of the ambient noise level under with-project conditions.

- **Issue 2 - Vibration:** The project would result in the generation of excessive ground-borne vibration or ground-borne noise levels.
  - This would occur if the project would subject vibration-sensitive land uses to construction-related ground-borne vibration that exceeds the distinctly perceptible vibration annoyance potential criteria for human receivers of 0.24 in./sec. PPV, or the residential structural damage criteria of 0.2 PPV in./sec.
- **Issue 3 – Airport Noise:** For a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project exposes people residing or working in the project area to excessive noise levels.
- **Issue 4 – Land Use Compatibility**: The project's on-site uses would be subject to noise exceeding City Noise Element land use compatibility standards.
  - This would occur if exterior use areas of the project are subject to noise levels in excess of 65 CNEL, and interior living areas of the project are subject to noise levels in excess of 45 CNEL.

4 Impact Analysis

4.1 Issue 1 – Temporary and Permanent Noise Increase

CEQA Appendix G Noise Threshold Issue 1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? *(Less Than Significant Impact)*

Construction

Over the course of a typical construction day, construction equipment would be located as close as 25 feet to the nearest residential structures to the south and west but would typically be located at an average distance further away due to the nature of construction where equipment is mobile throughout the day. Therefore, it is conservatively assumed that over the course of a typical construction day the construction equipment would operate at an average of 100 feet from the nearest residential structures.

As described under Section 3.1, at a distance of 100 feet, a dozer and loader would generate a noise level of 73.6 dBA L_{eq} (8-hour). The approximate 80 dBA L_{eq} (8 hour) noise contour for project construction would be approximately 50 feet (i.e., if construction averages 50 feet or greater throughout an 8-hour construction day, it would not exceed the FTA threshold). Therefore, construction noise levels with this equipment would not exceed the FTA construction noise threshold of 80 dBA L_{eq} (8-hour) at residential land uses. Other construction activities, such as building construction, would be anticipated to use equipment of intensity similar to or less than the simultaneous use of a dozer and loader. In addition, construction would occur within the allowed hours of the City's Municipal Code. Given the aforementioned, impacts would be less than significant.

Operation

The project would introduce sources of operational noise to the site, including mechanical equipment (HVAC units) and band noise. Assumptions for these sources are discussed in Section 3.3. Noise levels at the nearest properties from each noise source and their combined noise levels are shown in Table 11. Receiver locations and daytime operational noise level contours are shown on Figure 4. In accordance with City Municipal Code Section 9.07.060, live music and sound amplifying equipment would not occur between 10:00 p.m. to 8:00 a.m. Therefore, the band noise and combined noise levels only apply to the City noise thresholds between 7:00 a.m. to 10:00 p.m. As shown in Table 11, during the hours of 7:00 a.m. to 10:00 p.m. when band noise and HVAC noise may be occurring simultaneously, noise levels would not exceed the residential noise limit of 55 dBA L_{max} or the public facilities noise limit of 65 dBA L_{max}. During the hours of 10:00 p.m. to 7:00 a.m., HVAC noise would not exceed the residential and public facilities noise limit of 45 dBA L_{max}. Therefore, operational noise from the project would not exceed limits at off-site noise-sensitive receivers.

Table 11 Operational Noise Levels at Off-site Receivers

		dBA L_{max}			
Receiver	Description	HVAC	Music	Combined	Exceed Threshold?[1,2]
OFF1	Paddock Lane Residence	35	39	39	No
OFF2	Paddock Lane Residence	36	39	39	No
OFF3	Paddock Lane Residence	36	43	43	No
OFF4	Paddock Lane Residence	37	42	42	No
OFF5	Paddock Lane Residence	37	40	40	No
OFF6	Paddock Lane Residence	36	40	40	No
OFF7	Paddock Lane Residence	35	42	42	No
OFF8	Paddock Lane Residence	35	40	40	No
OFF9	Mountain Ave Residence	35	40	40	No
OFF10	Mountain Ave Residence	36	44	44	No
OFF11	Mountain Ave Residence	34	38	38	No
OFF12	Norco College – STEM Center	36	56	56	No
OFF13	John F. Kennedy Middle College High School	32	52	52	No

[1] The applicable threshold for residential uses is 55 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m.; the applicable threshold for public facilities is 65 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} from 10:00 p.m. to 7:00 a.m.

[2] In accordance with City Municipal Code Section 9.07.060, live music and sound amplifying equipment would not occur between 10:00 p.m. to 8:00 a.m. Therefore, the band noise and combined noise levels only apply to the daytime thresholds described above.

The City Municipal Code also states that sound emanating from sound amplifying equipment or live music shall not be audible to the human ear at a distance greater than 100 feet from the equipment or band noise. The ambient noise level is assumed to be 62 dBA, which is the quietest hour during potential band noise hours in the 24-hour measurement taken in Table 3. Audible is determined as 3 dBA greater (a barely perceptible noise increase) over the ambient noise level. Noise at a receiver 100 feet from the band noise (which at that distance would only occur on property or within a nearby roadway) is provided as R-100FT on Figure 4. Due to the close distance to amplified music, noise levels at this receiver would be approximately 76 dBA L_{max}. While the project's band noise would be audible to the human ear at a distance of 100 feet, the band's noise level would only exceed the ambient noise levels within the project site itself or within adjacent roadways; the band noise would not exceed Municipal Code property line thresholds at adjacent receivers, as shown in Table 11. Therefore, impacts would be less than significant.

Off-site Traffic Noise

The project would generate new vehicle trips that would use area roadways. The traffic noise increases caused by project traffic are shown in Table 12. As shown in the table, the greatest noise increase is 1 dBA L_{eq}, with most increases less than 1 dBA L_{eq}. Therefore, the project's traffic noise increases would not exceed 3 dBA, a noticeable noise increase, and impacts would be less than significant.

Figure 4 Operational Noise Level Contours

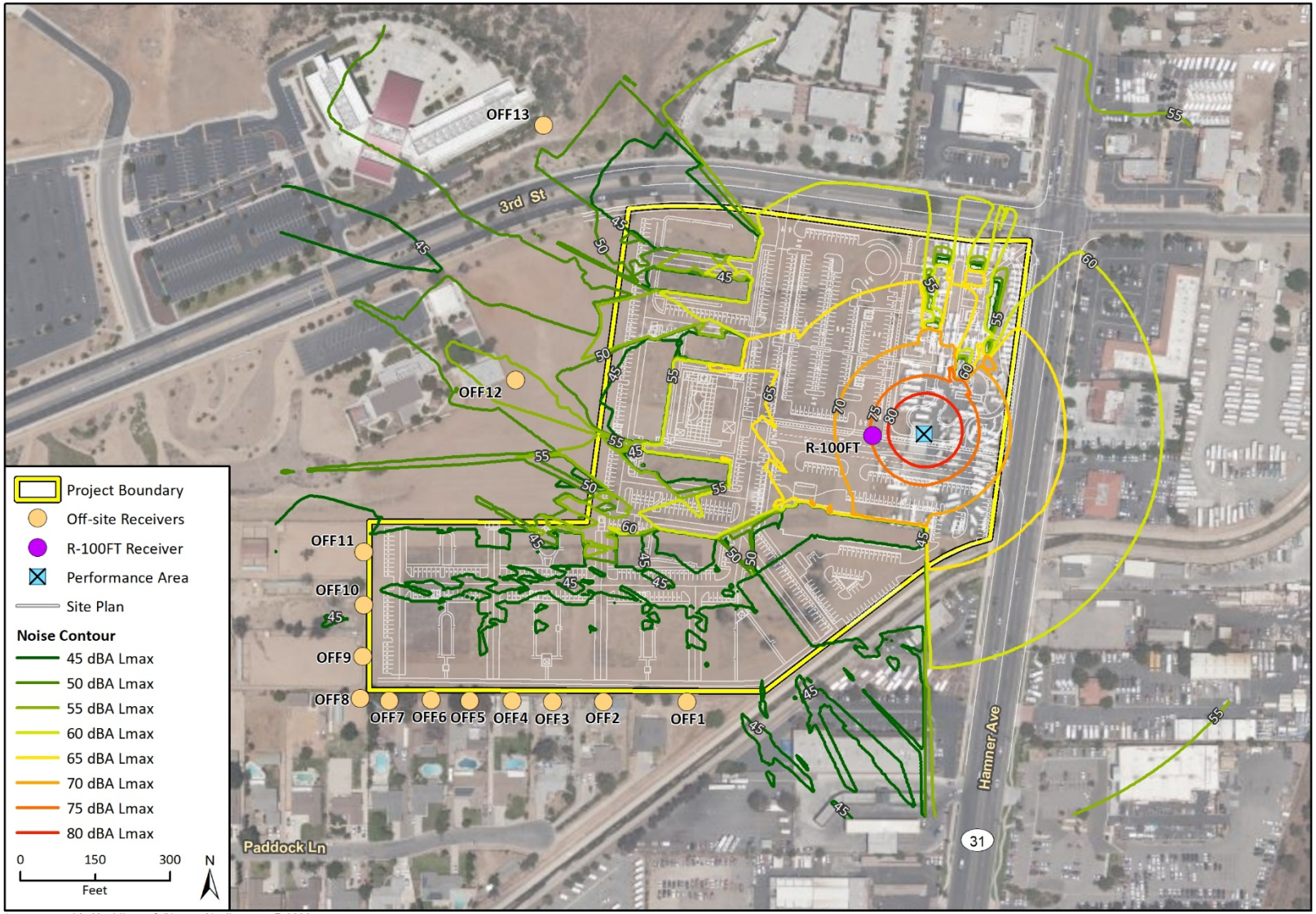

Table 12 Off-site Traffic Noise Increases

Roadway/Segment	Noise Increase (dBA $_{Leq}$)								
	Existing	Existing + Project	Increase	Opening Year Cumulative (2023)	Opening Year Cumulative (2023) + Project	Increase	Horizon Year 2040	Horizon Year 2040 + Project	Increase
Third Street									
Windy Way to Project Driveway 1	61	61	<1	61	61	<1	63	63	<1
Project Driveway 1 to Hamner Avenue	62	62	<1	62	63	1	66	66	<1
Hamner Avenue to Interstate 15	58	58	<1	58	58	<1	60	61	1
Hamner Avenue									
Fourth Street to Third Street	70	70	<1	71	71	<1	71	71	<1
Third Street to Project Driveway 2	69	70	1	71	71	<1	71	71	<1
Project Driveway 2 to Second Street	70	71	1	71	71	<1	71	72	1

4.2 Issue 2 – Vibration

CEQA Appendix G Noise Threshold Issue 2: Would the project result in generation of excessive ground-borne vibration or ground-borne noise levels? *(Less Than Significant Impact)*

Construction activities known to generate excessive ground-borne vibration, such as pile driving, would not be conducted by the project. The greatest anticipated source of vibration during general project construction activities would be from a dozer, which may be used within 20 feet of the nearest off-site residential structures to the south and west when accounting for setbacks. A dozer would create approximately 0.089 in/sec PPV at a distance of 25 feet (Caltrans 2020). This would equal a vibration level of 0.11 in/sec PPV at a distance of 20 feet.[1] This would be lower than what is considered a distinctly perceptible impact for humans of 0.24 in/sec PPV, and the structural damage impact to residential structures of 0.2 in/sec PPV. Therefore, although a dozer may be perceptible to nearby human receptors, temporary impacts associated with the dozer (and other potential equipment) would be less than significant.

Operation of the project would not include any substantial vibration sources. Therefore, operational vibration impacts would be less than significant.

4.3 Issue 3 – Airport Noise

CEQA Appendix G Noise Threshold Issue 3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? *(No Impact)*

The Riverside Municipal Airport, Chino Airport, and the Corona Municipal Airport are located approximately 6.5, 5.3, and 2.3 miles from the project site, respectively. Therefore, the project site is not located within two miles of a public airport or private airstrip or located in an airport land use plan. No substantial noise exposure would occur to construction workers or users of the project site from aircraft noise, and no impacts would occur.

4.4 Issue 4 – Land Use Compatibility

CEQA Appendix G Noise Threshold Issue 4: Would the project be subjected to noise levels in excess of the City's land use compatibility guidelines for noise?
(Less Than Significant Impact)

Following the methodology discussed in Section 3.4, noise levels at the project's future exterior use areas, residences and hotel areas were modeled using the Horizon Year 2040 + Project traffic scenario. The receivers were placed at a portion of the residential, hotel, and outdoor areas closest to the nearby roadways. Building façade noise levels were modeled at ground-level and at the potential 2nd through 3rd floors of the residences and 2nd through 4th floors of the hotels, as shown in Table 13 as Receivers ON3 through ON14; shared exterior use areas are shown as ON1 and ON2. Receiver locations are shown on Figure 5. As shown in Table 13, exterior noise levels from traffic noise at the potential exterior areas would not exceed 65 CNEL. Therefore, noise levels at exterior

[1] $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ (in/sec), PPV_{Ref} = reference PPV at 25 feet, D = distance ,and n = 1.1

Figure 5 Roadway Noise Contours

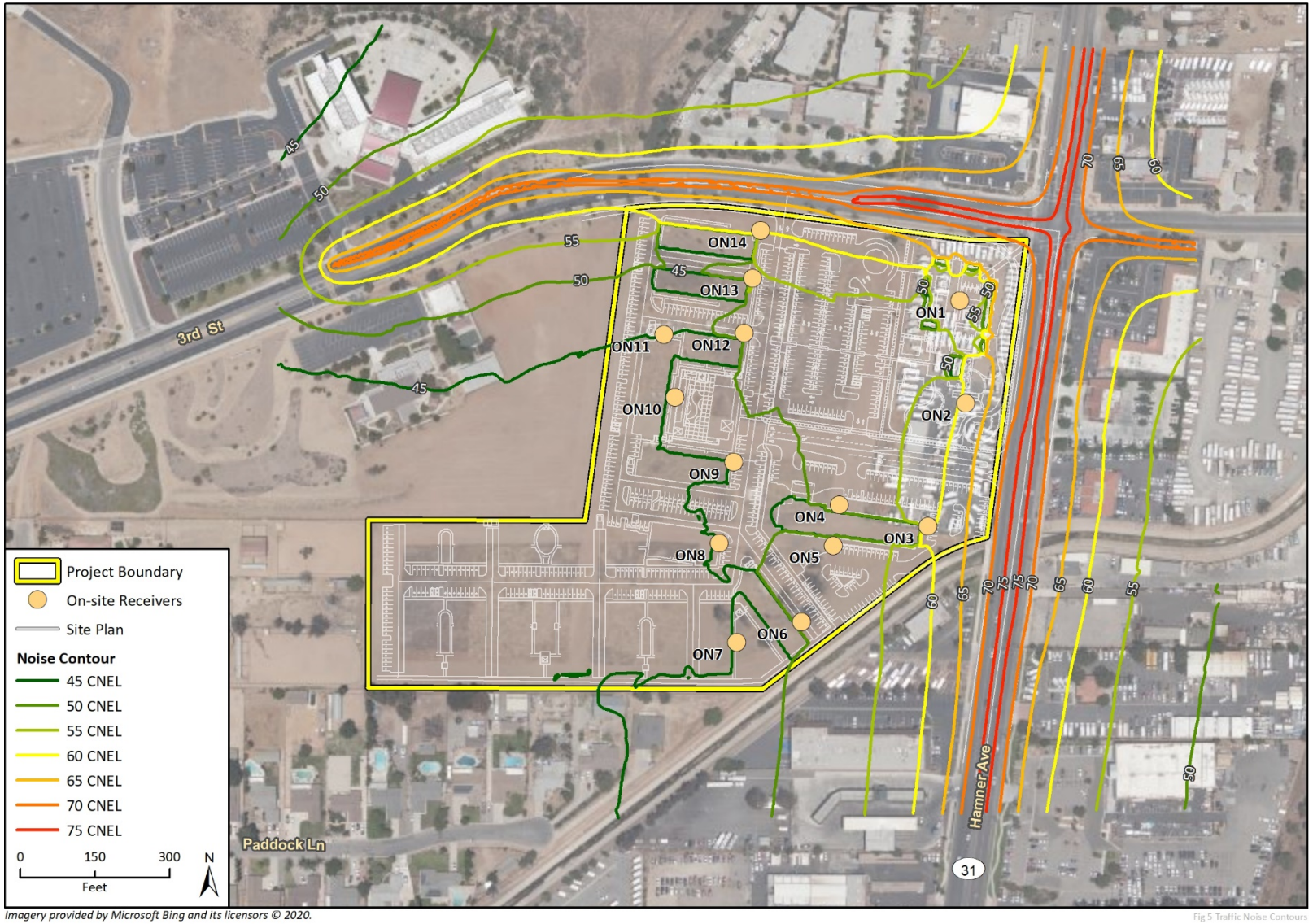

Fig 5 Traffic Noise Contours

use areas of the project would not exceed the City's 65 CNEL normally acceptable exterior noise standard and would not conflict with the City General Plan.

Standard construction techniques for wood-frame construction buildings required under the California Building Code typically achieve a minimum 25-dBA reduction from exterior sources at interior locations when the windows are in a closed position. Therefore, if residential or hotel building façade noise levels exceed 70 CNEL, interior noise levels for the project would potentially exceed the City's residential interior noise standard of 45 CNEL.

As shown in Table 13, building façade noise levels do not exceed 70 CNEL at the project's hotel and residential locations. Therefore, interior noise levels at these lots would not conflict with the City's interior noise standard of 45 CNEL.

Table 13 Traffic Noise Levels

		Noise Level (CNEL)					
Receiver[1]	Description	Ground Level/ 1st Floor	2nd Floor	3rd Floor	4th Floor	Exceed Exterior Standard[2]	Exceed Interior Standard[3]
ON1	Saloon Area	57	N/A	N/A	N/A	No	No
ON2	Park Area	61	N/A	N/A	N/A	No	No
ON3	Hotel, facing Hamner Ave	60	64	64	64	No	No
ON4	Hotel, facing Third St	51	57	59	60	No	No
ON5	Hotel, facing south	52	56	58	58	No	No
ON6	Residential Building	52	56	58	N/A	No	No
ON7	Residential Building	48	51	52	N/A	No	No
ON8	Residential Building	47	51	53	N/A	No	No
ON9	Residential Building	49	53	55	N/A	No	No
ON10	Residential Building	48	52	54	N/A	No	No
ON11	Residential Building	47	51	52	N/A	No	No
ON12	Residential Building	51	55	57	N/A	No	No
ON13	Residential Building	54	57	58	N/A	No	No
ON14	Residential Building	61	62	62	N/A	No	No

[1] See Figure 5 for receiver locations.

[2] The applicable exterior noise standard for multi-family residential uses and hotel uses is 65 CNEL.

[2] The applicable interior noise standard for multi-family residential uses and hotel uses is 45 CNEL; standard construction techniques for wood-frame construction buildings required under the California Building Code typically achieve a minimum 25-dBA reduction from exterior sources at interior locations when the windows are in a closed position. Therefore, if residential or hotel building façade noise levels exceed 70 CNEL, interior noise levels for the project would potentially exceed the City's interior noise standard of 45 CNEL.

5 Conclusions

Construction noise would not exceed the construction noise threshold of 80 dBA L_{eq} at nearby residential properties and construction would be limited to hours allowed by the City Municipal Code. Impacts would be less than significant.

The project would introduce sources of operational noise to the site, including mechanical equipment (HVAC units) and band noise. During the hours of 7:00 a.m. to 10:00 p.m. when band noise and HVAC noise may be occurring simultaneously, noise levels would not exceed the residential noise limit of 55 dBA L_{max} or the public facilities noise limit of 65 dBA L_{max}. During the hours of 10:00 p.m. to 7:00 a.m., HVAC noise would not exceed the residential and public facilities noise limit of 45 dBA L_{max}. Therefore, operational noise from the project would not exceed limits at off-site noise-sensitive receivers.

The vehicle trips associated with the project would not increase noise levels beyond thresholds and impacts would be less than significant.

Operation of the project would not include any substantial vibration sources. Groundborne vibration from construction activities would not exceed the applicable vibration thresholds. Therefore, vibration impacts would be less than significant.

No noise exposure would occur to construction workers or users of the project from aircraft noise.

Traffic noise levels at exterior areas of the project would not exceed the City's 65 CNEL normally acceptable exterior noise standard and 45 CNEL interior noise standard and therefore would not conflict with the City General Plan.

6 References

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Appendix A

Noise Measurement Data

NM1

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 70.9 - 2020/02/06 11:16:15
- Level Range : 40-100
- SEL : 91.7
- Leq : 62.2
-

No.s	Date Time	(dB)
1	2020/02/06 11:01:56	63.7
2	2020/02/06 11:01:59	65.3
3	2020/02/06 11:02:02	60.7
4	2020/02/06 11:02:05	62.5
5	2020/02/06 11:02:08	59.2
6	2020/02/06 11:02:11	62.1
7	2020/02/06 11:02:14	59.8
8	2020/02/06 11:02:17	54.1
9	2020/02/06 11:02:20	51.2
10	2020/02/06 11:02:23	59.9
11	2020/02/06 11:02:26	63.7
12	2020/02/06 11:02:29	62.1
13	2020/02/06 11:02:32	63.3
14	2020/02/06 11:02:35	61.1
15	2020/02/06 11:02:38	61.9
16	2020/02/06 11:02:41	64.2
17	2020/02/06 11:02:44	56.4
18	2020/02/06 11:02:47	61.0
19	2020/02/06 11:02:50	57.4
20	2020/02/06 11:02:53	62.5
21	2020/02/06 11:02:56	62.0
22	2020/02/06 11:02:59	62.1
23	2020/02/06 11:03:02	61.6
24	2020/02/06 11:03:05	57.2
25	2020/02/06 11:03:08	50.8
26	2020/02/06 11:03:11	49.9
27	2020/02/06 11:03:14	49.1
28	2020/02/06 11:03:17	48.8
29	2020/02/06 11:03:20	50.4
30	2020/02/06 11:03:23	54.5
31	2020/02/06 11:03:26	67.0
32	2020/02/06 11:03:29	61.7
33	2020/02/06 11:03:32	57.7
34	2020/02/06 11:03:35	64.6
35	2020/02/06 11:03:38	66.1
36	2020/02/06 11:03:41	57.4
37	2020/02/06 11:03:44	53.0
38	2020/02/06 11:03:47	53.5
39	2020/02/06 11:03:50	60.0
40	2020/02/06 11:03:53	62.9
41	2020/02/06 11:03:56	66.2
42	2020/02/06 11:03:59	60.7
43	2020/02/06 11:04:02	62.8
44	2020/02/06 11:04:05	67.2
45	2020/02/06 11:04:08	63.9
46	2020/02/06 11:04:11	58.1
47	2020/02/06 11:04:14	55.1
48	2020/02/06 11:04:17	52.8
49	2020/02/06 11:04:20	54.0
50	2020/02/06 11:04:23	64.3
51	2020/02/06 11:04:26	69.9
52	2020/02/06 11:04:29	69.9
53	2020/02/06 11:04:32	60.9
54	2020/02/06 11:04:35	55.6
55	2020/02/06 11:04:38	66.9
56	2020/02/06 11:04:41	67.4
57	2020/02/06 11:04:44	60.8
58	2020/02/06 11:04:47	56.0
59	2020/02/06 11:04:50	59.4
60	2020/02/06 11:04:53	62.3
61	2020/02/06 11:04:56	59.7
62	2020/02/06 11:04:59	66.0
63	2020/02/06 11:05:02	63.5
64	2020/02/06 11:05:05	59.3
65	2020/02/06 11:05:08	64.4
66	2020/02/06 11:05:11	67.5
67	2020/02/06 11:05:14	62.6
68	2020/02/06 11:05:17	60.2
69	2020/02/06 11:05:20	62.4
70	2020/02/06 11:05:23	57.8
71	2020/02/06 11:05:26	53.2
72	2020/02/06 11:05:29	50.7
73	2020/02/06 11:05:32	50.5
74	2020/02/06 11:05:35	53.0
75	2020/02/06 11:05:38	53.8
76	2020/02/06 11:05:41	51.1
77	2020/02/06 11:05:44	48.8
78	2020/02/06 11:05:47	49.0
79	2020/02/06 11:05:50	48.6
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85	2020/02/06 11:06:08	69.3

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89	2020/02/06	11:06:20	56.9
90	2020/02/06	11:06:23	51.2
91	2020/02/06	11:06:26	49.6
92	2020/02/06	11:06:29	51.1
93	2020/02/06	11:06:32	58.2
94	2020/02/06	11:06:35	62.4
95	2020/02/06	11:06:38	56.3
96	2020/02/06	11:06:41	60.4
97	2020/02/06	11:06:44	68.3
98	2020/02/06	11:06:47	64.7
99	2020/02/06	11:06:50	62.4
100	2020/02/06	11:06:53	59.8
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102	2020/02/06	11:06:59	51.3
103	2020/02/06	11:07:02	52.2
104	2020/02/06	11:07:05	50.6
105	2020/02/06	11:07:08	53.2
106	2020/02/06	11:07:11	62.4
107	2020/02/06	11:07:14	65.1
108	2020/02/06	11:07:17	65.8
109	2020/02/06	11:07:20	60.1
110	2020/02/06	11:07:23	56.0
111	2020/02/06	11:07:26	55.3
112	2020/02/06	11:07:29	56.2
113	2020/02/06	11:07:32	57.9
114	2020/02/06	11:07:35	64.0
115	2020/02/06	11:07:38	64.2
116	2020/02/06	11:07:41	56.3
117	2020/02/06	11:07:44	51.8
118	2020/02/06	11:07:47	51.2
119	2020/02/06	11:07:50	53.1
120	2020/02/06	11:07:53	56.5
121	2020/02/06	11:07:56	56.2
122	2020/02/06	11:07:59	63.7
123	2020/02/06	11:08:02	64.6
124	2020/02/06	11:08:05	64.2
125	2020/02/06	11:08:08	62.1
126	2020/02/06	11:08:11	59.7
127	2020/02/06	11:08:14	61.9
128	2020/02/06	11:08:17	65.0
129	2020/02/06	11:08:20	66.8
130	2020/02/06	11:08:23	66.7
131	2020/02/06	11:08:26	61.2
132	2020/02/06	11:08:29	58.6
133	2020/02/06	11:08:32	66.0
134	2020/02/06	11:08:35	66.7
135	2020/02/06	11:08:38	60.1
136	2020/02/06	11:08:41	62.1
137	2020/02/06	11:08:44	57.8
138	2020/02/06	11:08:47	55.0
139	2020/02/06	11:08:50	66.6
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141	2020/02/06	11:08:56	61.9
142	2020/02/06	11:08:59	60.0
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144	2020/02/06	11:09:05	54.1
145	2020/02/06	11:09:08	54.0
146	2020/02/06	11:09:11	53.7
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154	2020/02/06	11:09:35	58.8
155	2020/02/06	11:09:38	61.8
156	2020/02/06	11:09:41	61.5
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175	2020/02/06	11:10:38	68.8
176	2020/02/06	11:10:41	67.2
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181	2020/02/06	11:10:56	64.9
182	2020/02/06	11:10:59	65.1
183	2020/02/06	11:11:02	62.9
184	2020/02/06	11:11:05	59.4

185	2020/02/06	11:11:08	54.1
186	2020/02/06	11:11:11	50.5
187	2020/02/06	11:11:14	54.4
188	2020/02/06	11:11:17	62.0
189	2020/02/06	11:11:20	63.1
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194	2020/02/06	11:11:35	50.5
195	2020/02/06	11:11:38	53.3
196	2020/02/06	11:11:41	63.0
197	2020/02/06	11:11:44	57.9
198	2020/02/06	11:11:47	57.4
199	2020/02/06	11:11:50	60.4
200	2020/02/06	11:11:53	65.2
201	2020/02/06	11:11:56	66.1
202	2020/02/06	11:11:59	60.9
203	2020/02/06	11:12:02	57.9
204	2020/02/06	11:12:05	57.9
205	2020/02/06	11:12:08	59.5
206	2020/02/06	11:12:11	57.5
207	2020/02/06	11:12:14	58.9
208	2020/02/06	11:12:17	63.5
209	2020/02/06	11:12:20	56.3
210	2020/02/06	11:12:23	53.7
211	2020/02/06	11:12:26	52.5
212	2020/02/06	11:12:29	52.6
213	2020/02/06	11:12:32	54.7
214	2020/02/06	11:12:35	62.1
215	2020/02/06	11:12:38	57.1
216	2020/02/06	11:12:41	63.4
217	2020/02/06	11:12:44	61.8
218	2020/02/06	11:12:47	67.1
219	2020/02/06	11:12:50	64.7
220	2020/02/06	11:12:53	62.8
221	2020/02/06	11:12:56	55.5
222	2020/02/06	11:12:59	66.4
223	2020/02/06	11:13:02	58.9
224	2020/02/06	11:13:05	52.7
225	2020/02/06	11:13:08	53.2
226	2020/02/06	11:13:11	61.0
227	2020/02/06	11:13:14	62.4
228	2020/02/06	11:13:17	57.0
229	2020/02/06	11:13:20	63.1
230	2020/02/06	11:13:23	58.8
231	2020/02/06	11:13:26	60.6
232	2020/02/06	11:13:29	63.6
233	2020/02/06	11:13:32	66.3
234	2020/02/06	11:13:35	69.9
235	2020/02/06	11:13:38	65.8
236	2020/02/06	11:13:41	61.7
237	2020/02/06	11:13:44	62.2
238	2020/02/06	11:13:47	54.8
239	2020/02/06	11:13:50	52.6
240	2020/02/06	11:13:53	52.3
241	2020/02/06	11:13:56	57.8
242	2020/02/06	11:13:59	65.2
243	2020/02/06	11:14:02	58.0
244	2020/02/06	11:14:05	53.4
245	2020/02/06	11:14:08	51.6
246	2020/02/06	11:14:11	52.4
247	2020/02/06	11:14:14	54.8
248	2020/02/06	11:14:17	70.5
249	2020/02/06	11:14:20	62.0
250	2020/02/06	11:14:23	67.3
251	2020/02/06	11:14:26	59.3
252	2020/02/06	11:14:29	51.0
253	2020/02/06	11:14:32	50.4
254	2020/02/06	11:14:35	54.8
255	2020/02/06	11:14:38	58.3
256	2020/02/06	11:14:41	56.6
257	2020/02/06	11:14:44	65.7
258	2020/02/06	11:14:47	64.0
259	2020/02/06	11:14:50	63.3
260	2020/02/06	11:14:53	62.6
261	2020/02/06	11:14:56	63.6
262	2020/02/06	11:14:59	62.6
263	2020/02/06	11:15:02	67.7
264	2020/02/06	11:15:05	66.2
265	2020/02/06	11:15:08	66.0
266	2020/02/06	11:15:11	60.3
267	2020/02/06	11:15:14	59.5
268	2020/02/06	11:15:17	58.4
269	2020/02/06	11:15:20	56.4
270	2020/02/06	11:15:23	57.1
271	2020/02/06	11:15:26	51.8
272	2020/02/06	11:15:29	52.7
273	2020/02/06	11:15:32	50.9
274	2020/02/06	11:15:35	52.1
275	2020/02/06	11:15:38	54.5
276	2020/02/06	11:15:41	65.5
277	2020/02/06	11:15:44	63.1
278	2020/02/06	11:15:47	54.1
279	2020/02/06	11:15:50	56.3
280	2020/02/06	11:15:53	55.5
281	2020/02/06	11:15:56	56.4
282	2020/02/06	11:15:59	60.9
283	2020/02/06	11:16:02	62.2

284	2020/02/06	11:16:05	59.4
285	2020/02/06	11:16:08	60.0
286	2020/02/06	11:16:11	66.0
287	2020/02/06	11:16:14	67.6
288	2020/02/06	11:16:17	61.3
289	2020/02/06	11:16:20	68.7
290	2020/02/06	11:16:23	67.8
291	2020/02/06	11:16:26	59.5
292	2020/02/06	11:16:29	59.9
293	2020/02/06	11:16:32	67.4
294	2020/02/06	11:16:35	69.1
295	2020/02/06	11:16:38	61.1
296	2020/02/06	11:16:41	61.6
297	2020/02/06	11:16:44	60.0
298	2020/02/06	11:16:47	65.4
299	2020/02/06	11:16:50	62.5
300	2020/02/06	11:16:53	62.8

NM2

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 80.1 - 2020/02/06 11:24:20
- Level Range : 40-100
- SEL : 99.5
- Leq : 70.0
-

No.s	Date Time	(dB)
1	2020/02/06 11:22:49	67.1
2	2020/02/06 11:22:52	69.5
3	2020/02/06 11:22:55	69.1
4	2020/02/06 11:22:58	68.4
5	2020/02/06 11:23:01	71.7
6	2020/02/06 11:23:04	72.0
7	2020/02/06 11:23:07	72.1
8	2020/02/06 11:23:10	71.9
9	2020/02/06 11:23:13	77.4
10	2020/02/06 11:23:16	72.3
11	2020/02/06 11:23:19	72.0
12	2020/02/06 11:23:22	71.3
13	2020/02/06 11:23:25	74.1
14	2020/02/06 11:23:28	72.9
15	2020/02/06 11:23:31	71.6
16	2020/02/06 11:23:34	69.6
17	2020/02/06 11:23:37	71.1
18	2020/02/06 11:23:40	67.0
19	2020/02/06 11:23:43	61.6
20	2020/02/06 11:23:46	60.1
21	2020/02/06 11:23:49	62.3
22	2020/02/06 11:23:52	65.2
23	2020/02/06 11:23:55	68.3
24	2020/02/06 11:23:58	63.4
25	2020/02/06 11:24:01	63.0
26	2020/02/06 11:24:04	64.2
27	2020/02/06 11:24:07	67.2
28	2020/02/06 11:24:10	67.2
29	2020/02/06 11:24:13	63.4
30	2020/02/06 11:24:16	74.6
31	2020/02/06 11:24:19	77.4
32	2020/02/06 11:24:22	72.9
33	2020/02/06 11:24:25	75.6
34	2020/02/06 11:24:28	75.5
35	2020/02/06 11:24:31	74.6
36	2020/02/06 11:24:34	76.1
37	2020/02/06 11:24:37	77.4
38	2020/02/06 11:24:40	75.2
39	2020/02/06 11:24:43	75.6
40	2020/02/06 11:24:46	76.5
41	2020/02/06 11:24:49	72.4
42	2020/02/06 11:24:52	68.8
43	2020/02/06 11:24:55	65.0
44	2020/02/06 11:24:58	62.2
45	2020/02/06 11:25:01	63.0
46	2020/02/06 11:25:04	62.0
47	2020/02/06 11:25:07	71.7
48	2020/02/06 11:25:10	73.5
49	2020/02/06 11:25:13	70.8
50	2020/02/06 11:25:16	69.0
51	2020/02/06 11:25:19	67.2
52	2020/02/06 11:25:22	65.8
53	2020/02/06 11:25:25	69.0
54	2020/02/06 11:25:28	67.4
55	2020/02/06 11:25:31	66.8
56	2020/02/06 11:25:34	69.9
57	2020/02/06 11:25:37	69.0
58	2020/02/06 11:25:40	69.4
59	2020/02/06 11:25:43	70.1
60	2020/02/06 11:25:46	74.7
61	2020/02/06 11:25:49	69.2
62	2020/02/06 11:25:52	68.5
63	2020/02/06 11:25:55	75.2
64	2020/02/06 11:25:58	74.5
65	2020/02/06 11:26:01	75.0
66	2020/02/06 11:26:04	71.2
67	2020/02/06 11:26:07	64.9
68	2020/02/06 11:26:10	69.5
69	2020/02/06 11:26:13	73.0
70	2020/02/06 11:26:16	70.0
71	2020/02/06 11:26:19	71.4
72	2020/02/06 11:26:22	71.0
73	2020/02/06 11:26:25	69.9
74	2020/02/06 11:26:28	67.0
75	2020/02/06 11:26:31	68.2
76	2020/02/06 11:26:34	72.2
77	2020/02/06 11:26:37	74.9
78	2020/02/06 11:26:40	75.8
79	2020/02/06 11:26:43	71.0
80	2020/02/06 11:26:46	70.8
81	2020/02/06 11:26:49	72.4
82	2020/02/06 11:26:52	66.3
83	2020/02/06 11:26:55	71.7
84	2020/02/06 11:26:58	72.2
85	2020/02/06 11:27:01	68.3

86	2020/02/06	11:27:04	70.0
87	2020/02/06	11:27:07	69.5
88	2020/02/06	11:27:10	62.0
89	2020/02/06	11:27:13	56.0
90	2020/02/06	11:27:16	53.2
91	2020/02/06	11:27:19	56.8
92	2020/02/06	11:27:22	69.7
93	2020/02/06	11:27:25	66.7
94	2020/02/06	11:27:28	64.7
95	2020/02/06	11:27:31	66.3
96	2020/02/06	11:27:34	70.0
97	2020/02/06	11:27:37	68.2
98	2020/02/06	11:27:40	68.6
99	2020/02/06	11:27:43	72.0
100	2020/02/06	11:27:46	75.7
101	2020/02/06	11:27:49	74.5
102	2020/02/06	11:27:52	75.1
103	2020/02/06	11:27:55	72.8
104	2020/02/06	11:27:58	73.8
105	2020/02/06	11:28:01	74.0
106	2020/02/06	11:28:04	73.9
107	2020/02/06	11:28:07	70.5
108	2020/02/06	11:28:10	70.2
109	2020/02/06	11:28:13	74.3
110	2020/02/06	11:28:16	71.6
111	2020/02/06	11:28:19	71.9
112	2020/02/06	11:28:22	72.9
113	2020/02/06	11:28:25	69.9
114	2020/02/06	11:28:28	67.3
115	2020/02/06	11:28:31	66.9
116	2020/02/06	11:28:34	72.2
117	2020/02/06	11:28:37	70.1
118	2020/02/06	11:28:40	66.5
119	2020/02/06	11:28:43	73.5
120	2020/02/06	11:28:46	70.4
121	2020/02/06	11:28:49	71.3
122	2020/02/06	11:28:52	72.2
123	2020/02/06	11:28:55	71.9
124	2020/02/06	11:28:58	73.5
125	2020/02/06	11:29:01	71.3
126	2020/02/06	11:29:04	72.1
127	2020/02/06	11:29:07	71.9
128	2020/02/06	11:29:10	72.2
129	2020/02/06	11:29:13	69.0
130	2020/02/06	11:29:16	65.3
131	2020/02/06	11:29:19	61.5
132	2020/02/06	11:29:22	60.5
133	2020/02/06	11:29:25	64.7
134	2020/02/06	11:29:28	69.5
135	2020/02/06	11:29:31	64.7
136	2020/02/06	11:29:34	66.4
137	2020/02/06	11:29:37	74.0
138	2020/02/06	11:29:40	74.7
139	2020/02/06	11:29:43	73.2
140	2020/02/06	11:29:46	73.7
141	2020/02/06	11:29:49	71.9
142	2020/02/06	11:29:52	72.4
143	2020/02/06	11:29:55	72.7
144	2020/02/06	11:29:58	77.2
145	2020/02/06	11:30:01	74.5
146	2020/02/06	11:30:04	71.0
147	2020/02/06	11:30:07	72.3
148	2020/02/06	11:30:10	69.9
149	2020/02/06	11:30:13	69.1
150	2020/02/06	11:30:16	69.3
151	2020/02/06	11:30:19	69.3
152	2020/02/06	11:30:22	69.3
153	2020/02/06	11:30:25	70.2
154	2020/02/06	11:30:28	65.5
155	2020/02/06	11:30:31	66.9
156	2020/02/06	11:30:34	64.4
157	2020/02/06	11:30:37	68.4
158	2020/02/06	11:30:40	64.9
159	2020/02/06	11:30:43	68.3
160	2020/02/06	11:30:46	65.3
161	2020/02/06	11:30:49	60.2
162	2020/02/06	11:30:52	59.2
163	2020/02/06	11:30:55	66.6
164	2020/02/06	11:30:58	67.9
165	2020/02/06	11:31:01	70.5
166	2020/02/06	11:31:04	73.5
167	2020/02/06	11:31:07	74.5
168	2020/02/06	11:31:10	74.6
169	2020/02/06	11:31:13	72.8
170	2020/02/06	11:31:16	75.0
171	2020/02/06	11:31:19	73.2
172	2020/02/06	11:31:22	72.5
173	2020/02/06	11:31:25	71.9
174	2020/02/06	11:31:28	68.8
175	2020/02/06	11:31:31	72.8
176	2020/02/06	11:31:34	71.1
177	2020/02/06	11:31:37	72.4
178	2020/02/06	11:31:40	69.3
179	2020/02/06	11:31:43	66.6
180	2020/02/06	11:31:46	64.2
181	2020/02/06	11:31:49	65.2
182	2020/02/06	11:31:52	72.5
183	2020/02/06	11:31:55	70.3
184	2020/02/06	11:31:58	73.1

185	2020/02/06	11:32:01	70.7
186	2020/02/06	11:32:04	72.2
187	2020/02/06	11:32:07	71.9
188	2020/02/06	11:32:10	67.7
189	2020/02/06	11:32:13	64.1
190	2020/02/06	11:32:16	67.5
191	2020/02/06	11:32:19	64.4
192	2020/02/06	11:32:22	64.9
193	2020/02/06	11:32:25	66.7
194	2020/02/06	11:32:28	71.9
195	2020/02/06	11:32:31	73.0
196	2020/02/06	11:32:34	73.5
197	2020/02/06	11:32:37	70.5
198	2020/02/06	11:32:40	69.9
199	2020/02/06	11:32:43	72.7
200	2020/02/06	11:32:46	67.8
201	2020/02/06	11:32:49	71.5
202	2020/02/06	11:32:52	74.6
203	2020/02/06	11:32:55	74.0
204	2020/02/06	11:32:58	77.0
205	2020/02/06	11:33:01	74.8
206	2020/02/06	11:33:04	79.1
207	2020/02/06	11:33:07	76.0
208	2020/02/06	11:33:10	74.3
209	2020/02/06	11:33:13	73.5
210	2020/02/06	11:33:16	75.7
211	2020/02/06	11:33:19	74.2
212	2020/02/06	11:33:22	72.5
213	2020/02/06	11:33:25	71.7
214	2020/02/06	11:33:28	72.8
215	2020/02/06	11:33:31	75.7
216	2020/02/06	11:33:34	73.5
217	2020/02/06	11:33:37	73.5
218	2020/02/06	11:33:40	71.5
219	2020/02/06	11:33:43	66.4
220	2020/02/06	11:33:46	66.0
221	2020/02/06	11:33:49	68.3
222	2020/02/06	11:33:52	70.8
223	2020/02/06	11:33:55	67.9
224	2020/02/06	11:33:58	67.7
225	2020/02/06	11:34:01	71.8
226	2020/02/06	11:34:04	75.1
227	2020/02/06	11:34:07	71.9
228	2020/02/06	11:34:10	69.1
229	2020/02/06	11:34:13	69.9
230	2020/02/06	11:34:16	68.4
231	2020/02/06	11:34:19	65.2
232	2020/02/06	11:34:22	64.8
233	2020/02/06	11:34:25	63.5
234	2020/02/06	11:34:28	64.3
235	2020/02/06	11:34:31	65.5
236	2020/02/06	11:34:34	66.3
237	2020/02/06	11:34:37	73.2
238	2020/02/06	11:34:40	74.5
239	2020/02/06	11:34:43	74.3
240	2020/02/06	11:34:46	73.6
241	2020/02/06	11:34:49	74.6
242	2020/02/06	11:34:52	75.9
243	2020/02/06	11:34:55	74.1
244	2020/02/06	11:34:58	73.6
245	2020/02/06	11:35:01	75.1
246	2020/02/06	11:35:04	72.0
247	2020/02/06	11:35:07	73.0
248	2020/02/06	11:35:10	70.6
249	2020/02/06	11:35:13	70.9
250	2020/02/06	11:35:16	68.6
251	2020/02/06	11:35:19	71.8
252	2020/02/06	11:35:22	73.9
253	2020/02/06	11:35:25	72.9
254	2020/02/06	11:35:28	65.6
255	2020/02/06	11:35:31	62.4
256	2020/02/06	11:35:34	64.0
257	2020/02/06	11:35:37	70.9
258	2020/02/06	11:35:40	71.0
259	2020/02/06	11:35:43	70.6
260	2020/02/06	11:35:46	69.1
261	2020/02/06	11:35:49	72.5
262	2020/02/06	11:35:52	70.6
263	2020/02/06	11:35:55	74.1
264	2020/02/06	11:35:58	70.3
265	2020/02/06	11:36:01	63.6
266	2020/02/06	11:36:04	61.3
267	2020/02/06	11:36:07	61.0
268	2020/02/06	11:36:10	59.3
269	2020/02/06	11:36:13	62.4
270	2020/02/06	11:36:16	61.9
271	2020/02/06	11:36:19	71.1
272	2020/02/06	11:36:22	72.5
273	2020/02/06	11:36:25	73.9
274	2020/02/06	11:36:28	72.8
275	2020/02/06	11:36:31	74.5
276	2020/02/06	11:36:34	73.5
277	2020/02/06	11:36:37	71.8
278	2020/02/06	11:36:40	72.1
279	2020/02/06	11:36:43	71.2
280	2020/02/06	11:36:46	67.9
281	2020/02/06	11:36:49	68.8
282	2020/02/06	11:36:52	71.4
283	2020/02/06	11:36:55	70.8

284	2020/02/06	11:36:58	71.5
285	2020/02/06	11:37:01	71.1
286	2020/02/06	11:37:04	68.0
287	2020/02/06	11:37:07	65.7
288	2020/02/06	11:37:10	64.7
289	2020/02/06	11:37:13	62.8
290	2020/02/06	11:37:16	61.7
291	2020/02/06	11:37:19	64.9
292	2020/02/06	11:37:22	73.9
293	2020/02/06	11:37:25	70.0
294	2020/02/06	11:37:28	71.9
295	2020/02/06	11:37:31	74.2
296	2020/02/06	11:37:34	74.9
297	2020/02/06	11:37:37	75.9
298	2020/02/06	11:37:40	76.2
299	2020/02/06	11:37:43	74.3
300	2020/02/06	11:37:46	72.9

NM3

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 57.5 - 2020/02/06 11:52:18
- Level Range : 40-100
- SEL : 77.2
- Leq : 47.7
-

No.s	Date Time	(dB)
1	2020/02/06 11:47:08	43.5
2	2020/02/06 11:47:11	45.0
3	2020/02/06 11:47:14	44.6
4	2020/02/06 11:47:17	43.6
5	2020/02/06 11:47:20	43.4
6	2020/02/06 11:47:23	44.2
7	2020/02/06 11:47:26	43.7
8	2020/02/06 11:47:29	43.7
9	2020/02/06 11:47:32	43.8
10	2020/02/06 11:47:35	43.6
11	2020/02/06 11:47:38	43.4
12	2020/02/06 11:47:41	42.9
13	2020/02/06 11:47:44	43.3
14	2020/02/06 11:47:47	42.9
15	2020/02/06 11:47:50	43.2
16	2020/02/06 11:47:53	44.3
17	2020/02/06 11:47:56	44.1
18	2020/02/06 11:47:59	43.8
19	2020/02/06 11:48:02	45.0
20	2020/02/06 11:48:05	44.6
21	2020/02/06 11:48:08	44.5
22	2020/02/06 11:48:11	44.4
23	2020/02/06 11:48:14	46.3
24	2020/02/06 11:48:17	46.4
25	2020/02/06 11:48:20	47.1
26	2020/02/06 11:48:23	45.8
27	2020/02/06 11:48:26	46.5
28	2020/02/06 11:48:29	46.5
29	2020/02/06 11:48:32	47.9
30	2020/02/06 11:48:35	48.6
31	2020/02/06 11:48:38	47.4
32	2020/02/06 11:48:41	48.5
33	2020/02/06 11:48:44	50.1
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42	2020/02/06 11:49:11	47.9
43	2020/02/06 11:49:14	47.0
44	2020/02/06 11:49:17	46.9
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54	2020/02/06 11:49:47	43.4
55	2020/02/06 11:49:50	43.7
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253	2020/02/06	11:59:44	43.1
254	2020/02/06	11:59:47	43.0
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256	2020/02/06	11:59:53	44.0
257	2020/02/06	11:59:56	45.0
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279	2020/02/06	12:01:02	44.3
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286	2020/02/06	12:01:23	43.0
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295	2020/02/06	12:01:50	46.1
296	2020/02/06	12:01:53	45.7
297	2020/02/06	12:01:56	45.7
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299	2020/02/06	12:02:02	46.2
300	2020/02/06	12:02:05	46.2

LT1

- Freq Weight : A
- Time Weight : SLOW
- Level Range : 40-100
- Max dB : 91.5 - 2020/02/07 08:35:33
- Level Range : 40-100
- SEL : 119.3
- Leq : 70.0
-

No.s	Date Time	(dB)
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2	2020/02/06 10:57:53	66.4
3	2020/02/06 11:01:53	65.8
4	2020/02/06 11:05:53	71.1
5	2020/02/06 11:09:53	58.3
6	2020/02/06 11:13:53	62.6
7	2020/02/06 11:17:53	59.7
8	2020/02/06 11:21:53	63.6
9	2020/02/06 11:25:53	56.1
10	2020/02/06 11:29:53	62.2
11	2020/02/06 11:33:53	61.8
12	2020/02/06 11:37:53	66.9
13	2020/02/06 11:41:53	59.4
14	2020/02/06 11:45:53	63.7
15	2020/02/06 11:49:53	54.1
16	2020/02/06 11:53:53	63.0
17	2020/02/06 11:57:53	64.0
18	2020/02/06 12:01:53	65.3
19	2020/02/06 12:05:53	63.6
20	2020/02/06 12:09:53	68.1
21	2020/02/06 12:13:53	67.1
22	2020/02/06 12:17:53	66.4
23	2020/02/06 12:21:53	63.4
24	2020/02/06 12:25:53	55.6
25	2020/02/06 12:29:53	65.0
26	2020/02/06 12:33:53	64.5
27	2020/02/06 12:37:53	64.3
28	2020/02/06 12:41:53	69.4
29	2020/02/06 12:45:53	72.9
30	2020/02/06 12:49:53	65.2
31	2020/02/06 12:53:53	65.5
32	2020/02/06 12:57:53	69.1
33	2020/02/06 13:01:53	56.0
34	2020/02/06 13:05:53	56.1
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36	2020/02/06 13:13:53	57.4
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44	2020/02/06 13:45:53	57.7
45	2020/02/06 13:49:53	62.8
46	2020/02/06 13:53:53	53.0
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48	2020/02/06 14:01:53	65.6
49	2020/02/06 14:05:53	59.6
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51	2020/02/06 14:13:53	69.5
52	2020/02/06 14:17:53	68.0
53	2020/02/06 14:21:53	62.4
54	2020/02/06 14:25:53	69.4
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56	2020/02/06 14:33:53	63.7
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59	2020/02/06 14:45:53	60.4
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61	2020/02/06 14:53:53	64.6
62	2020/02/06 14:57:53	58.1
63	2020/02/06 15:01:53	67.8
64	2020/02/06 15:05:53	62.1
65	2020/02/06 15:09:53	65.8
66	2020/02/06 15:13:53	49.9
67	2020/02/06 15:17:53	64.3
68	2020/02/06 15:21:53	66.8
69	2020/02/06 15:25:53	66.3
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72	2020/02/06 15:37:53	67.8
73	2020/02/06 15:41:53	67.7
74	2020/02/06 15:45:53	54.7
75	2020/02/06 15:49:53	67.6
76	2020/02/06 15:53:53	56.5
77	2020/02/06 15:57:53	62.3
78	2020/02/06 16:01:53	65.9
79	2020/02/06 16:05:53	54.7
80	2020/02/06 16:09:53	52.2
81	2020/02/06 16:13:53	68.2
82	2020/02/06 16:17:53	51.5
83	2020/02/06 16:21:53	54.9
84	2020/02/06 16:25:53	62.5
85	2020/02/06 16:29:53	63.1

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88	2020/02/06	16:41:53	57.6
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90	2020/02/06	16:49:53	68.0
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92	2020/02/06	16:57:53	63.5
93	2020/02/06	17:01:53	54.7
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96	2020/02/06	17:13:53	65.6
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98	2020/02/06	17:21:53	68.1
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105	2020/02/06	17:49:53	64.1
106	2020/02/06	17:53:53	66.1
107	2020/02/06	17:57:53	65.0
108	2020/02/06	18:01:53	55.8
109	2020/02/06	18:05:53	54.2
110	2020/02/06	18:09:53	57.8
111	2020/02/06	18:13:53	63.2
112	2020/02/06	18:17:53	59.9
113	2020/02/06	18:21:53	65.0
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117	2020/02/06	18:37:53	55.1
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119	2020/02/06	18:45:53	63.7
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126	2020/02/06	19:13:53	56.2
127	2020/02/06	19:17:53	56.3
128	2020/02/06	19:21:53	65.3
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130	2020/02/06	19:29:53	70.4
131	2020/02/06	19:33:53	61.2
132	2020/02/06	19:37:53	60.1
133	2020/02/06	19:41:53	60.8
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154	2020/02/06	21:05:53	60.5
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163	2020/02/06	21:41:53	62.4
164	2020/02/06	21:45:53	59.4
165	2020/02/06	21:49:53	64.3
166	2020/02/06	21:53:53	57.9
167	2020/02/06	21:57:53	60.2
168	2020/02/06	22:01:53	57.9
169	2020/02/06	22:05:53	58.5
170	2020/02/06	22:09:53	58.4
171	2020/02/06	22:13:53	59.3
172	2020/02/06	22:17:53	59.0
173	2020/02/06	22:21:53	56.9
174	2020/02/06	22:25:53	59.9
175	2020/02/06	22:29:53	58.4
176	2020/02/06	22:33:53	62.0
177	2020/02/06	22:37:53	58.7
178	2020/02/06	22:41:53	58.9
179	2020/02/06	22:45:53	63.1
180	2020/02/06	22:49:53	57.6
181	2020/02/06	22:53:53	57.7
182	2020/02/06	22:57:53	58.0
183	2020/02/06	23:01:53	58.6
184	2020/02/06	23:05:53	57.7

185	2020/02/06 23:09:53	57.9
186	2020/02/06 23:13:53	58.6
187	2020/02/06 23:17:53	59.2
188	2020/02/06 23:21:53	67.8
189	2020/02/06 23:25:53	56.6
190	2020/02/06 23:29:53	55.8
191	2020/02/06 23:33:53	58.4
192	2020/02/06 23:37:53	56.8
193	2020/02/06 23:41:53	60.4
194	2020/02/06 23:45:53	54.5
195	2020/02/06 23:49:53	57.9
196	2020/02/06 23:53:53	55.0
197	2020/02/06 23:57:53	55.3
198	2020/02/07 00:01:53	56.1
199	2020/02/07 00:05:53	55.9
200	2020/02/07 00:09:53	58.6
201	2020/02/07 00:13:53	56.2
202	2020/02/07 00:17:53	57.0
203	2020/02/07 00:21:53	58.2
204	2020/02/07 00:25:53	56.5
205	2020/02/07 00:29:53	55.7
206	2020/02/07 00:33:53	58.2
207	2020/02/07 00:37:53	57.9
208	2020/02/07 00:41:53	59.4
209	2020/02/07 00:45:53	57.8
210	2020/02/07 00:49:53	59.4
211	2020/02/07 00:53:53	60.0
212	2020/02/07 00:57:53	57.6
213	2020/02/07 01:01:53	56.1
214	2020/02/07 01:05:53	54.9
215	2020/02/07 01:09:53	58.0
216	2020/02/07 01:13:53	57.1
217	2020/02/07 01:17:53	57.9
218	2020/02/07 01:21:53	55.0
219	2020/02/07 01:25:53	52.9
220	2020/02/07 01:29:53	56.8
221	2020/02/07 01:33:53	59.9
222	2020/02/07 01:37:53	57.2
223	2020/02/07 01:41:53	54.5
224	2020/02/07 01:45:53	55.5
225	2020/02/07 01:49:53	55.5
226	2020/02/07 01:53:53	55.9
227	2020/02/07 01:57:53	52.6
228	2020/02/07 02:01:53	54.9
229	2020/02/07 02:05:53	54.1
230	2020/02/07 02:09:53	56.7
231	2020/02/07 02:13:53	59.0
232	2020/02/07 02:17:53	56.2
233	2020/02/07 02:21:53	56.0
234	2020/02/07 02:25:53	56.0
235	2020/02/07 02:29:53	54.9
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237	2020/02/07 02:37:53	56.6
238	2020/02/07 02:41:53	57.3
239	2020/02/07 02:45:53	58.0
240	2020/02/07 02:49:53	54.2
241	2020/02/07 02:53:53	58.3
242	2020/02/07 02:57:53	56.9
243	2020/02/07 03:01:53	58.5
244	2020/02/07 03:05:53	56.4
245	2020/02/07 03:09:53	55.3
246	2020/02/07 03:13:53	57.8
247	2020/02/07 03:17:53	57.6
248	2020/02/07 03:21:53	61.5
249	2020/02/07 03:25:53	55.9
250	2020/02/07 03:29:53	62.9
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252	2020/02/07 03:37:53	60.8
253	2020/02/07 03:41:53	62.5
254	2020/02/07 03:45:53	59.6
255	2020/02/07 03:49:53	58.9
256	2020/02/07 03:53:53	58.0
257	2020/02/07 03:57:53	63.1
258	2020/02/07 04:01:53	63.4
259	2020/02/07 04:05:53	62.4
260	2020/02/07 04:09:53	60.7
261	2020/02/07 04:13:53	59.9
262	2020/02/07 04:17:53	59.1
263	2020/02/07 04:21:53	60.8
264	2020/02/07 04:25:53	59.7
265	2020/02/07 04:29:53	60.7
266	2020/02/07 04:33:53	59.9
267	2020/02/07 04:37:53	60.2
268	2020/02/07 04:41:53	58.4
269	2020/02/07 04:45:53	59.0
270	2020/02/07 04:49:53	59.0
271	2020/02/07 04:53:53	58.4
272	2020/02/07 04:57:53	60.4
273	2020/02/07 05:01:53	61.1
274	2020/02/07 05:05:53	63.5
275	2020/02/07 05:09:53	59.7
276	2020/02/07 05:13:53	62.8
277	2020/02/07 05:17:53	62.9
278	2020/02/07 05:21:53	61.4
279	2020/02/07 05:25:53	61.9
280	2020/02/07 05:29:53	62.6
281	2020/02/07 05:33:53	63.8
282	2020/02/07 05:37:53	63.8
283	2020/02/07 05:41:53	65.1

284	2020/02/07	05:45:53	64.4
285	2020/02/07	05:49:53	62.2
286	2020/02/07	05:53:53	63.5
287	2020/02/07	05:57:53	70.7
288	2020/02/07	06:01:53	63.3
289	2020/02/07	06:05:53	60.6
290	2020/02/07	06:09:53	63.5
291	2020/02/07	06:13:53	59.7
292	2020/02/07	06:17:53	64.2
293	2020/02/07	06:21:53	61.9
294	2020/02/07	06:25:53	62.4
295	2020/02/07	06:29:53	65.1
296	2020/02/07	06:33:53	62.7
297	2020/02/07	06:37:53	63.3
298	2020/02/07	06:41:53	69.1
299	2020/02/07	06:45:53	65.9
300	2020/02/07	06:49:53	63.2
301	2020/02/07	06:53:53	65.1
302	2020/02/07	06:57:53	70.0
303	2020/02/07	07:01:53	69.2
304	2020/02/07	07:05:53	61.5
305	2020/02/07	07:09:53	67.7
306	2020/02/07	07:13:53	65.4
307	2020/02/07	07:17:53	65.2
308	2020/02/07	07:21:53	71.3
309	2020/02/07	07:25:53	71.4
310	2020/02/07	07:29:53	73.2
311	2020/02/07	07:33:53	67.1
312	2020/02/07	07:37:53	69.3
313	2020/02/07	07:41:53	67.8
314	2020/02/07	07:45:53	63.2
315	2020/02/07	07:49:53	61.8
316	2020/02/07	07:53:53	67.5
317	2020/02/07	07:57:53	61.9
318	2020/02/07	08:01:53	57.5
319	2020/02/07	08:05:53	57.3
320	2020/02/07	08:09:53	58.8
321	2020/02/07	08:13:53	63.6
322	2020/02/07	08:17:53	61.4
323	2020/02/07	08:21:53	64.3
324	2020/02/07	08:25:53	62.1
325	2020/02/07	08:29:53	63.3
326	2020/02/07	08:33:53	63.1
327	2020/02/07	08:37:53	59.8
328	2020/02/07	08:41:53	59.3
329	2020/02/07	08:45:53	60.5
330	2020/02/07	08:49:53	59.3
331	2020/02/07	08:53:53	57.4
332	2020/02/07	08:57:53	68.3
333	2020/02/07	09:01:53	57.4
334	2020/02/07	09:05:53	57.1
335	2020/02/07	09:09:53	56.0
336	2020/02/07	09:13:53	63.2
337	2020/02/07	09:17:53	58.0
338	2020/02/07	09:21:53	57.5
339	2020/02/07	09:25:53	53.9
340	2020/02/07	09:29:53	60.4
341	2020/02/07	09:33:53	65.8
342	2020/02/07	09:37:53	54.7
343	2020/02/07	09:41:53	56.7
344	2020/02/07	09:45:53	55.6
345	2020/02/07	09:49:53	55.3
346	2020/02/07	09:53:53	53.8
347	2020/02/07	09:57:53	59.0
348	2020/02/07	10:01:53	63.8
349	2020/02/07	10:05:53	63.6
350	2020/02/07	10:09:53	57.3
351	2020/02/07	10:13:53	67.0
352	2020/02/07	10:17:53	65.0
353	2020/02/07	10:21:53	57.3
354	2020/02/07	10:25:53	66.4
355	2020/02/07	10:29:53	61.6
356	2020/02/07	10:33:53	54.3
357	2020/02/07	10:37:53	53.4
358	2020/02/07	10:41:53	64.1
359	2020/02/07	10:45:53	63.4
360	2020/02/07	10:49:53	57.1

Appendix B

Roadway Construction Noise Model (RCNM) Results and Modeled Equipment

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/1/2020
Case Description: Norco Valley Square

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Single-Family	Residential	80	80	80

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	100	0
Front End Loader	No	40		79.1	100	0

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		75.6	71.7
Front End Loader		73.1	69.1
	Total	75.6	73.6

*Calculated Lmax is the Loudest value.

Appendix C

Operational Equipment Specifications

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230–1–60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230–1–60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230–1–60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230–1–60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230–3–60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460–3–60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230–1–60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230–3–60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460–3–60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230–1–60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460–3–60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps

HACR – Heating, Air Conditininng, Refrigeration

LRA – Locked Rotor Amps

NEC – National Electrical Code

RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

SOUND LEVEL

Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

Appendix L

Traffic Impact Analysis

Appendix L

Traffic Impact Analysis

Norco Valley Square

TRAFFIC ANALYSIS

CITY OF NORCO

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AUGUST 27, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
OPR	Office of Planning and Research
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Norco Valley Square
RCTC	Riverside County Transportation Commission
RivTAM	Riverside County Transportation Analysis Model
RTA	Riverside Transit Authority
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SCAG	Southern California Association of Governments
SHS	State Highway System
TA	Traffic Analysis
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments
V/C	Volume to Capacity
VMT	Vehicle Miles Traveled

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1 INTRODUCTION

This report presents the results of the traffic analysis (TA) for the proposed Norco Valley Square development ("Project"), which is located on the southwest corner of Hamner Avenue and Third Street, as shown on Exhibit 1-1.

The purpose of this TA is to evaluate the potential deficiencies related to traffic and circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to resolve identified deficiencies and to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (August 2008), the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies, and through consultation with City of Norco staff during the scoping process. (1) (2) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Both Hamner Avenue and Third Street are built out to their ultimate half-sections. However, the Project will construct additional curb, gutter, and sidewalk improvements, as needed for site access, along the Project's frontage.
- Project to modify the existing median along Third Street to provide 60-feet of storage for the westbound left turn pocket at Driveway 1, 240-feet of storage for the eastbound left turn pocket at Hamner Avenue, and 300-feet of storage for the northbound left turn pockets on Hamner Avenue.

Additional details and intersection lane geometrics are provided in Section 1.7 *Recommendations* of this report.

The proposed Project is not anticipated to require the construction of any other off-site improvements, however, there are improvement needs identified at off-site intersections for future traffic analysis scenarios where the Project would contribute traffic (as measured by 50 or more peak hour trips). As such, the Project Applicant's responsibility for the Project's contributions towards off-site deficient intersections is fulfilled through payment of fair share and/or payment into pre-existing fee programs (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fees and/or fair share contributions consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

EXHIBIT 1-1: PRELIMINARY SITE PLAN

LEGEND:

RIRO-LI = RIGHT-IN/RIGHT-OUT, LEFT-IN ONLY ACCESS
FULL = FULL ACCESS

N

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1.2 PROJECT OVERVIEW

The Project will consist of 8,700 square foot food court area, a 128-room hotel, and 320 mid-rise (3-10 floors) multifamily dwelling units. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. For the purpose of this analysis, the following driveways will provide access to the Project site:

- Driveway 1 via Third Street – Full Access
- Driveway 2 via Hamner Avenue – Right-in/Right-out/Left-in Access

Regional access to the Project site is available from the I-15 Freeway and Second Street interchange. 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) Trip Generation Manual, (10th Edition, 2017). (3) In an effort to conduct a conservative analysis, the fast-food restaurant without drive-through window use has been utilized to calculate the trip generation associated with the proposed food court use. The proposed Project is anticipated to generate a total of 3,018 trip-ends per day with 214 AM peak hour trips and 238 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2020)
- Existing Plus Project (E+P)
- Opening Year Cumulative (2023) Without Project
- Opening Year Cumulative (2023) With Project
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

1.3.1 EXISTING (2020) CONDITIONS

Information for Existing (2020) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Traffic counts were conducted in January 2020.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The E+P analysis determines any potential circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.3.3 Opening Year Cumulative (2023) Conditions

The Opening Year Cumulative (2023) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2020) conditions of 6.12% (2 percent per year over 3 years, compounded annually) is included for Opening Year Cumulative (2023) traffic conditions. This comprehensive list was compiled from information provided by the City of Norco, City of Corona, City of Eastvale, and County of Riverside, and is consistent with other recent studies in the study area.

1.3.4 Horizon Year (2040) Conditions

Traffic projections for Horizon Year (2040) conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing. The Horizon Year conditions analyses will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) and Development Impact Fee (DIF) programs, can accommodate the long-range cumulative traffic at the target level of service (LOS) identified in the City of Norco (lead agency) General Plan. (4) Each of these regional transportation fee programs are discussed in more detail in Section 8 *Local and Regional Funding Mechanisms*.

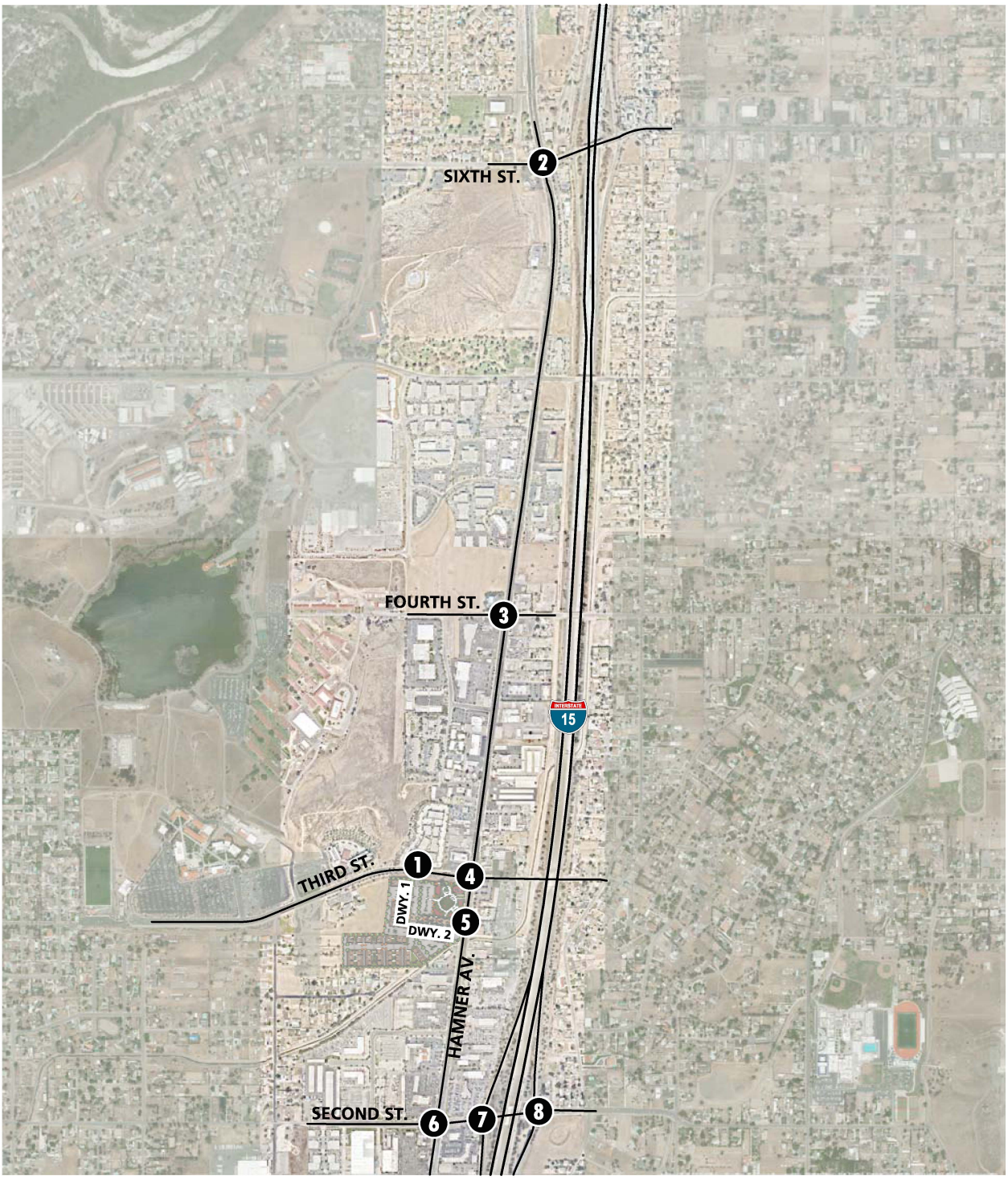
1.4 Study Area

To ensure that this TA satisfies the City of Norco's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City of Norco staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the City is included in Appendix 1.1 of this report.

1.4.1 Study Area Intersections

The 8 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with City of Norco staff. The study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the County of Riverside's traffic study guidelines. (1) The "50 peak hour trip" criteria represents a minimum number of trips at which a typical intersection would have the potential to be substantively affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within Riverside County for estimating a potential area of influence (i.e., study area).

EXHIBIT 1-2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

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URBAN CROSSROADS

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Driveway 1 & Third St.	City of Norco	No
2	Hamner Av. & Sixth St.	City of Norco	No
3	Hamner Av. & Fourth St.	City of Norco	No
4	Hamner Av. & Third St.	City of Norco	No
5	Hamner Av. & Driveway 2	City of Norco	No
6	Hamner Av. & Second St.	City of Norco	No
7	I-15 Southbound Ramps & Second St.	City of Norco, Caltrans	No
8	I-15 Northbound Ramps & Second St.	City of Norco, Caltrans	No

The intent of a Congestion Management Program (CMP) is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (5) CMP intersections are identified in Table 1-1. There are no study area intersections identified as a Riverside County CMP facility.

1.4.2 FREEWAY MAINLINE AND RAMP JUNCTION ANALYSIS

Study area freeway mainline analysis locations were selected based on Caltrans traffic study guidelines, which may require the analysis of State highway facilities. (2) Consistent with recent Caltrans guidance, and because deficiencies to freeway segments tend to dissipate with distance from the point of State Highway System (SHS) entry, quantitative study of freeway segments beyond those immediately adjacent to the point of entry typically is not required. This study evaluates the following freeway facilities adjacent to the point of entry to the SHS at the I-15 Freeway and Second Street (see Table 1-2):

TABLE 1-2: FREEWAY FACILITY ANALYSIS LOCATIONS

ID	Freeway Facilities
1	I-15 Freeway Southbound, North of Second St.
2	I-15 Freeway Southbound, Off-Ramp at Second St.
3	I-15 Freeway Southbound, On-Ramp at Second St.
4	I-15 Freeway Southbound, South of Second St.
5	I-15 Freeway Northbound, North of Second St.
6	I-15 Freeway Northbound, On-Ramp at Second St.
7	I-15 Freeway Northbound, Off-Ramp at Second St.
8	I-15 Freeway Northbound, South of Second St.

1.5 SENATE BILL 743 – VEHICLE MILES TRAVELED (VMT)

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. In December 2018, the Natural Resources Agency finalized updates to CEQA Guidelines to incorporate SB 743 (i.e., VMT). While a lead agency has the option to immediately apply the new VMT based analysis methodology and thresholds for the purposes of evaluating transportation impacts, statewide application of the new guidelines is required July 1, 2020.

The revised Caltrans traffic impact analysis guidelines are set to be available in Spring/Summer 2020, however, Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the SHS. VMT analysis for the Project has been prepared under separate cover. Consistent with the City's General Plan and Development Code, the LOS operations findings included in this TA for study area intersections and freeway facilities are required to demonstrate General Plan consistency, however, are not anticipated to support the environmental document.

1.6 DEFICIENCIES.

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions*, Section 6 *Opening Year Cumulative (2023) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Exhibit 1-3.

1.6.1 E+P CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours (i.e., LOS E or worse), consistent with Existing (2020) traffic conditions:

- Hamner Avenue & Sixth Street (#2) – LOS E AM peak hour only
- Hamner Avenue & Second Street (#6) – LOS F AM and PM peak hours

Off-Ramp Queues

There are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows, consistent with Existing (2020) traffic conditions.

EXHIBIT 1-3: SUMMARY OF LOS

#	Intersection	Existing (2020)	E+P	Opening Year Cumulative (2023) Without Project	Opening Year Cumulative (2023) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Dwy. 1 & Third St.						
2	Hamner Av. & Sixth St.						
3	Hamner Av. & Fourth St.						
4	Hamner Av. & Third St.						
5	Hamner Av. & Dwy. 2						
6	Hamner Av. & Second St.						
7	I-15 SB Ramps & Second St.						
8	I-15 NB Ramps & Second St.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = ACCEPTABLE LOS A-D
- = DEFICIENT LOS E
- = DEFICIENT LOS F

Freeway Facilities

The following study area freeway mainline segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours, consistent with Existing (2020) traffic conditions:

- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM peak hour only
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

1.6.2 OPENING YEAR CUMULATIVE (2023) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours (i.e., LOS E or worse), consistent with Existing (2020) traffic conditions:

- Hamner Avenue & Sixth Street (#2) – LOS E AM peak hour only
- Hamner Avenue & Second Street (#6) – LOS F AM and PM peak hours

With the addition of Project traffic, there are no additional study area intersections anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) under Opening Year Cumulative (2023) With Project traffic conditions, in addition to the intersections identified under Opening Year Cumulative (2023) Without Project traffic conditions.

Off-Ramp Queues

There are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Opening Year Cumulative (2023) traffic conditions, consistent with Existing (2020) traffic conditions.

Freeway Facilities

The following study area freeway segments and merge/diverge ramp junctions analyzed are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours under Opening Year Cumulative (2023) traffic conditions:

- I-15 Freeway Southbound, North of Second Street (#1) – LOS E AM and PM peak hours
- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Second Street (#7) – LOS F AM peak hour only
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

With the addition of Project traffic, there are no additional study area freeway segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS during the peak hours, in addition to the segments and ramp junctions identified under Opening Year Cumulative (2023) Without Project traffic conditions.

1.6.3 HORIZON YEAR (2040) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions:

- Hamner Avenue & Sixth Street (#2) – LOS F AM and PM peak hours
- Hamner Avenue & Third Street (#4) – LOS E AM peak hour only
- Hamner Avenue & Driveway 2 (#5) – LOS F PM peak hour only
- Hamner Avenue & Second Street (#6) – LOS F AM and PM peak hours
- I-15 Southbound Ramps & Second Street (#7) – LOS E AM peak hour only

With the addition of Project traffic, there are no additional study area intersections anticipated to operate under Horizon Year (2040) With Project traffic conditions, in addition to the intersections identified under Horizon Year (2040) Without Project traffic conditions.

Off-Ramp Queues

There are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Horizon Year (2040) traffic conditions, consistent with Existing (2020) traffic conditions.

Freeway Facilities

The following study area freeway segments and merge/diverge ramp junctions analyzed are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours under Horizon Year (2040) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Second Street (#1) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Southbound, Off-Ramp at Second Street (#2) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, Off-Ramp at Second Street (#7) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

With the addition of Project traffic, there are no new freeway segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS during the peak hours, in addition to the segments and ramp junctions identified under Horizon Year (2040) Without Project traffic conditions.

1.7 RECOMMENDATIONS

1.7.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. Exhibit 1-4 shows the site adjacent recommendations.

Recommendation 1.1 – ***Driveway 1 & Third Street (#1)*** – The following improvements are necessary to accommodate site access and future 95th percentile queues:

- The queuing analysis of site adjacent intersections has been prepared for Horizon Year (2040) With Project traffic conditions and is included in Appendix 1.2 of this report. Based on the queuing analysis of the driveways and site adjacent intersection of Hamner Avenue and Third Street, the Project is to modify the existing median and the westbound left turn pocket to accommodate a minimum of 60-feet of storage.
- Project to install a stop control on the northbound approach and a shared left-through-right turn lane (driveway).

Recommendation 2.1 – ***Hamner Avenue & Third Street (#4)*** – The following improvement is necessary to accommodate future 95th percentile queues:

- Project to modify the existing median and the eastbound left turn pocket to provide a minimum of 240-feet of storage and 300-feet of storage for the northbound left turn pockets on Hamner Avenue.

Recommendation 3.1 – ***Hamner Avenue & Driveway 2 (#5)*** – The following improvement is necessary to accommodate site access:

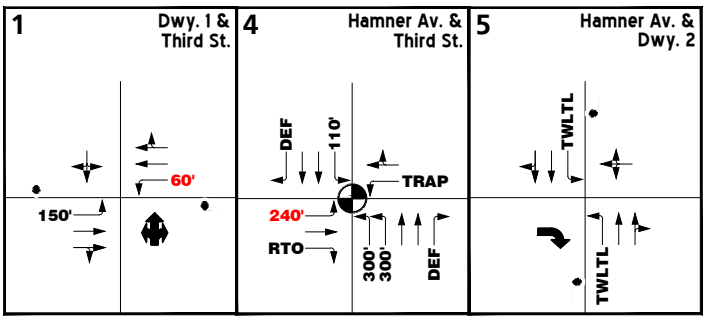
- Project to restrict access to right-in/right-out/left-in only.
- Project to install a stop control on the eastbound approach and a shared left-through-right turn lane (driveway).

Recommendation 4.1 – Third Street is an east-west oriented roadway located along the Project's northern boundary. According to the City of Norco Circulation Element, Third Street is currently built out to its ultimate half-section. As such, there are no roadway improvement recommendations. However, curb, gutter, and sidewalk improvements are recommended, as needed for site access along the Project's frontage, consistent with the City's standards.

Recommendation 5.1 – Hamner Avenue is a north-south oriented roadway located along the Project's eastern boundary. According to the City of Norco Circulation Element, Hamner Avenue is currently built out to its ultimate half-section. As such, there are no roadway improvement recommendations. However, curb, gutter, and sidewalk improvements are recommended, as needed for site access along the Project's frontage, consistent with the City's standards.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS



HAMNER AVENUE IS A NORTH-SOUTH ORIENTED ROADWAY LOCATED ALONG THE PROJECT'S EASTERN BOUNDARY. ACCORDING TO THE CITY OF NORCO CIRCULATION ELEMENT, HAMNER AVENUE IS BUILT OUT TO ITS ULTIMATE HALF-SECTION. AS SUCH, THERE ARE NO ROADWAY IMPROVEMENT RECOMMENDATIONS. HOWEVER, ADDITIONAL CURB, GUTTER, AND SIDEWALK IMPROVEMENTS ARE RECOMMENDED, AS NEEDED FOR SITE ACCESS, ALONG THE PROJECT'S FRONTAGE, CONSISTENT WITH THE CITY'S STANDARDS.

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 NORCO SIGHT DISTANCE STANDARDS AT THE TIME OF PREPARATION OF FINAL GRADING, LANDSCAPE AND STREET IMPROVEMENT PLANS.

LEGEND:

- = TRAFFIC SIGNAL
- = EXISTING LANE
- = LANE IMPROVEMENT
- = STOP SIGN
- TRAP = TRAP LANE
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN
- TWLTL = TWO WAY LEFT TURN LANE
- 150' = MINIMUM TURN POCKET LENGTH IMPROVEMENT
- 150' = MINIMUM TURN POCKET LENGTH

N

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URBAN CROSSROADS

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Norco sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

1.7.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies identified under Existing (2020), E+P, Opening Year Cumulative (2023), and Horizon Year (2040) traffic conditions are shown in Table 1-3. For those improvements listed in Table 1-3 and not constructed as part of the Project, the Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share and/or TUMF/DIF fees (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay TUMF/DIF and/or fair share fees consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

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Table 1-3

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Recommended Improvements[1]						Improvements in Fee Program?[1]	Project Responsibility[6]	Fair Share %[2]
			Existing (2020)	E+P	2023 Without Project	2023 With Project	2040 Without Project	2040 With Project			
2	Hamner Av. & Sixth St.	Norco	Restripe the SB approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane	Same	Same	Same	Same	Same	No	Fair Share	4.3%
			Optimization of the traffic signal cycle lengths and splits[3]	Same	Same	Same	Same	Same	No	Fair Share	
							Restripe the NB approach to provide one left turn lane, two through lanes, and one shared through-right turn lane	Same	Yes (TUMF)	Fees	
4	Hamner Av. & Third St.	Norco	None	None	None	None	Restripe the NB approach to provide dual left turn lanes, two through lanes, and one shared through-right turn lane	Same	Yes (TUMF)	Fees	--
							Restripe the SB approach to provide one left turn lane, two through lanes, and one shared through-right turn lane	Same	Yes (TUMF)	Fees	
5	Hamner Av. & Driveway 2	Norco	None	EB right turn lane	Not Applicable	Same	Not Applicable	Same	No	Construct	--
							Restripe the NB approach to provide a 3rd through lane	Same	Yes (TUMF)	Fees	
							Restripe the SB approach to provide a 3rd through lane	Same	Yes (TUMF)	Fees	
6	Hamner Av. & Second St.	Norco	Add 2nd SB left turn lane[4]	Same	Same	Same	Same	Same	No	Fair Share	7.0%
			Stripe the SB defacto right turn lane	Same	Same	Same	Same	Same	No	Fair Share	
					Restripe the EB approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane	Same	Same	Same	No	Fair Share	
					Restripe the WB approach to provide dual left turn lanes, one through lane, and one right turn lane	Same	Same	Same	No	Fair Share	
					Modify the traffic signal to protect the EB and WB left turns[5]	Same	Same	Same	No	Fair Share	
							Modify the traffic signal to implement overlap phasing for the WB right turn lane	Same	No	Fair Share	
							Restripe the NB approach to provide one left turn lane, two through lanes, and one shared through-right turn lane	Same	Yes (TUMF)	Fees	
7	I-15 SB Ramps & Second St.	Norco, Caltrans	None	None	None	None	Add EB right turn lane	Same	No	Fair Share	9.4%

[1] Program improvements constructed by project may be eligible for fee credit. In lieu fee payment is at discretion of City.

[2] Represents the fair share percentage for the Project during the most impacted peak hour.

[3] Traffic signal cycle lengths and splits should be optimized for all intersections along the I-15 Freeway/Sixth Street corridor to improve traffic operations and reduce queuing along Sixth Street.

[4] Improvement includes modification of the traffic signal to run the northbound and southbound protected left turns as lead-lag, with the southbound left turn running as lag.

[5] Improvement includes modification of the traffic signal to run the eastbound and westbound protected left turns as lead-lag, with the westbound left turn running as lag.

[3] Identifies the Project's responsibility to construct an improvement or contribute fair share towards the implementation of the improvements shown.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. Since the City of Norco does not have their own traffic study guidelines, the methodologies described are generally consistent with the County of Riverside and Caltrans traffic study guidelines. (1) (2)

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 Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (6) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Norco requires signalized intersection operations analysis based on the methodology described in the HCM (6th Edition). 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. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

The traffic modeling and signal timing optimization software package Synchro (Version 10) is utilized to analyze signalized intersections within the City of Norco. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. 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 level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM, 6th Edition

A saturation flow rate of 1900 has been utilized for all study area intersections located within the City of Norco. The peak hour traffic volumes are adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute 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. Per the HCM, 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. (6)

California Department of Transportation (Caltrans)

Per the Caltrans *Guide for the Preparation of Traffic Impact Studies*, the traffic modeling and signal timing optimization software package Synchro (Version 10) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. I-15 Freeway ramps at Second Street). (2) Signal timing for the freeway arterial-to-ramp intersections have been obtained from Caltrans District 8 and were utilized for the purposes of this analysis.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Norco requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (6) 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

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

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 the 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 TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices *(CA MUTCD)*. (7)

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. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (7) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Traffic signal warrant analyses were performed for the following unsignalized study area intersection shown in Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Driveway 1 & Third Street	City of Norco
5	Hamner Avenue & Driveway 2	City of Norco

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions,* Section 6 *Opening Year Cumulative (2023) Traffic* Conditions, and Section 7 *Horizon Year (2040) Traffic Conditions* 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 FREEWAY OFF-RAMP QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-15 Freeway at Second Street interchange. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-15 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.5 FREEWAY MAINLINE SEGMENT ANALYSIS METHODOLOGY

The traffic study has evaluated all freeway segments where the Project is anticipated to contribute traffic, in an effort to conduct a conservative analysis and overstate as opposed to understand potential deficiencies. Although analyzed for the purposes of this study, it should be noted the Project contributes less than 50 peak hour trips to the study area freeway segments.

The freeway system in the study area has been broken into segments defined by the freeway-to-arterial interchange locations. The freeway segments have been evaluated in this TA based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in the HCM and performed using HCS7 software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Table 2-4 illustrates the freeway segment LOS descriptions for each density range utilized for this analysis.

The number of lanes for existing baseline conditions has been obtained from field observations conducted by Urban Crossroads in January 2020. These existing freeway geometrics have been utilized for Existing (2020), E+P, Opening Year Cumulative (2023), and Horizon Year (2040) traffic conditions. The I-15 Freeway mainline volume data was obtained from the Caltrans Performance Measurement System (PeMS) website for the segment of the I-15 Freeway north of Second Street. The data was obtained from January 2020. In an effort to conduct a conservative analysis, the maximum value observed within the 3-day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic and actual vehicles (as opposed to passenger car equivalent volumes) have been utilized for the purposes of the basic freeway segment analysis. (8)

TABLE 2-4: DESCRIPTION OF FREEWAY MAINLINE LOS

Level of Service	Description	Density Range (pc/mi/ln)[1]
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows, and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

2.6 FREEWAY MERGE/DIVERGE RAMP JUNCTION ANALYSIS

The freeway system in the study area has been broken into segments defined by freeway-to-arterial interchange locations where the Project is anticipated to contribute trips (see Table 1-2). Although analyzed for the purposes of this study, it should be noted, the Project contributes less than 50 peak hour trips to the study area merge/diverge ramp junctions.

Although the HCM indicates the influence area for a merge/diverge junction is 1,500 feet, the analysis presented in this traffic study has been performed at all ramp locations with respect to the nearest on or off-ramp at each interchange in an effort to be consistent with Caltrans guidance/comments on other projects Urban Crossroads has worked on in the region.

The freeway facility analysis is performed using the HCS7 software and analyzes the freeway facility as a whole, including both freeway segments and ramp junctions. The measure of effectiveness (reported in passenger car/mile/lane) is calculated based on the existing number of travel lanes, number of lanes at the on and off-ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Table 2-5 presents the merge/diverge area level of service descriptions for each density range utilized for this analysis.

TABLE 2-5: DESCRIPTION OF FREEWAY MERGE AND DIVERGE LOS

Level of Service	Density Range (pc/mi/ln)[1]
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

Similar to the basic freeway segment analysis, the I-15 Freeway volume data was obtained from the Caltrans maintained PeMS website for the segments of the I-15 Freeway north of Second Street. The ramp data (per the count data presented in Appendix 3.1) was then utilized to flow conserve the mainline volumes to determine the remaining I-15 Freeway mainline segment volumes. Flow conservation checks ensure that traffic flows from north to south (and vice versa) of the interchange area with no unexplained loss of vehicles. The data was obtained from January 2020. In an effort to conduct a conservative analysis, the maximum value observed within the 3-day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic and actual vehicles (as opposed to passenger car equivalent volumes) have been utilized for the purposes of the freeway ramp junction (merge/diverge) analysis. (8)

2.7 MINIMUM LEVEL OF SERVICE (LOS)

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

2.7.1 CITY OF NORCO

For the study intersections located in the City of Norco, LOS D is also the minimum acceptable condition that should be maintained during the peak commute hours.

2.7.2 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. Consistent with the City of Norco minimum LOS of LOS D, LOS D will be used as the target LOS for both arterial-to-freeway ramps and freeway mainline segments and ramp junctions.

2.8 DEFICIENCY CRITERIA

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

2.8.1 INTERSECTIONS

To determine whether the addition of project traffic (as defined through the comparison of Existing traffic conditions to E+P traffic conditions) at a study intersection would result in a direct project-specific deficiency, the following will be utilized:

- When the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and project-generated traffic, as measured by 50 or more peak hour trips, causes deterioration below LOS D (i.e., unacceptable LOS), a deficiency is deemed to occur.

Cumulative traffic deficiencies are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic deficiencies requiring additional improvements to maintain acceptable level of service operations with or without the Project. When the pre-Project condition is already below LOS D (i.e., unacceptable LOS), the Project will be responsible for contributing to the recommended improvements at intersections that receive 50 or more peak hour project-related trips through payment of fees into pre-existing fee programs or fair share contribution.

2.8.2 CALTRANS FACILITIES

To determine whether the addition of project traffic to the SHS freeway segments would result in a deficiency, the following will be utilized:

- The traffic study finds that the LOS of a segment will degrade from D or better to E or F.

- The traffic study finds that the project will exacerbate an already deficient condition (i.e., contributing 50 or more peak hour trips). A segment that is operating at or near capacity is deemed to be deficient.

2.9 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share contribution based on the Project's proportional share may be imposed in order to address the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval).

The Project's fair share contribution is determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total long-range traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / [Horizon Year (2040) Total Traffic – Existing Traffic]

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Norco General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, off-ramp queuing, and freeway facility operations analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Norco staff (Appendix 1.1), the study area includes a total of 8 existing and future intersections as shown previously on Exhibit 1-2, where the Project is anticipated to contribute 50 or more peak hour trips. 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.

3.2 GENERAL PLAN CIRCULATION ELEMENTS

As noted previously, the Project site is located within the City of Norco. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on City of Norco General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Norco General Plan Circulation Element and Exhibit 3-3 illustrates the City of Norco General Plan roadway cross-sections.

Urban Arterials are six-lane divided roadways (divided by either a 14-foot raised median or 10-foot striped median) with a 110-foot right-of-way and 86-foot curb-to-curb measurement. The following study area roadway within the City of Norco is classified as an Urban Arterial:

- Hamner Avenue

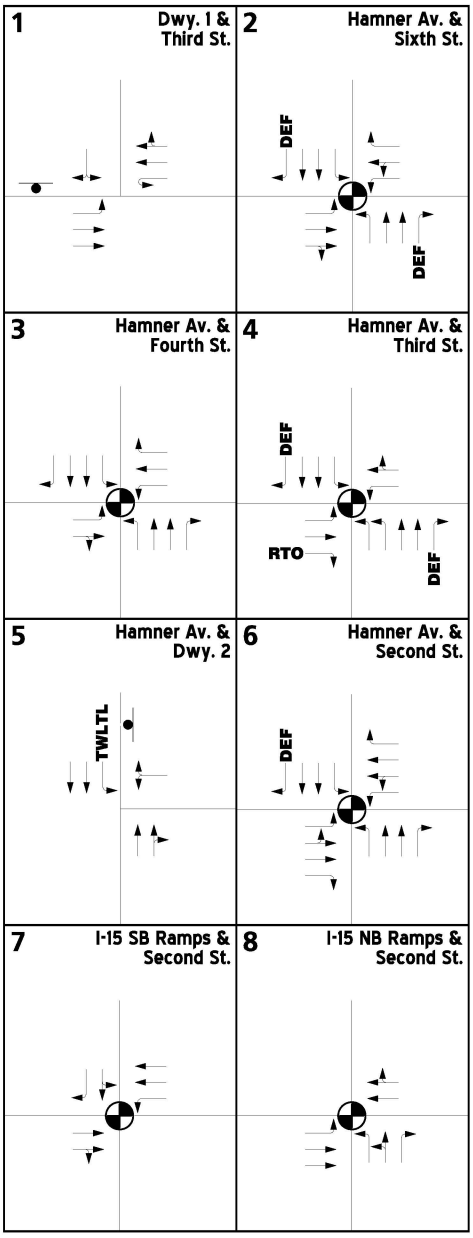
Major Arterials are four-lane divided roadways (divided by a 12-foot raised median) with a 100-foot right-of-way and 80-foot curb-to-curb measurement. The following study area roadway within the City of Norco is classified as a Major Arterial:

- Sixth Street, east of Hamner Avenue

Collector Streets are four-lane undivided roadways with an 88-foot right-of-way and 64-foot curb-to-curb measurement, which includes a 12-foot equestrian trail. The following study area roadways within the City of Norco are classified as Collector Streets:

- Second Street, east of Mountain Avenue
- Third Street, west of Hamner Avenue
- Sixth Street, west of Hamner Avenue

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN
- TWLTL = TWO WAY LEFT TURN LANE
- = SPEED LIMIT (MPH)

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EXHIBIT 3-2: CITY OF NORCO GENERAL PLAN CIRCULATION ELEMENT

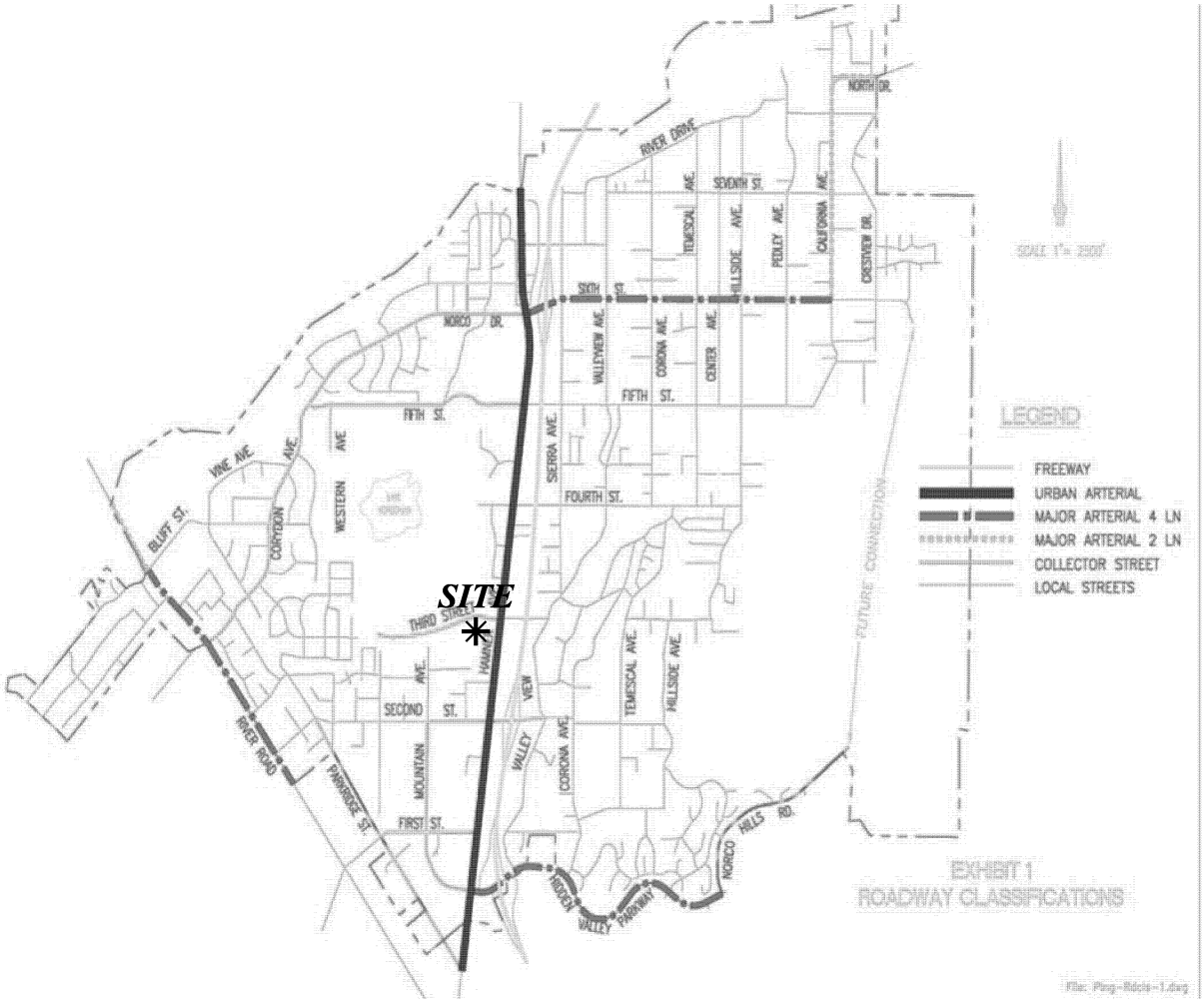

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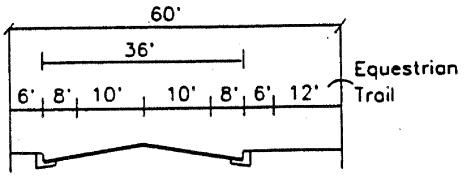
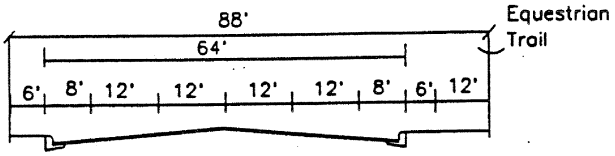
EXHIBIT 3-3: CITY OF NORCO ROADWAY CROSS-SECTIONS

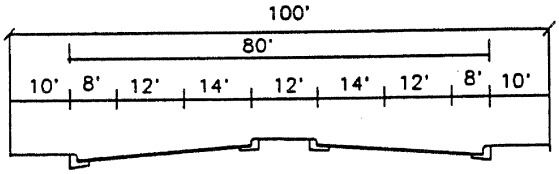
Local



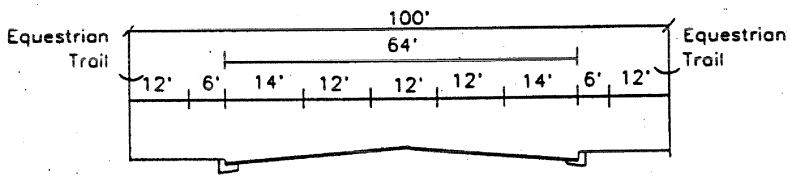
Collector



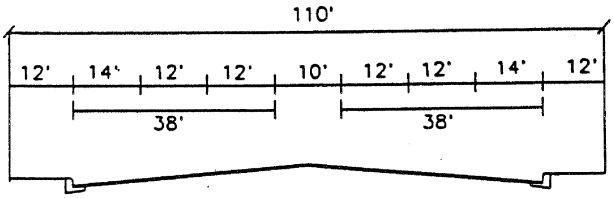
Major – 4
River Road



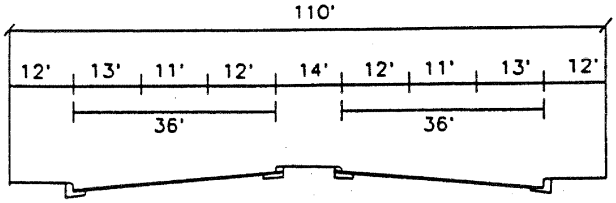
Major – 4E
Sixth Street
Hidden Valley Parkway (½)



Urban Arterial
Hamner Avenue Without Median



Urban Arterial
Hamner Avenue
With Raised Median



Local Streets are two-lane undivided roadways with a 60-foot right-of-way and 36-foot curb-to-curb measurement. The following study area roadways within the City of Norco are classified as Local Streets:

- Fourth Street
- Third Street, east of Hamner Avenue

3.3 TRANSIT SERVICE

As shown on Exhibit 3-4, the study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region near the City of Norco, with bus service along Hamner Avenue and Third Street, via Route 3. The Project site would likely be served by Route 3 alternative routing, as indicated on Exhibit 3-4. Transit service is reviewed and updated by RTA 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.

3.4 BICYCLE & PEDESTRIAN FACILITIES

Class II bikeways, also referred to as "bike lanes," are intended to delineate the right-of-way assigned to bicyclists and motorists, and to provide for more predictable movements of each. Bike lane signs and pavement marking help define the bikeway. A more important reason for bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets. Hamner Avenue is planned to have a Class II bike lane south of Hidden Valley Parkway. Additionally, there is an existing Class I horse trail on the south side of Third Street along the Project's frontage. Field observations conducted in January 2020 indicate nominal pedestrian and bicycle activity within the study area. Exhibit 3-5 illustrates the existing pedestrian facilities, including sidewalks and crosswalks.

3.5 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in January 2020, while schools were in session. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

EXHIBIT 3-4: EXISTING TRANSIT ROUTES

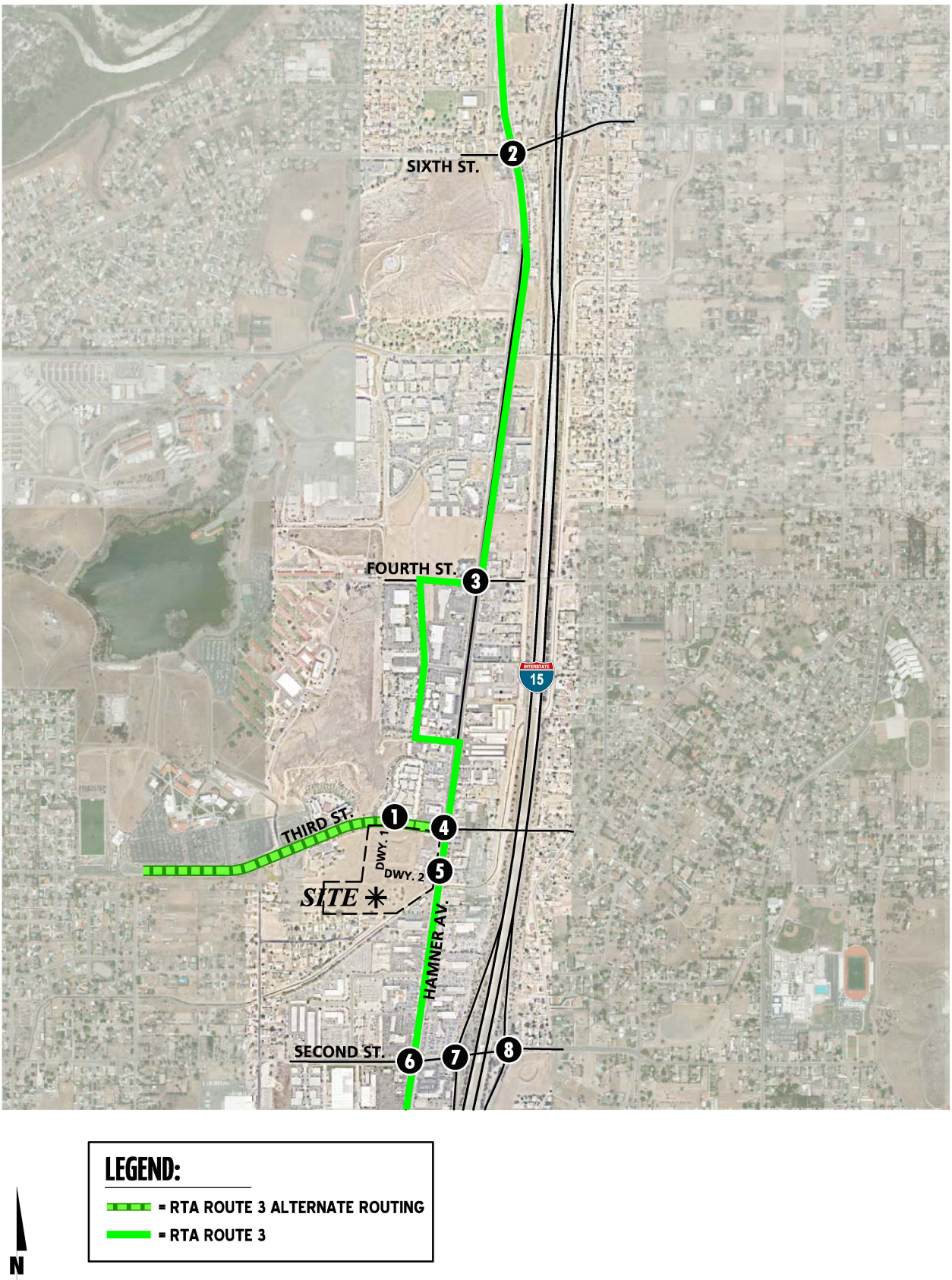
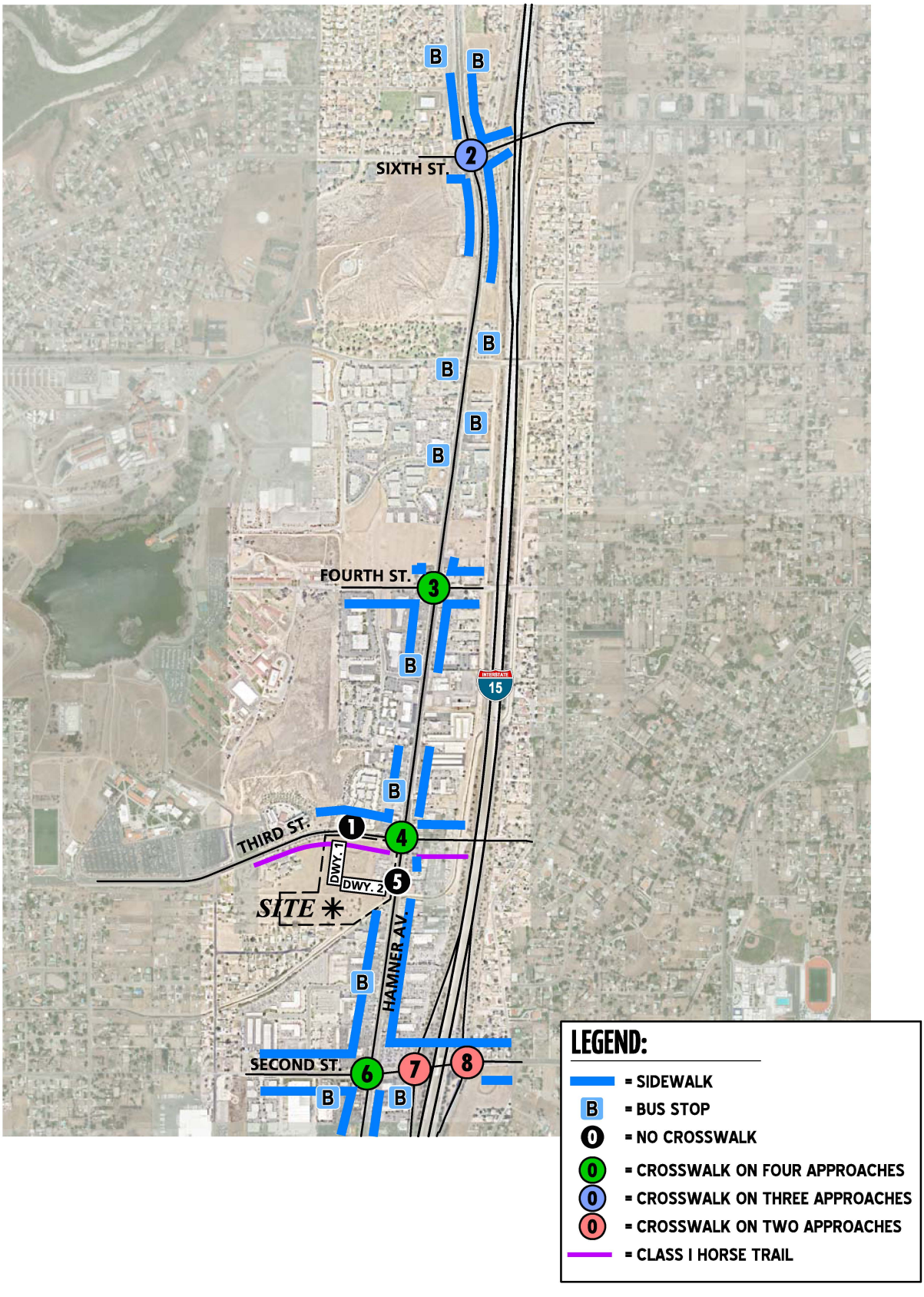


EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



The weekday AM and weekday PM peak hour count data are representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes, and near-by schools were in session and operating on normal schedules, including Norco College located west of the Project site. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic.

Existing weekday Average Daily Traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-6. Where actual 24-hour tube count data was not available, Existing ADT volumes were 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 16.65 = Leg Volume

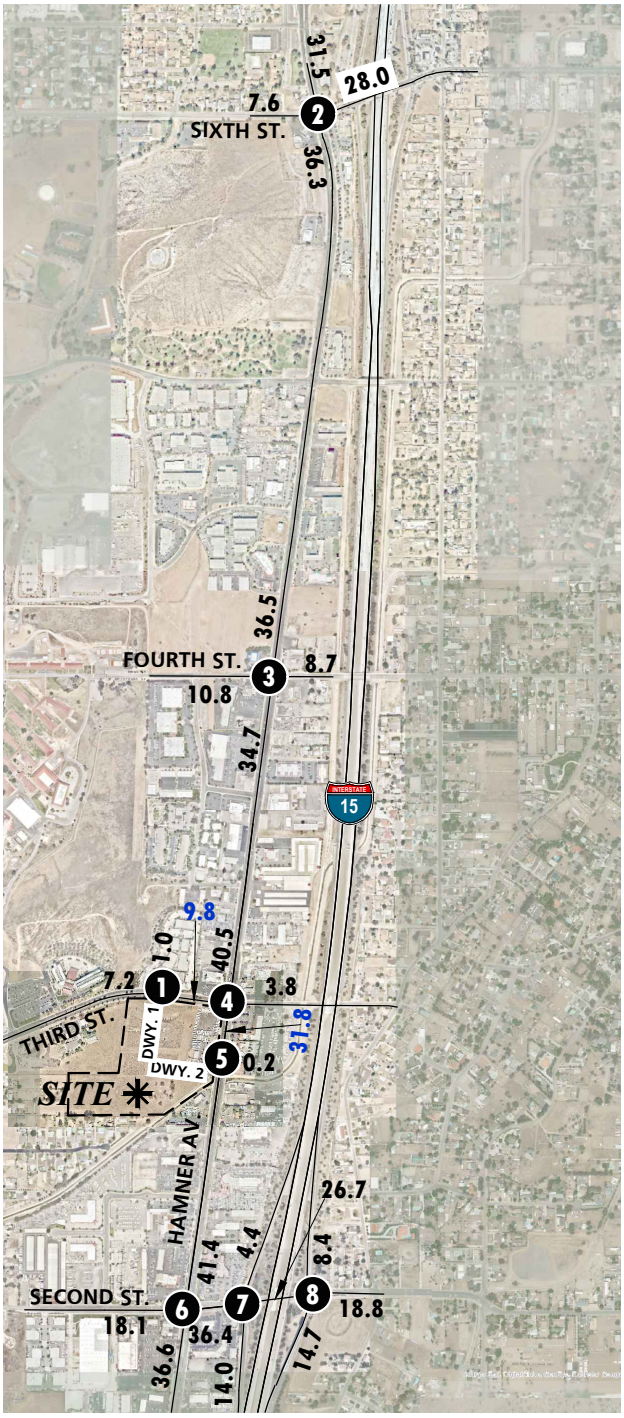
A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 6.01 percent. As such, the above equation utilizing a factor of 16.65 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.01 percent (i.e., 1/0.0601 = 16.65) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are also shown on Exhibit 3-6.

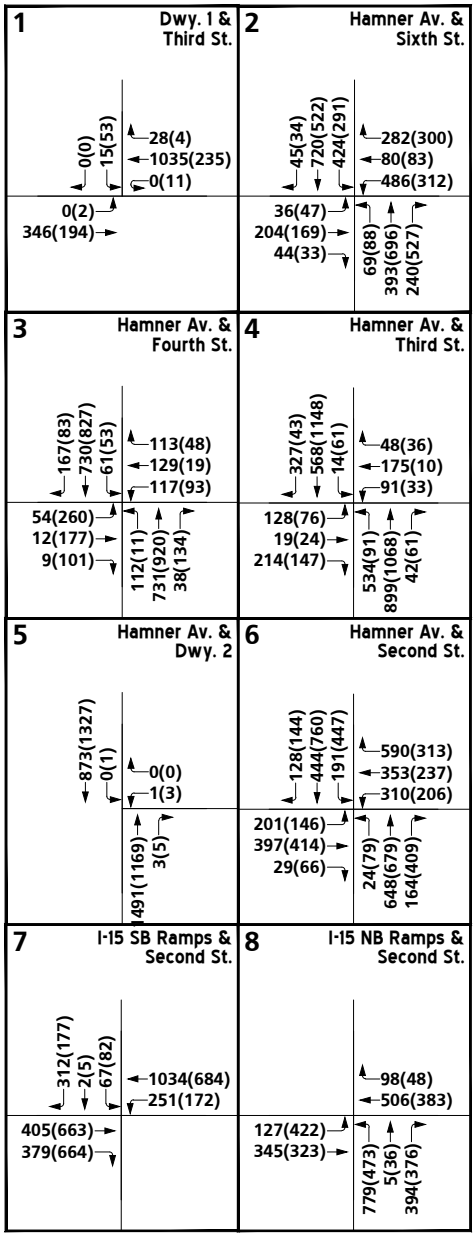
3.6 EXISTING (2020) INTERSECTION OPERATIONS ANALYSIS

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 following study area intersections are currently operating at an unacceptable LOS during the peak hours (i.e., LOS E or worse):

- Hamner Avenue & Sixth Street (#2) – LOS E AM peak hour only
- Hamner Avenue & Second Street (#6) – LOS E AM peak hour; LOS F PM peak hour

EXHIBIT 3-6: EXISTING (2020) TRAFFIC VOLUMES





LEGEND:

10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

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Table 3-1

Intersection Analysis for Existing (2020) Conditions

#	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	Driveway 1 & Third St.	CSS	0	1	0	0	1	0	1	2	0	1	2	0	15.5	11.0	C	B
2	Hamner Av. & Sixth St.	TS	1	2	d	1	2	d	1	2	0	1	1	1	**63.2**	36.4	**E**	D
3	Hamner Av. & Fourth St.	TS	1	2	1	1	2	1	1	1	0	1	1	1	20.1	21.7	C	C
4	Hamner Av. & Third St.	TS	2	2	d	1	2	d	1	1	1>	1	1	0	28.1	21.8	C	C
5	Hamner Av. & Driveway 2	CSS	0	2	0	0	2	0	0	1	0	0	1	0	15.0	19.1	C	C
6	Hamner Av. & Second St.	TS	1	2	1	1	2	d	1	2	1	1	2	1	**63.1**	**196.8**	**E**	**F**
7	I-15 SB Ramps & Second St.	TS	0	0	0	0	1	1	0	2	0	1	2	0	16.9	13.4	B	B
8	I-15 NB Ramps & Second St.	TS	1	1	1	0	0	0	1	2	0	0	2	0	32.4	37.0	C	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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; d = defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th edition), 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

[3] CSS = Cross-street Stop; TS = Traffic Signal

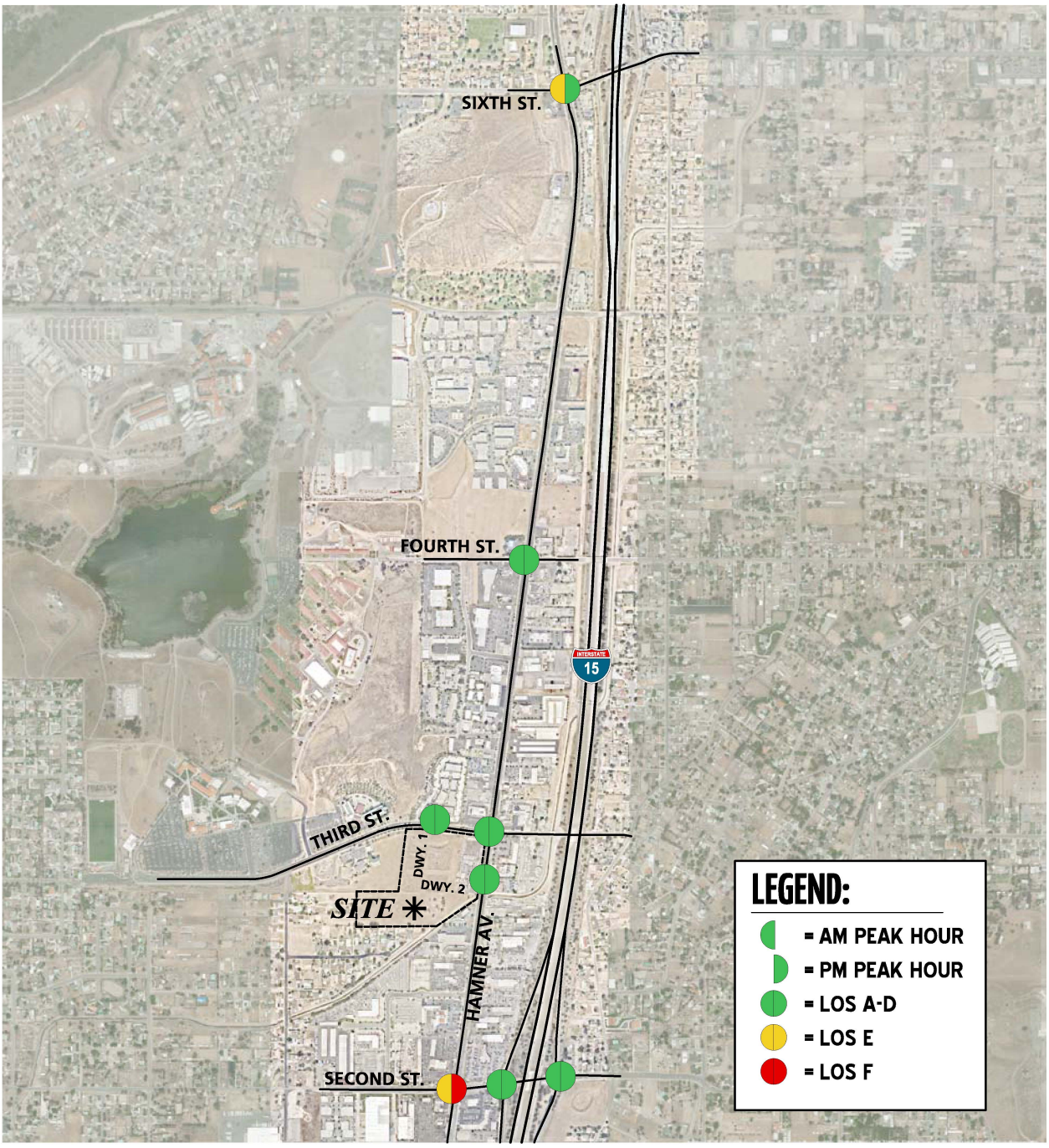
It should be noted, at the time traffic counts were collected in January 2020, field observations indicated queuing in the eastbound and westbound directions on Sixth Street in the vicinity of the I-15 Freeway ramps during the AM peak hour. These queues are due to the adjacent I-15 Freeway ramp-to-arterial intersections located in close proximity to one another and spill back from vehicles trying to get onto the I-15 Freeway. Based on the current signal timing along Sixth Street and the limited stacking distance, the intersection of Hamner Avenue & Sixth Street (#2) experiences constrained (congested) flow conditions. These constraints in the form of vehicle queues at closely spaced intersections significantly limit the number of vehicles that cross the stop bar and are physically "counted" during peak hour conditions. While the traffic counts identify all the vehicles using an intersection during peak hours, they may not fully account for the unconstrained demand at a particular location (during non-congested hours). The intersection operations analysis shown previously in Table 3-1 reflects the reduced capacity and queuing issues observed along Sixth Street during the morning peak hours, resulting in unacceptable LOS during the AM peak hour. As such, the operations analysis results reflected in Table 3-1 is indicative of existing traffic conditions.

Due to the proximity of Norco College, the intersection of Hamner Avenue & Third Street (#4) experiences vehicles queues for the northbound left turn and eastbound left turn movements. These queues, caused by school traffic, frequently fill the northbound and eastbound left turn pockets, however, all vehicles within the queues are able to clear the intersection within the allocated green times for every traffic signal cycle. Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions is shown on Exhibit 3-7. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

3.7 EXISTING (2020) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized study area intersections that currently warrant a traffic signal for Existing (2020) traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

EXHIBIT 3-7: EXISTING (2020) SUMMARY OF LOS



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3.8 EXISTING (2020) OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Second Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-2, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. This finding is consistent with field observations at the time traffic counts were conducted. It should be noted, the northbound off-ramp at Second Street has recently been improved to include the addition of a northbound left turn lane. With this improvement in place, there are no observed off-ramp queuing issues during the AM and PM peak hours. Worksheets for Existing (2020) traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

3.9 EXISTING (2020) FREEWAY FACILITY ANALYSIS

Existing (2020) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 3-8. As shown in Table 3-3, the following study area merge/diverge ramp junction analyzed for this study is currently operating at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Existing (2020) traffic conditions:

- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM peak hour only

Existing (2020) freeway facility analysis worksheets are provided in Appendix 3.5.

It should be noted that although the I-15 Freeway is found to operate at an acceptable LOS based on the HCS analysis, field observations indicate constrained (congested) flow conditions during the peak hours in the northbound direction during the AM and PM peak hours. According to the Caltrans PeMS data, the I-15 Freeway Northbound experiences speeds as low as 25 miles per hour during the morning and evening peak hours. The freeway is slow moving; therefore, fewer vehicles are being captured and reflected in the PeMS data. The LOS for the I-15 Freeway mainline analyses is based on the PeMS data and HCS software. Due to limitations of the software, such as limiting the speed limit input to a minimum of 45 miles per hour, HCS is unable to replicate constrained flow conditions. As a result, the LOS is reported as acceptable although the freeway is considered at capacity during the peak hours for the freeway segments and ramp junctions, as observed in the field, at the following freeway facilities:

- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

For the purposes of this analysis, these locations have been identified with LOS F operations and denoted with a footnote in the analysis summary tables to reflect observed existing conditions during the peak hours.

Table 3-2

Peak Hour Freeway Off-Ramp Queuing Summary for Existing (2020) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM
7 I-15 SB Ramps & Second St.	SBT/L	1,500	82	119	Yes	Yes
	SBR	340	246[2]	67	Yes	Yes
8 I-15 NB Ramps & Second St.	NBL	640	387	270	Yes	Yes
	NBT/L	1,265	393	267	Yes	Yes
	NBR	1,265	64	74	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer.

Table 3-3

Freeway Facility Analysis for Existing (2020) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	Density[3]		LOS[4]	
				AM	PM	AM	PM
I-15	SB	North of Second St.	3	31.7	32.2	D	D
		Off-Ramp at Second St.	3	32.1	32.2	D	D
		On-Ramp at Second St.	4	19.9	20.5	C	C
		South of Second St.	5	18.3	19.2	C	B
	NB	North of Second St.	3	--[5]	--[5]	**F**	**F**
		On-Ramp at Second St.	3	**39.3**	30.0	**F**	D
		Off-Ramp at Second St.	4	24.8	17.5	C	B
		South of Second St.	5	--[5]	--[5]	**F**	**F**

* **BOLD** = Unacceptable Level of Service

[1] SB = Southbound; NB = Northbound

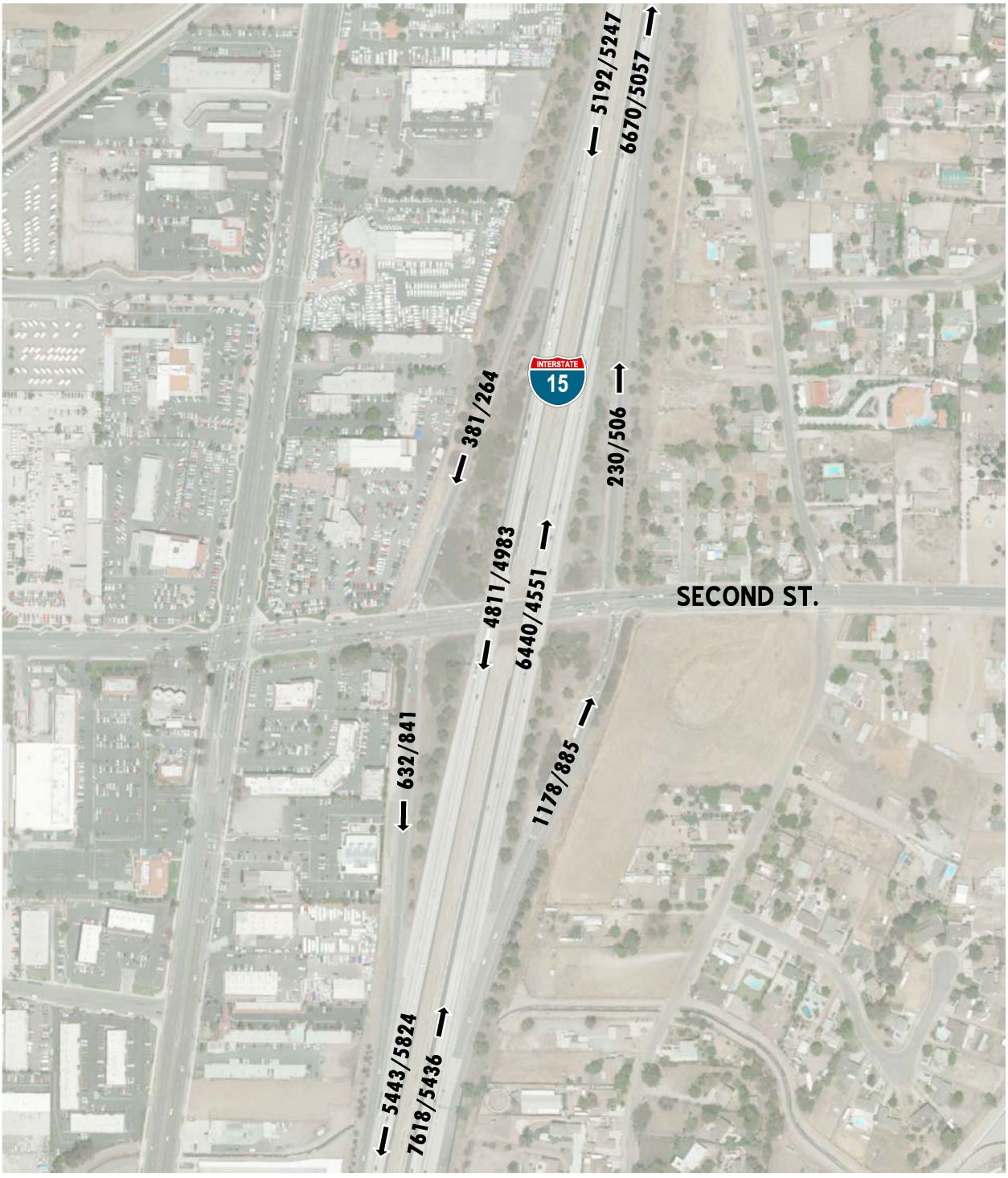
[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

[5] Analysis with constrained flow results in acceptable LOS, however, field observations indicate congestion during the peak hour. As such, the freeway is considered at capacity.

EXHIBIT 3-8: EXISTING (2020) FREEWAY MAINLINE VOLUMES



3.10 RECOMMENDED IMPROVEMENTS

3.10.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address Existing (2020) traffic deficiencies are presented in Table 3-4 and described below. The intersection operations analysis worksheets for Existing (2020) traffic conditions, with improvements, are included in Appendix 3.6.

Recommended Improvement – Hamner Avenue & Sixth Street (#2) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the southbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Modify the traffic signal timing to optimize the cycle lengths and splits during the AM and PM peak hours.

Although the recommended improvements at the intersection of Hamner Avenue & Sixth Street (#2) will improve the LOS to acceptable levels, the queuing issues along Sixth Street will likely not improve until such time in the future when the I-15 Freeway/Sixth Street interchange improvement project is completed.

Recommended Improvement – Hamner Avenue & Second Street (#6) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound left turn lane.
- Stripe the southbound defacto right turn lane.
- Modify the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag. As such, northbound and southbound left turns will run separately (not concurrently).

3.10.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 3-2, there are currently no peak hour queuing issues at the I-15 Freeway and Second Street interchange for Existing (2020) traffic conditions. As such, no improvements have been recommended.

Table 3-4

Intersection Analysis for Existing (2020) Conditions 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
2	Hamner Av. & Sixth St.																	
	- Without Improvements	TS	1	2	d	1	2	d	1	2	0	1	1	1	**63.2**	36.4	**E**	D
	- With Improvements[4]	TS	1	2	d	**2**	2	**0**	1	2	0	1	1	1	34.2	31.0	C	C
6	Hamner Av. & Second St.																	
	- Without Improvements	TS	1	2	1	1	2	d	1	2	1	1	2	1	**63.1**	**196.8**	**E**	**F**
	- With Improvements[5]	TS	1	2	1	**2**	2	**1**	1	2	1	1	2	1	40.4	41.9	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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; d= Defacto Right Turn Lane; **1** = Improvement

[2] Per the Highway Capacity Manual (6th edition), 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

[3] TS = Traffic Signal

[4] Improvement includes optimization of the cycle lengths and splits for the I-15 Freeway/Sixth Street interchange corridor.

[5] Improvement includes modification of the traffic signal to run the northbound and southbound protected left turns as lead-lag, with the southbound left turn r

3.10.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 3-3, there are study area freeway mainline segments and ramp junctions that currently operate at an unacceptable LOS for Existing (2020) traffic conditions. The RCTC, in partnership with Caltrans, is investing $455 million to improve the I-15 Freeway between Cajalco Road and SR-60 Freeway. The "I-15 Express Lanes Project" will add two tolled express lanes in each direction, with multiple entrances and exits. Construction began in 2018, and the express lanes will be open to traffic in July 2020. However, since this improvement will not be completed until July 2020 and since there are no other planned improvements to the I-15 Freeway at this time, no improvements have been evaluated for Existing (2020) traffic conditions.

Neither Caltrans nor the State have adopted a fee program that can ensure that locally contributed impact fees will be tied to improvements to freeway mainlines, and only Caltrans has the jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that fair share contributions to mainline improvements are part of a program tied to implementation is within the jurisdiction of Caltrans.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project's trip assignment onto the study area roadway network. The Project will consist of 8,700 square feet of fast-food restaurant without drive-through window use (food court/hall area), a 128-room hotel, and 320 mid-rise multifamily dwelling units. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. For the purpose of this analysis, the following driveways will provide access to the Project site, which align with driveways serving existing uses:

- Driveway 1 via Third Street – Full Access
- Driveway 2 via Hamner Avenue – Right-in/Right-out/Left-in Access

Regional access to the Project site is available from the I-15 Freeway and Second Street interchange.

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.

Trip generation rates and resulting Project trip generation summary are shown in Table 4-1. The trip generation rates used for this analysis are based upon information collected by the ITE as provided in their Trip Generation Manual (10th Edition, 2017) for Multifamily Housing (Mid-Rise, 3-10 floors) (ITE Land Use Code 221), Hotel (ITE Land Use Code 310), and Fast-Food Restaurant without Drive-Through Window (ITE Land Use Code 933). (3)

Pass-by trips are defined as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. These types of trips are many times associated with retail uses. As the Project is proposed to include restaurant use, pass-by percentages have been obtained from the ITE Trip Generation Handbook (3rd Edition, 2017). (3)

Table 4-1

Project Trip Generation Summary

Land Use	ITE Code	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	Weekday Daily
Trip Generation Rates[1]									
Multifamily Housing (Mid-Rise)	221	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
Hotel	310	RM	0.28	0.19	0.47	0.31	0.29	0.60	8.36
Fast-Food without Drive-Thru Window	933	TSF	15.06	10.04	25.10	14.17	14.17	28.34	346.23

Land Use	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
Trip Generation Summary									
Fast-Food without Drive-Thru Window	8.700	TSF	131	87	218	123	123	246	3,012
Internal Capture:[3]			*-19*	*-3*	*-22*	*-18*	*-23*	*-41*	*-502*
Pass-By (49% AM, 50% PM/Daily):[4]			*-41*	*-41*	*-82*	*-50*	*-50*	*-100*	*-1,256*
Restaurant Subtotal:			71	43	114	55	50	105	1,254
Hotel	128	RM	35	25	60	39	38	77	1,070
Internal Capture:[3]			*-1*	*-2*	*-3*	*-11*	*-6*	*-17*	*-238*
Hotel Subtotal:			34	23	57	28	32	60	832
Multifamily Housing (Mid-Rise)	320	DU	30	85	115	86	55	141	1,742
Internal Capture:[3]			*-2*	*-17*	*-19*	*-14*	*-14*	*-28*	*-346*
Residential Subtotal:			28	68	96	72	41	113	1,396
Project Buildout Total:			**133**	**134**	**267**	**155**	**123**	**278**	**3,482**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet; DU = Dwelling Units; RM = Rooms

[3] Internal capture calculated from NCHRP 684 Internal Trip Capture Estimation Tool.

[4] Pass-by percentage are from the ITE Trip Generation Handbook, Third Edition (2017).

Patrons of the food court/hall use may also visit other uses on-site, including the hotel and residential uses, without leaving the site. The ITE Trip Generation Handbook has been utilized to determine the internal capture for the applicable mix of uses. Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual restaurant, hotel, and residential uses on-site and can be made either by walking or using internal roadways without using external streets. As such, an internal capture reduction was applied to recognize the interactions that would occur between the various complementary land uses. The internal capture is based on the National Cooperative Highway Research Program's (NCHRP Report 684) internal capture trip capture estimation tool.

As shown in Table 4-1, the proposed Project is anticipated to generate a total of 3,018 trip-ends per day, with 214 AM peak hour trips and 238 PM peak hour trips.

4.2 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 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 for the restaurant, residential, and hotel uses and are consistent with other similar projects that have been reviewed and approved by City of Norco staff. The Project trip distribution patterns for the restaurant, residential, and hotel uses were developed based on an understanding of existing travel patterns in the area for each land use type, the geographical location of the site, and the site's proximity to the regional arterial and state highway system. Each of these distribution patterns were reviewed and approved by the City of Norco as part of the traffic study scoping process (see Appendix 1.1).

The Project (Residential) trip distribution pattern is graphically depicted on Exhibit 4-1, the Project (Restaurant) trip distribution pattern is depicted on Exhibit 4-2, and the Project (Hotel) trip distribution pattern is depicted on Exhibit 4-3.

4.3 MODAL SPLIT

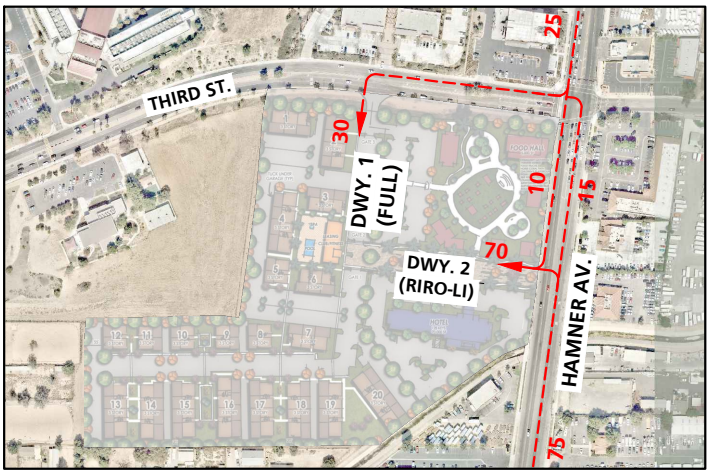
The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

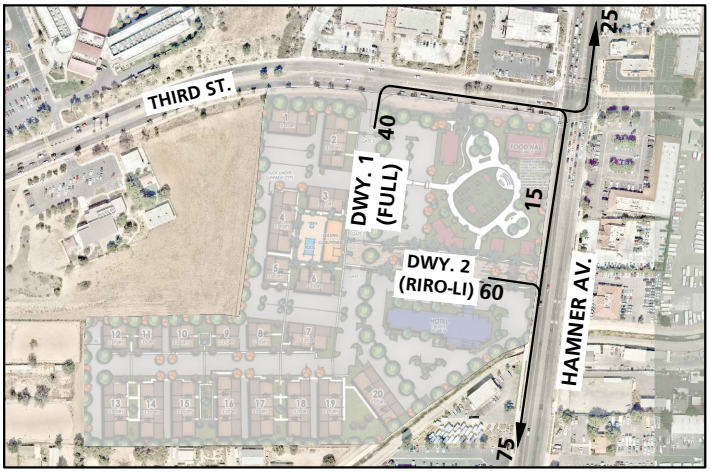
The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-4.

EXHIBIT 4-1: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION

INBOUND



OUTBOUND



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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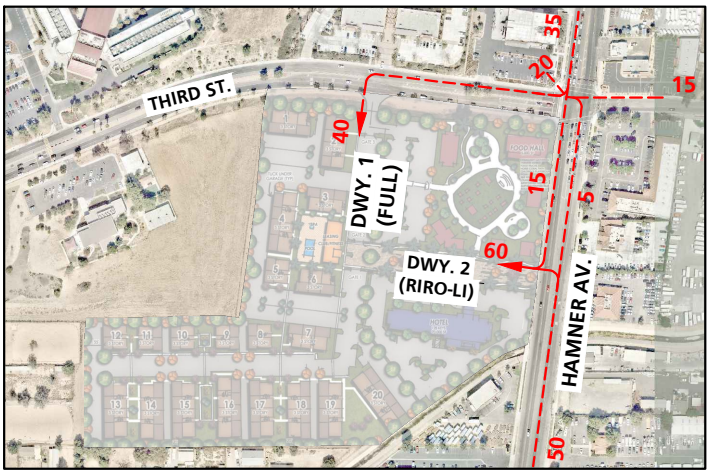
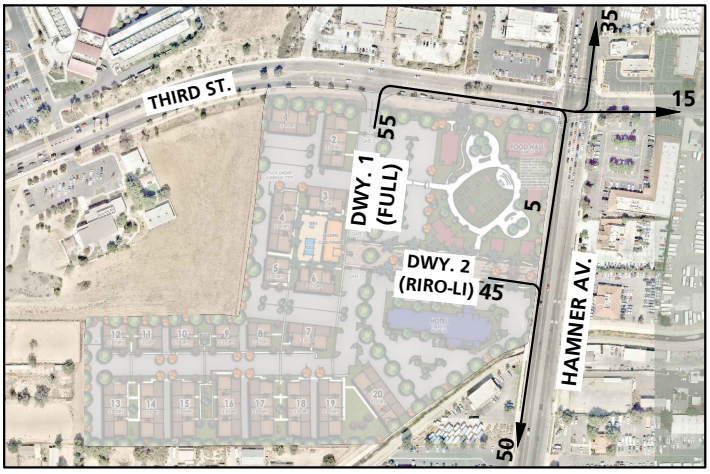
EXHIBIT 4-2: PROJECT (RESTAURANT) TRIP DISTRIBUTION

INBOUND



OUTBOUND



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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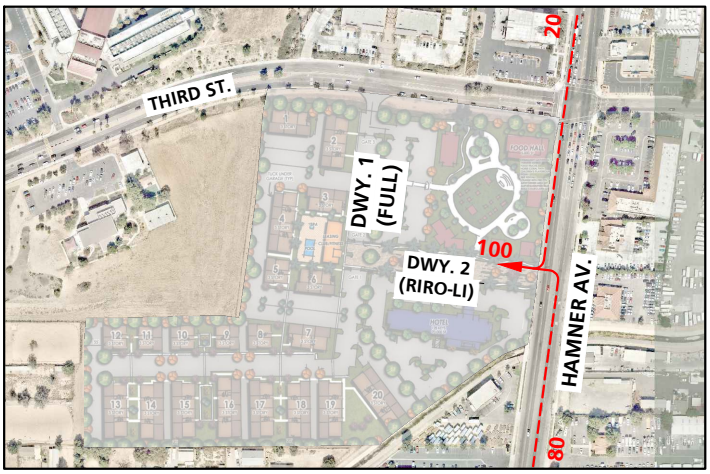
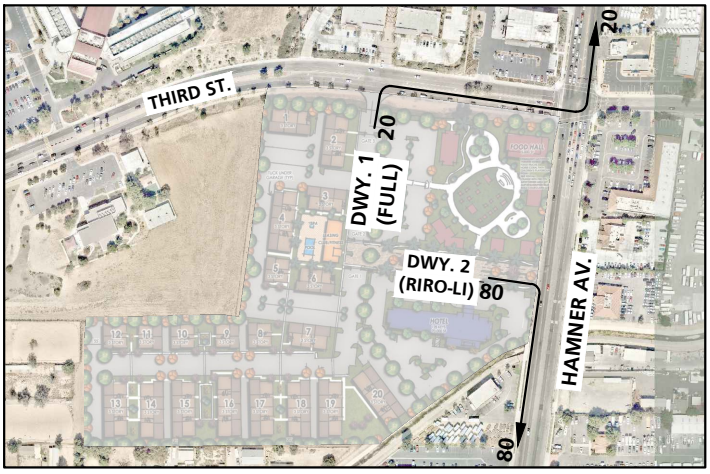
EXHIBIT 4-3: PROJECT (HOTEL) TRIP DISTRIBUTION

INBOUND



OUTBOUND



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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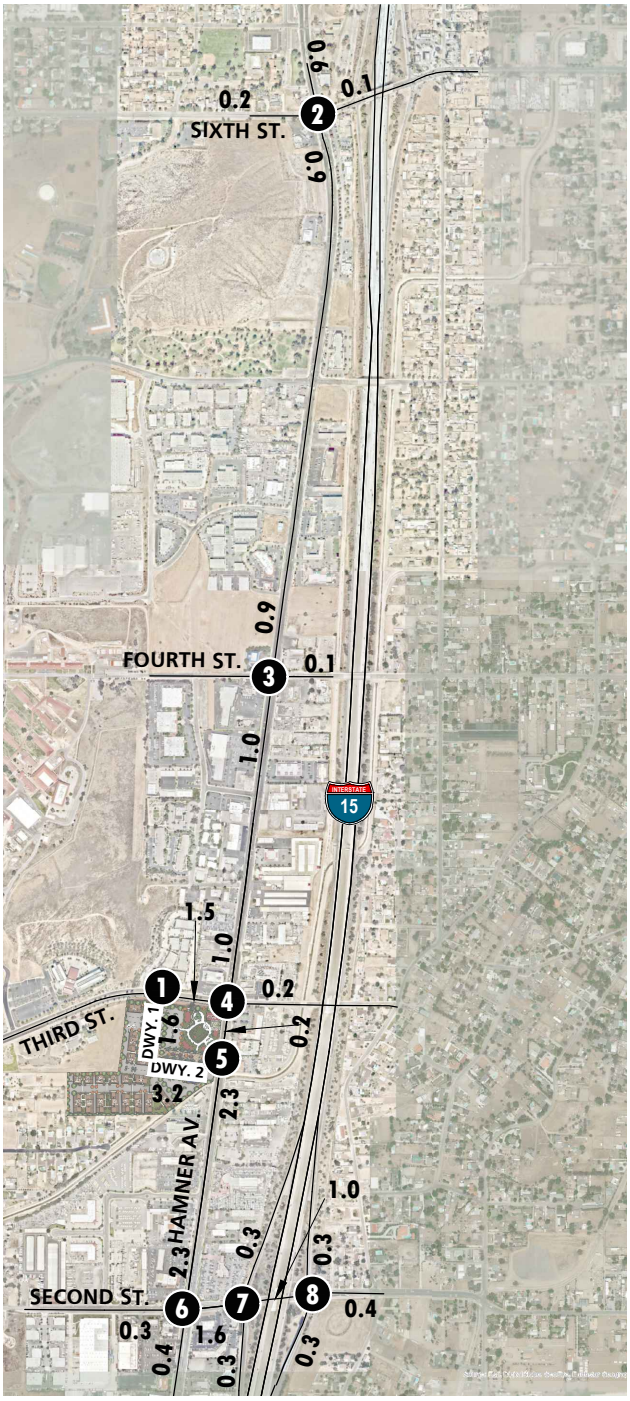
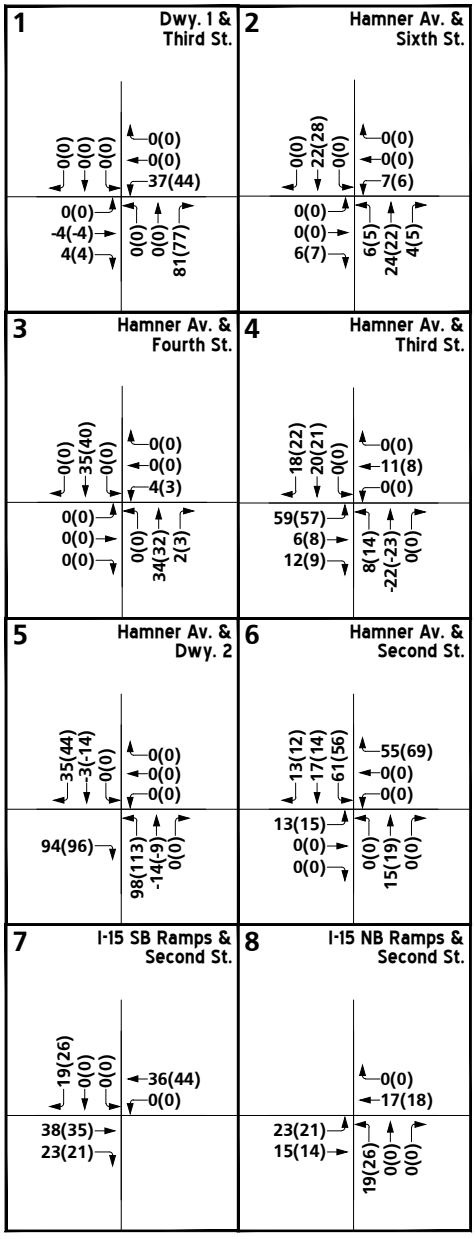
EXHIBIT 4-4: PROJECT ONLY TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

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URBAN CROSSROADS

4.5 BACKGROUND TRAFFIC

4.5.1 NEAR-TERM CONDITIONS

Future year traffic forecasts have been based upon a background (ambient) growth factor of 2% per year for 2023 traffic conditions. The ambient growth factor is intended to approximate traffic growth. The total ambient growth is 6.12% for 2023 traffic conditions (compounded growth of 2 percent per year over 3 years). 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 (2023) traffic volumes are provided in Section 6 of this report.

4.5.2 HORIZON YEAR (2040) CONDITIONS

The adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the City of Norco identifies projected growth in population of 26,900 in 2012 to 32,100 in 2040, or a 19.33% increase over the 28-year period. (9) The change in population equates to roughly a 0.63% growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 31.43%, or a 0.98% annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 94.7%, or a 2.41% annual growth rate.

Based on a comparison of Existing (2020) traffic volumes to the Horizon Year (2040) forecasts, the average growth rate is estimated at approximately 2.18%, compounded annually between Existing (2020) and Horizon Year (2040) traffic conditions. The annual growth rate at each individual intersection is not lower than 1.77% compounded annually to as high as 2.61% compounded annually over the same time period.

Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Norco for Horizon Year (2040) traffic conditions, especially when considered along with the addition of project-related traffic. As such, the growth in traffic volumes assumed in this TA would tend to overstate as opposed to understate the potential deficiencies to traffic and circulation.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Norco. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Known projects in the adjacent cities of Eastvale, Corona, and Riverside County have also been included.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative (2023) forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-5, listed in Table 4-2, and have been considered for inclusion.

Although it is unlikely that all of these cumulative projects would be fully built and occupied by Year 2023, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic deficiencies. Any other cumulative projects located beyond the cumulative study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is likely accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative Only ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-6.

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT LOCATION MAP

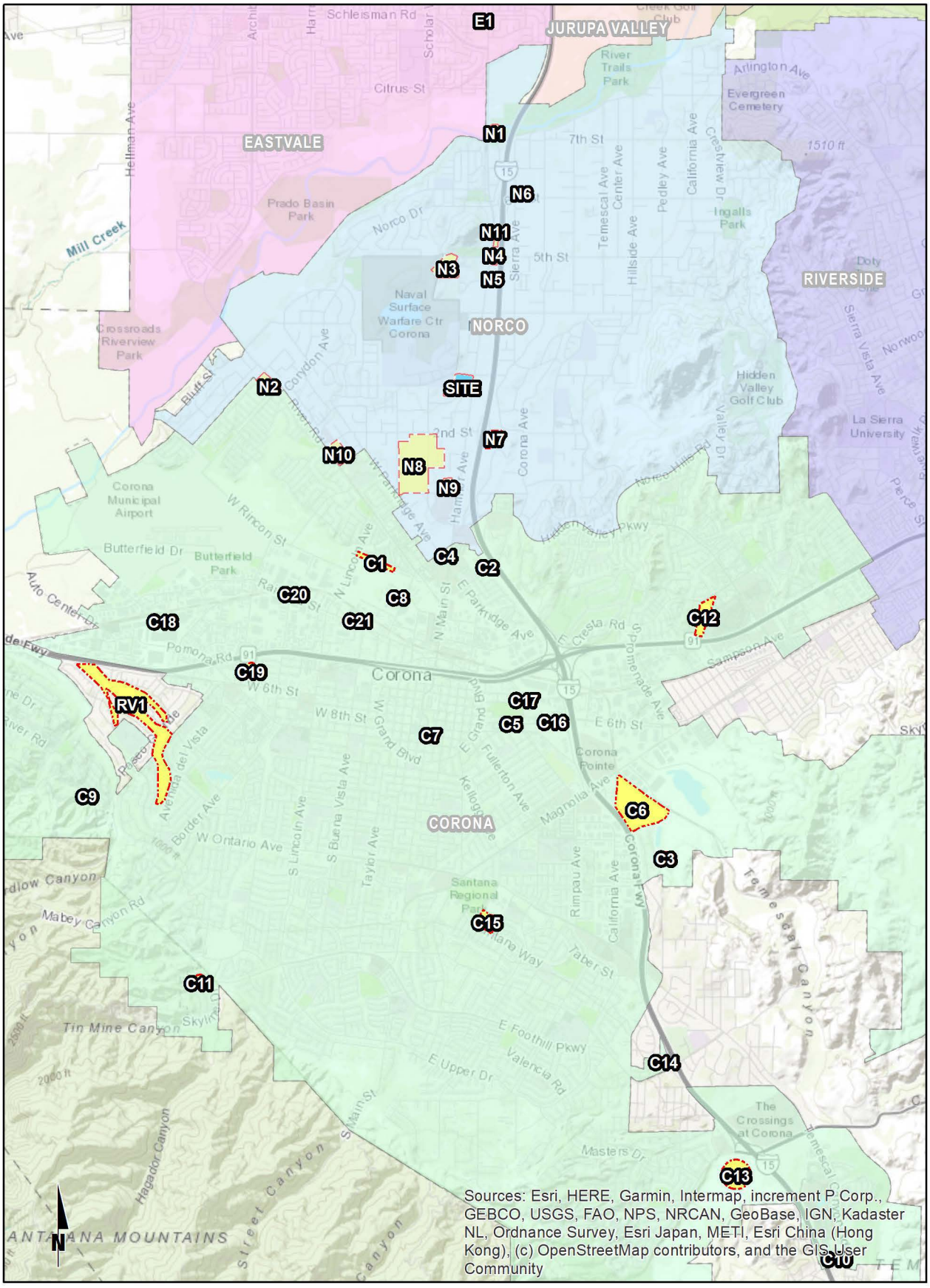
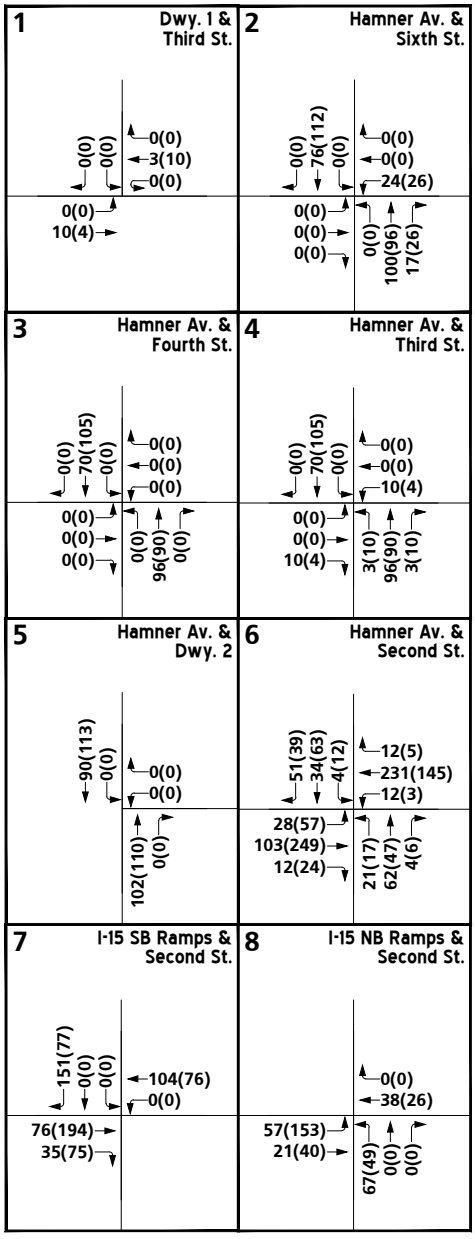


EXHIBIT 4-6: CUMULATIVE ONLY TRAFFIC VOLUMES



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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Table 4-2

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
		City of Norco		
N1	Silverlakes Equestrian[3]	The Field House Restaurant	250	Seats
		Stadium	5,000	Seats
N2	River Road And Corydon Street Commercial Center	General Office	22.000	TSF
		Shopping Center	13.709	TSF
		Supermarket	44.200	TSF
		Pharmacy w/ Drive-Through	14.576	TSF
		Coffee Shop w/ Drive-Through	2.000	TSF
		Fast-Food w/o Drive-Through	7.883	TSF
		Fast-Food w/ Drive-Through	5.978	TSF
		Gas Station w/ Convenience Market	12	VFP
N3	SWC Horseless Carriage Dr./Fifth St.	Warehousing	414.431	TSF
N4	SEC of Hamner Av. / Fifth St.	Hotel	90	RM
N5	3275 Hamner Av.	Hotel	122	RM
N6	SEC of Sierra Av. / Sixth St.	Commercial	37.571	TSF
N7	Norco Carmax	Automobile Sales (Used)	11.447	TSF
N8	Palomino Business Park	High-Cube Cold Storage Warehouse	602.130	TSF
		Industrial Park	1,426.460	TSF
		Commercial Retail	6.520	TSF
		Fast-Food w/o Drive-Thru	6.520	TSF
		Gas Station w/ Market	12	VFP
		Fast-Food w/ Drive-Through	4.275	TSF
N9	1919 First St.	Office	6.966	TSF
N10	1933 River Road	Convenience Market with Pumps	2.837	TSF
N11	3481 Hamner Av.	Hotel	108	RM
		City of Eastvale		
E1	Van Leeuwen GPA	SFDR	224	DU
		City of Corona		
C1	Jeffrey Holbrook West Coast Development	Multi-Family Residential	148	DU
C2	Pecuniary Capital, LLC	Townhomes	60	DU
C3	Nova Homes	SFDR	103	DU
C4	ASTA/Strata	Townhomes	45	DU
C5	C&C Development	Affordable Housing	86	DU
C6	Sherborn, LLC	Industrial	76.00	AC
C7	Corona Regional Medical Center Expansion	Medical Office	332.000	TSF
C8	Roger Egge Private Realty Advisors	Industrial	95.500	TSF
C9	Sierra Bella	SFDR	237	DU
C10	Rexxco - Terrana Apartment Community	Apartments	279	DU
C11	Skyline Heights	SFDR	297	DU
C12	Vista Monterey	Apartments	442	DU
C13	Arantine Hills Master Planned Community	Commercial	80.000	TSF
		Residential	1,621	DU
C14	Foothill Commercial Plaza	Commercial/Retail/Restaurant	82.700	TSF
		Hotel	120	RM
C15	Van Daele Homes	Condos	92	DU
C16	Home Gardens Water District Well Collection Line	Well	--	--

Table 4-2

Page 2 of 2

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
C17	Household Hazardous Waste	Household Collection Facility	3.168	TSF
C18	1548 Maple St.	General Office	6.568	TSF
C19	LA Fitness	Health/Fitness Club	37.000	TSF
C20	Lincoln Av. and Rincon St. Industrial	Industrial	731.000	TSF
C21	Senior Housing	Senior Adult Housing - Attached	64	DU
County of Riverside				
RV1	Trails at Corona	SFDR	426	DU
		Retail	8.500	TSF

[1] SFDR = Single Family Detached Residential

[2] TSF = Thousand Square Feet; DU = Dwelling Unit; VFP = Vehicle Fueling Position ; AC = Acres; RM = Rooms

[3] Source: From Silverlakes TIA (Revised), Kunzman Associates, September 25, 2008.

4.7 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2023 traffic conditions. An ambient growth factor of 6.12% accounts for background (area-wide) traffic increases that occur over time up to the year 2023 from the year 2020 (compounded two percent per year growth over a three-year period). Traffic volumes generated by cumulative development projects are then added to assess the Opening Year Cumulative (2023) traffic conditions. Lastly, Project traffic is added to assess "With Project" traffic conditions. The 2023 roadway network is similar to the existing conditions roadway network with the exception of intersections proposed to be developed by the Project.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative Without Project
    - Existing 2020 counts
    - Ambient growth traffic (6.12%)
    - Cumulative Development Project traffic
- Opening Year Cumulative With Project
    - Existing 2020 counts
    - Ambient growth traffic (6.12%)
    - Cumulative Development Project traffic
    - Project traffic

4.8 HORIZON YEAR (2040) CONDITIONS

"Buildout" traffic projections for Horizon Year conditions are based on traffic model forecasts and were derived from the RivTAM using accepted procedures for model forecast refinement and smoothing. The Horizon Year traffic conditions analyses was utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the TUMF, can accommodate the long-range traffic at the target LOS identified in the City of Norco General Plan.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2020) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in January of 2020. The RivTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative (2023) traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year forecasts. Horizon Year turning volumes were compared to Opening Year Cumulative (2023) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2023) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2020) and Opening Year Cumulative (2023) conditions.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Post-processing worksheets for Horizon Year (2040) Without Project traffic conditions are provided in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing Plus Project (E+P) conditions and the resulting intersection operations, traffic signal warrant, off-ramp queuing, and freeway facility operations analyses.

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 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 E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT and peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

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 *Methodologies* of this TA. The intersection analysis results are summarized in Table 5-1, which indicates there are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic under E+P traffic conditions, consistent with Existing (2020) traffic conditions. A summary of the peak hour intersection LOS for E+P traffic conditions is shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TA.

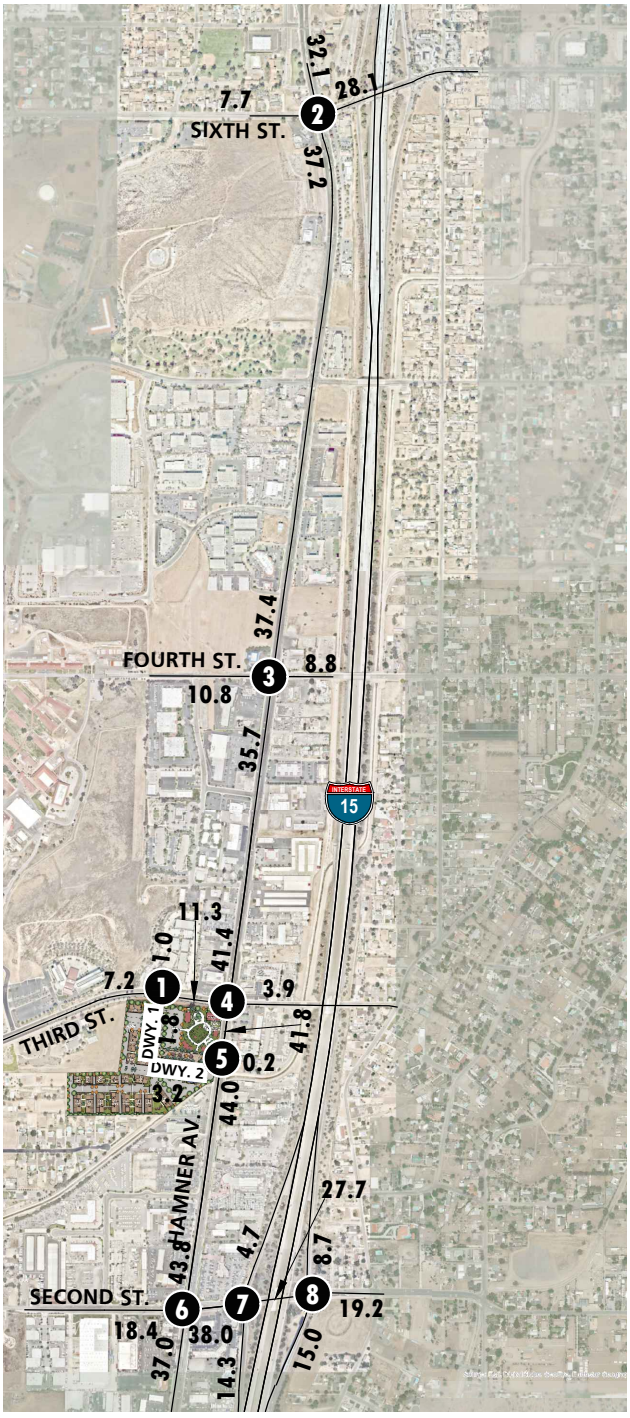
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

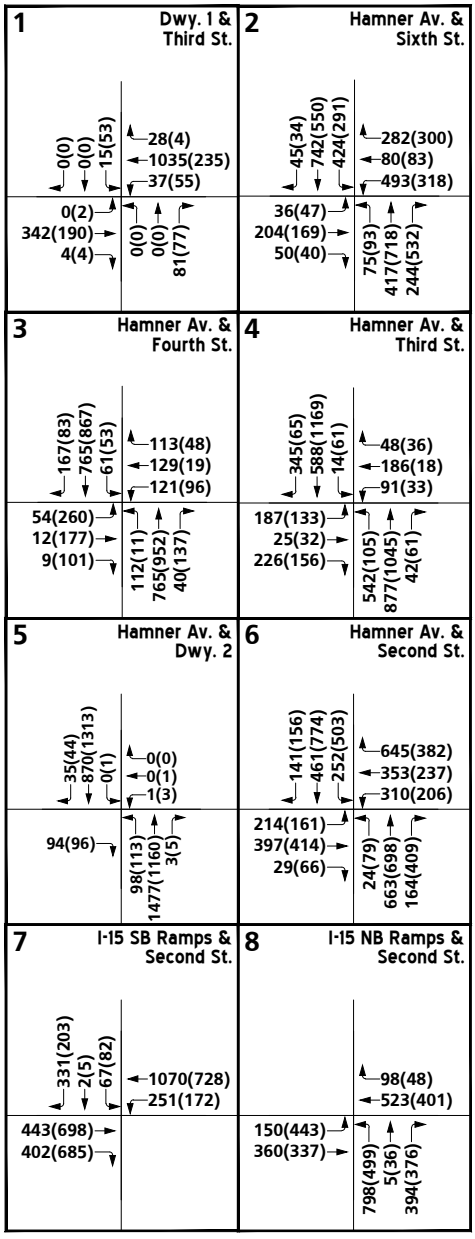
Traffic signal warrants have been performed (based on CA MUTCD) for E+P traffic conditions based on peak hour intersection turning movement volumes. With the addition of Project traffic, the following intersection is anticipated to meet a peak hour volume-based traffic signal warrant under E+P traffic conditions (see Appendix 5.2):

- Hamner Avenue & Driveway 2 (#5)

Although the intersection of Hamner Avenue & Driveway 2 is anticipated to meet a peak hour traffic signal warrant under E+P traffic conditions, the intersection is anticipated to operate at an acceptable LOS during the peak hours with the existing traffic control. Additionally, the intersection is located in close proximity to the adjacent intersection of Hamner Avenue & Third Street (#4). As such, a traffic signal has not been recommended at Driveway 2.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 5-2: E+P SUMMARY OF LOS

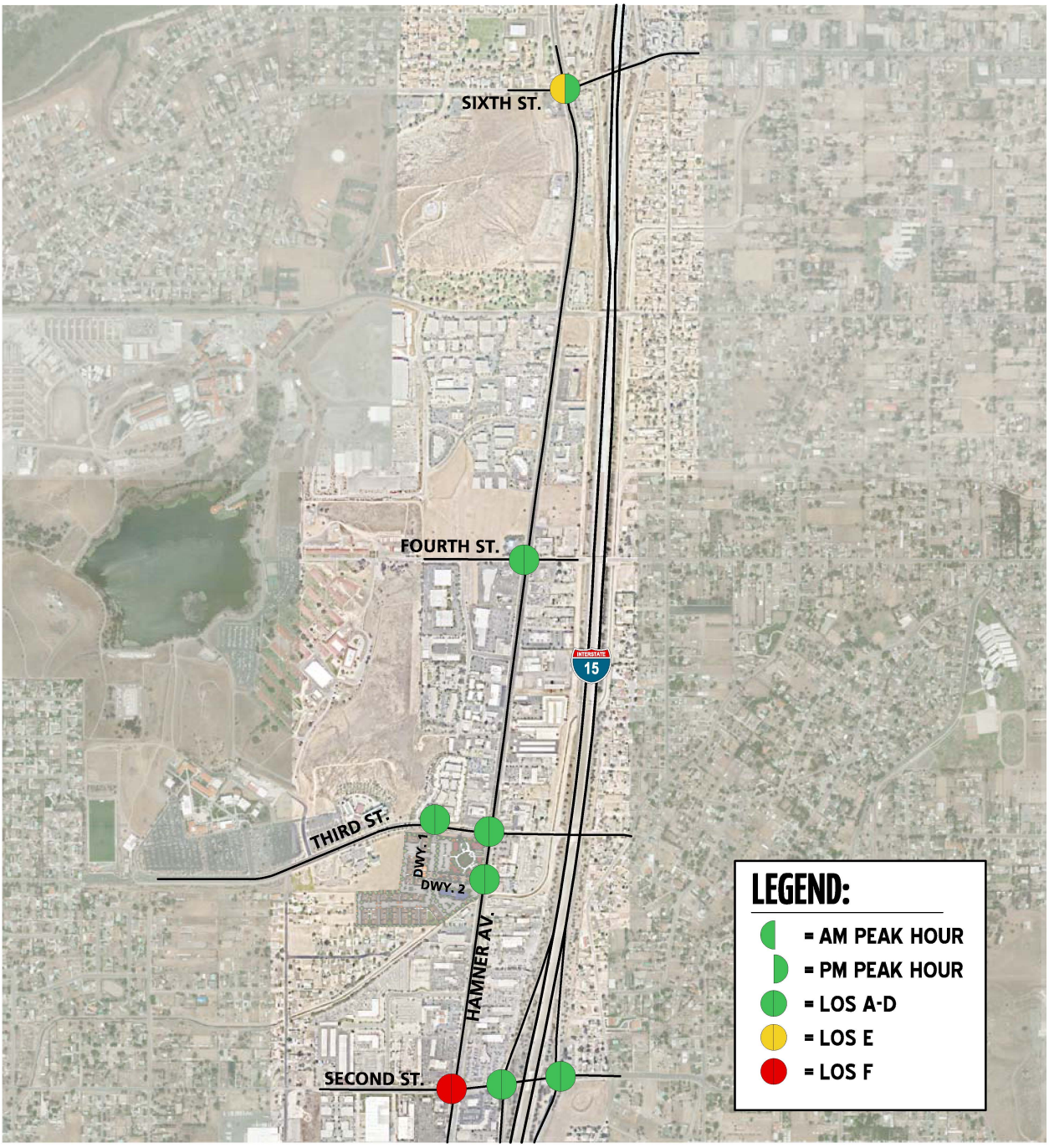


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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2020)				E+P			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Third St.	CSS	15.5	11.0	C	B	18.6	12.8	C	B
2	Hamner Av. & Sixth St.	TS	**63.2**	36.4	**E**	D	**64.3**	36.7	**E**	D
3	Hamner Av. & Fourth St.	TS	20.1	21.7	C	C	25.6	21.8	C	C
4	Hamner Av. & Third St.	TS	28.1	21.8	C	C	31.7	26.7	C	C
5	Hamner Av. & Driveway 2	CSS	15.0	19.1	C	C	20.1	21.0	C	C
6	Hamner Av. & Second St.	TS	**63.1**	**196.8**	**E**	**F**	**118.1**	**>200.0**	**F**	**F**
7	I-15 SB Ramps & Second St.	TS	16.9	13.4	B	B	20.2	15.2	C	B
8	I-15 NB Ramps & Second St.	TS	32.4	37.0	C	D	34.0	37.2	C	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th edition), 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.

[2] CSS = Cross-street Stop; TS = Traffic Signal

5.5 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Second Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 5-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 5-2 and consistent with Existing (2020) traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3.

5.6 FREEWAY FACILITY ANALYSIS

E+P mainline directional volumes for the AM and PM peak hours are provided on Exhibit 5-3. As shown in Table 5-3, there are no additional study area freeway segments and merge/diverge ramp junctions analyzed that are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours with the addition of Project traffic, in addition to the freeway segments and ramp junctions previously identified under Existing (2020) traffic conditions. E+P freeway facility analysis worksheets are provided in Appendix 5.4.

5.7 RECOMMENDED IMPROVEMENTS

5.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address E+P traffic deficiencies are presented in Table 5-4 and described below. The intersection operations analysis worksheets for E+P traffic conditions, with improvements, are included in Appendix 5.5.

Recommended Improvement – Hamner Avenue & Sixth Street (#2) – The following improvements are necessary to bring the LOS back to acceptable levels and are consistent with Existing (2020) traffic conditions:

- Restripe the southbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Modify the traffic signal timing to optimize the cycle lengths and splits during the AM and PM peak hours.

Although the recommended improvements at the intersection of Hamner Avenue & Sixth Street (#2) will improve the LOS to acceptable levels, the queuing issues along Sixth Street will likely not improve until such time in the future when the I-15 Freeway/Sixth Street interchange improvement project is completed.

Table 5-2

Peak Hour Freeway Off-Ramp Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2020)				E+P			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
7 I-15 SB Ramps & Second St.	SBT/L	1,500	82	119	Yes	Yes	90	119	Yes	Yes
	SBR	340	246	67	Yes	Yes	307 [2]	71	Yes	Yes
8 I-15 NB Ramps & Second St.	NBL	640	387	270	Yes	Yes	405	277	Yes	Yes
	NBT/L	1,265	393	267	Yes	Yes	411	283	Yes	Yes
	NBR	1,265	64	74	Yes	Yes	73	74	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer

Table 5-3

Freeway Facility Analysis for E+P Conditions

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	Existing (2020)				E+P			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15	SB	North of Second St.	3	31.7	32.2	D	D	31.9	32.5	D	D
		Off-Ramp at Second St.	4	32.1	32.2	D	D	32.2	32.3	D	D
		On-Ramp at Second St.	5	19.9	20.5	C	C	19.9	20.5	C	C
		South of Second St.	4	18.3	19.2	C	B	18.3	19.3	C	C
	NB	North of Second St.	3	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**
		On-Ramp at Second St.	4	**39.3**	30.0	**F**	D	**39.5**	30.1	**F**	D
		Off-Ramp at Second St.	5	24.8	17.5	C	B	24.8	17.6	C	B
		South of Second St.	4	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**

* **BOLD** = Unacceptable Level of Service

[1] SB = Southbound; NB = Northbound

[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

[5] Analysis with constrained flow results in acceptable LOS, however, field observations indicate congestion during the peak hour. As such, the freeway is considered at capacity.

Table 5-4

Intersection Analysis for E+P Conditions 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
2	Hamner Av. & Sixth St.																	
	Existing Conditions:																	
	- Without Improvements	TS	1	2	d	1	2	d	1	2	0	1	1	1	**63.2**	36.4	**E**	D
	- With Improvements[4]	TS	1	2	d	**2**	2	**0**	1	2	0	1	1	1	34.2	31.0	C	C
	E+P:																	
	- Without Improvements	TS	1	2	d	1	2	d	1	2	0	1	1	1	**64.3**	36.7	**E**	D
	- With Improvements[4]	TS	1	2	d	**2**	2	**0**	1	2	0	1	1	1	34.9	31.3	C	C
6	Hamner Av. & Second St.																	
	Existing Conditions:																	
	- Without Improvements	TS	1	2	1	1	2	d	1	2	1	1	2	1	**63.1**	**196.8**	**E**	**F**
	- With Improvements[5]	TS	1	2	1	**2**	2	**1**	1	2	1	1	2	1	40.4	41.9	D	D
	E+P:																	
	- Without Improvements	TS	1	2	1	1	2	d	1	2	1	1	2	1	**118.1**	**>200.0**	**F**	**F**
	- With Improvements[5]	TS	1	2	1	**2**	2	**1**	1	2	1	1	2	1	54.6	44.9	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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; d= Defacto Right Turn Lane; **1** = Improvement

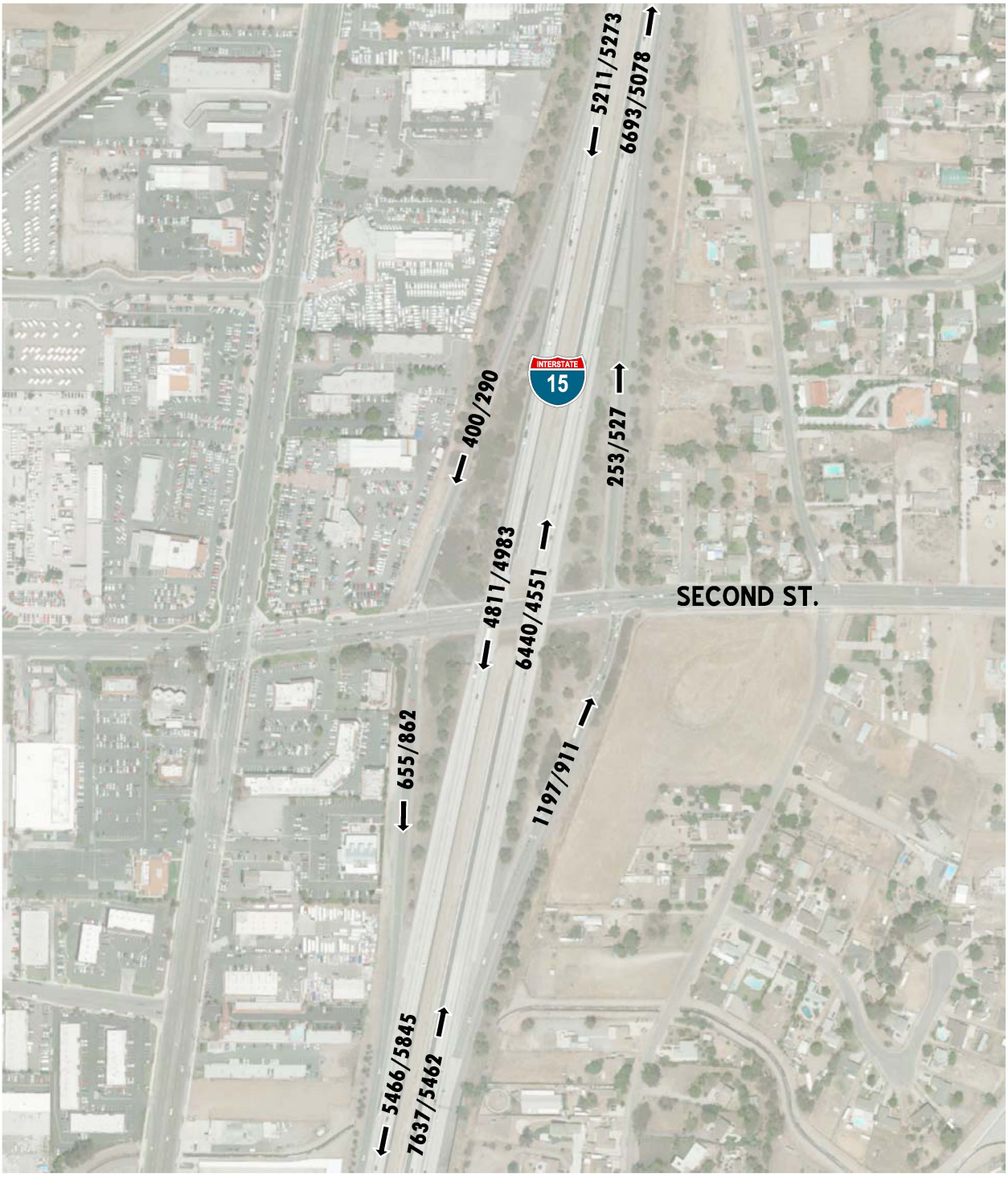
[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single

[3] TS = Traffic Signal

[4] Improvement includes optimization of the traffic signal cycle lengths and splits for the I-15 Freeway/Sixth Street interchange corridor.

[5] Improvement includes modification of the traffic signal to run the northbound and southbound protected left turns as lead-lag, with the southbound left turn running as lag.

EXHIBIT 5-3: E+P FREEWAY MAINLINE VOLUMES



Recommended Improvement – Hamner Avenue & Second Street (#6) – The following improvements are necessary to bring the LOS back to acceptable levels and are consistent with Existing (2020) traffic conditions:

- Add a 2nd southbound left turn lane.
- Stripe the southbound defacto right turn lane.
- Modify the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag. As such, northbound and southbound left turns will run separately (not concurrently).

5.7.2 Recommended Improvements To Address Deficiencies On Off-Ramp Queues

As shown previously in Table 5-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Second Street interchange for E+P traffic conditions. As such, no improvements have been recommended.

5.7.3 Recommended Improvements To Address Deficiencies On Freeway Facilities

As shown previously in Table 5-3, there are study area freeway mainline segments and ramp junctions that are anticipated to continue to operate at an unacceptable LOS for E+P traffic conditions. The RCTC, in partnership with Caltrans, is investing $455 million to improve the I-15 Freeway between Cajalco Road and SR-60 Freeway. The "I-15 Express Lanes Project" will add two tolled express lanes in each direction, with multiple entrances and exits. Construction began in 2018, and the express lanes will be open to traffic in July 2020. However, since this improvement will not be completed until July 2020 and since there are no other planned improvements to the SR-91 Freeway or I-15 Freeway at this time, no improvements have been evaluated for E+P traffic conditions.

Neither Caltrans nor the State have adopted a fee program that can ensure that locally contributed impact fees will be tied to improvements to freeway mainlines, and only Caltrans has the jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that fair share contributions to mainline improvements are part of a program tied to implementation is within the jurisdiction of Caltrans.

6 OPENING YEAR CUMULATIVE (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2023) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, off-ramp queuing, and freeway facility operations analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2023) 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 only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

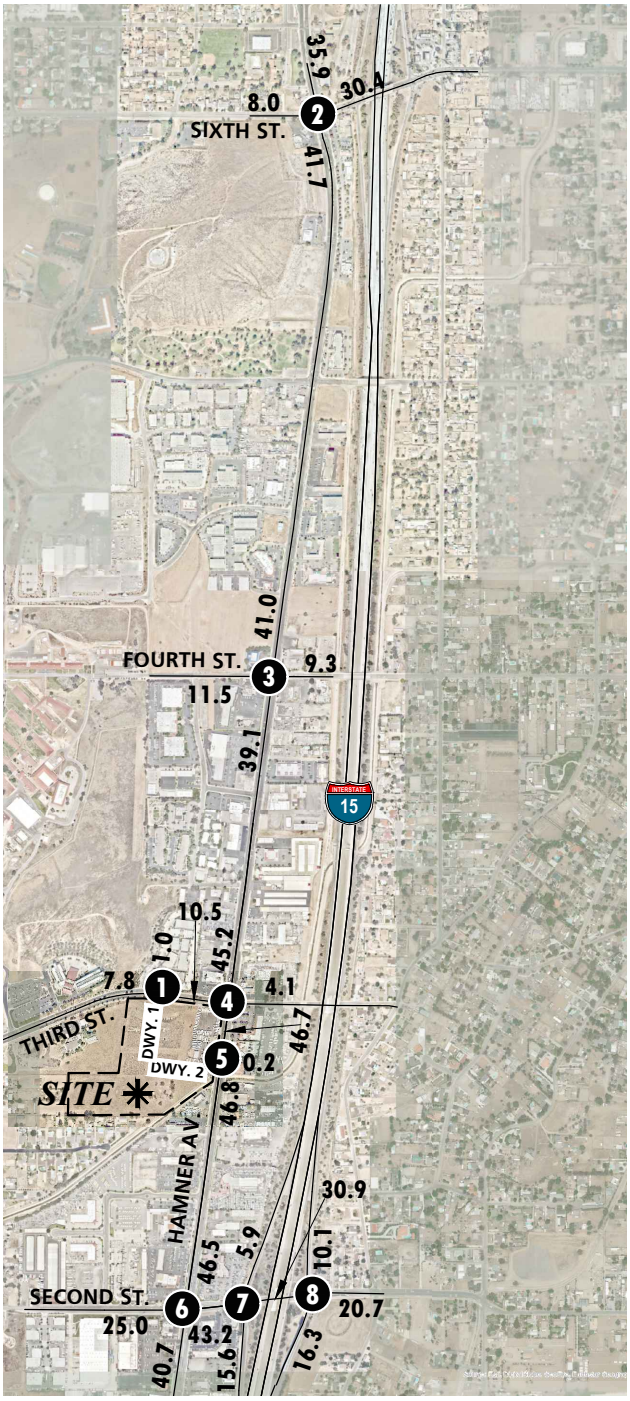
6.2 OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

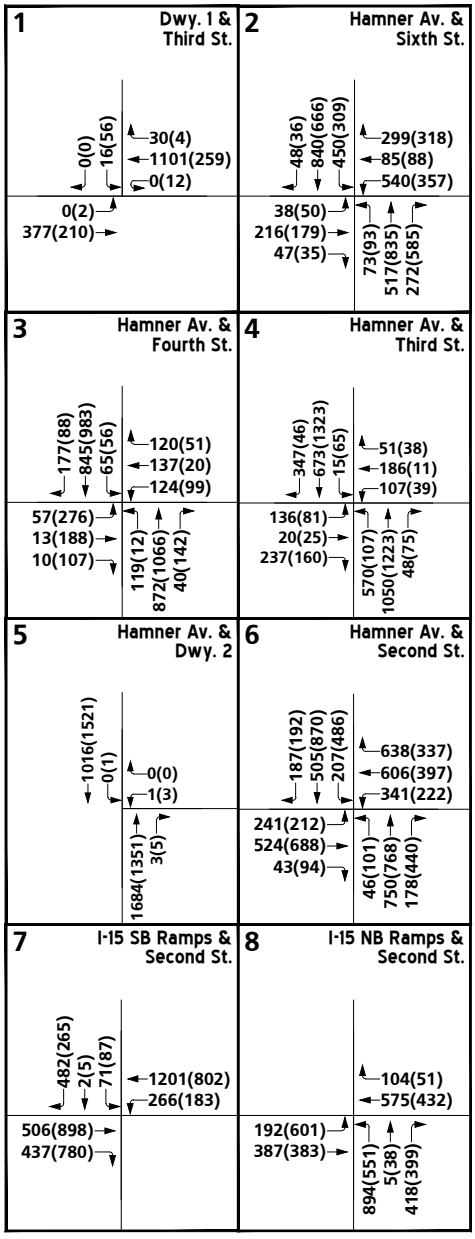
This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12% plus traffic from pending and approved but not yet constructed known development projects in the area. Exhibit 6-1 shows the ADT and peak hour intersection turning movement volumes which can be expected for Opening Year Cumulative (2023) Without Project.

6.3 OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes, an ambient growth factor of 6.12%, traffic from pending and approved but not yet constructed known development projects in the area and the addition of Project traffic. Exhibit 6-2 shows the ADT and peak hour intersection turning movement volumes which can be expected for Opening Year Cumulative (2023) With Project.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUMES



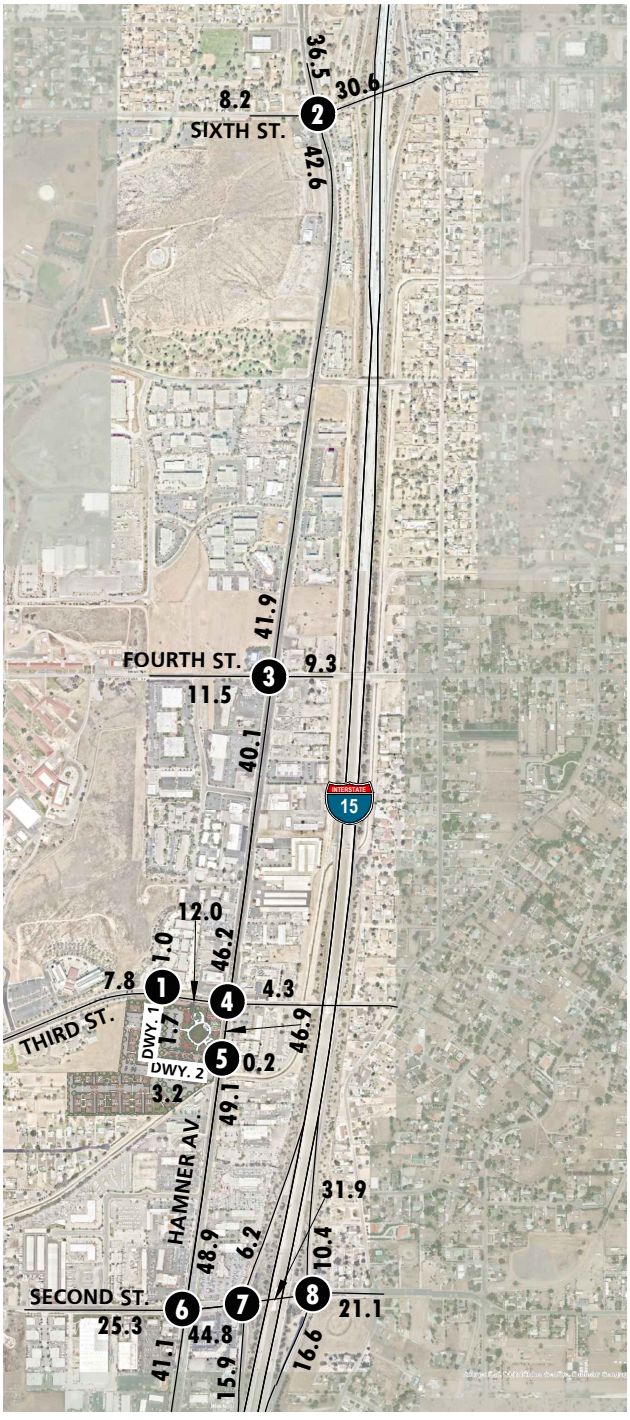


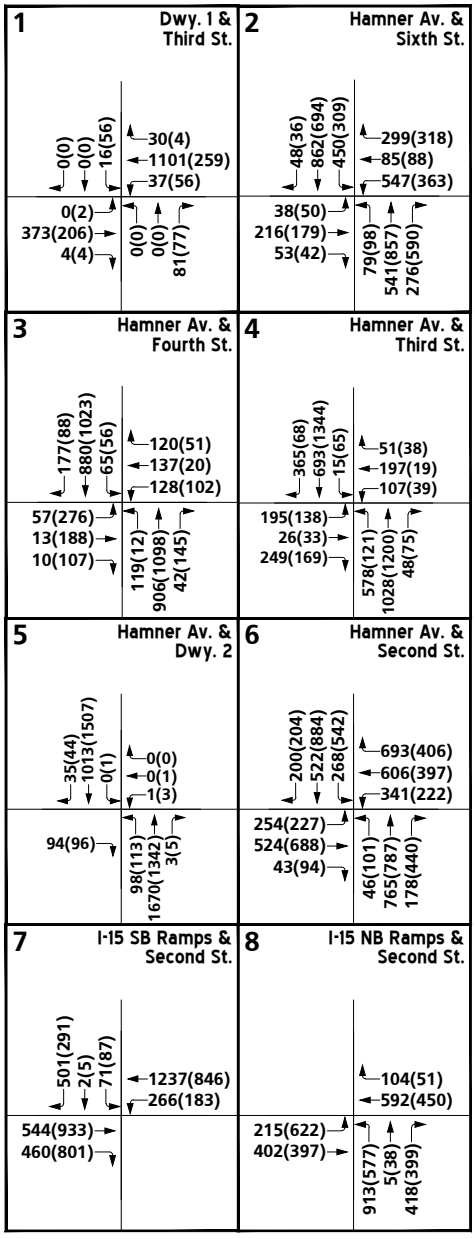
LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC CONDITIONS

Opening Year Cumulative (2023) 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 analysis results are summarized in Table 6-1, which indicate that the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours (i.e., LOS E or worse), consistent with Existing (2020) traffic conditions:

- Hamner Avenue & Sixth Street (#2) – LOS E AM peak hour only
- Hamner Avenue & Second Street (#6) – LOS F AM and PM peak hours

A summary of the peak hour intersection LOS for Opening Year Cumulative (2023) Without Project conditions is shown on Exhibit 6-3. The intersection operations analysis worksheets for Opening Year Cumulative Without Project traffic conditions are included in Appendix 6.1 of this TA.

6.4.2 OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 6-1 and illustrated on Exhibit 6-4, there are no additional study area intersections anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) with the addition of Project traffic, in addition to the intersections previously identified under Opening Year Cumulative (2023) Without Project traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2023) With Project traffic conditions are included in Appendix 6.2 of this TA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for Opening Year Cumulative (2023) traffic conditions based on peak hour intersection turning movements volumes. There are no additional unsignalized study area intersections anticipated to meet peak hour volume-based traffic signal warrants under Opening Year Cumulative (2023) Without Project and With Project traffic conditions, in addition to the location warranted under E+P traffic conditions (see Appendices 6.3 and 6.4, respectively).

Table 6-1

Intersection Analysis for Opening Year Cumulative (2023) Conditions

#	Intersection	Traffic Control[2]	2023 Without Project				2023 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Third St.	CSS	16.5	11.4	C	B	20.2	13.3	C	B
2	Hamner Av. & Sixth St.	TS	**69.7**	40.4	**E**	D	**70.1**	40.7	**E**	D
3	Hamner Av. & Fourth St.	TS	26.7	23.1	C	C	26.8	23.3	C	C
4	Hamner Av. & Third St.	TS	29.0	24.1	C	C	37.7	36.0	D	D
5	Hamner Av. & Driveway 2	CSS	17.0	21.7	C	C	24.3	25.3	C	D
6	Hamner Av. & Second St.	TS	**80.3**	**>200.0**	**F**	**F**	**113.8**	**>200.0**	**F**	**F**
7	I-15 SB Ramps & Second St.	TS	24.3	19.0	C	B	25.2	19.6	C	B
8	I-15 NB Ramps & Second St.	TS	37.2	44.4	D	D	37.8	44.8	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), 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.

[2] CSS = Cross-street Stop; TS = Traffic Signal

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT SUMMARY OF LOS

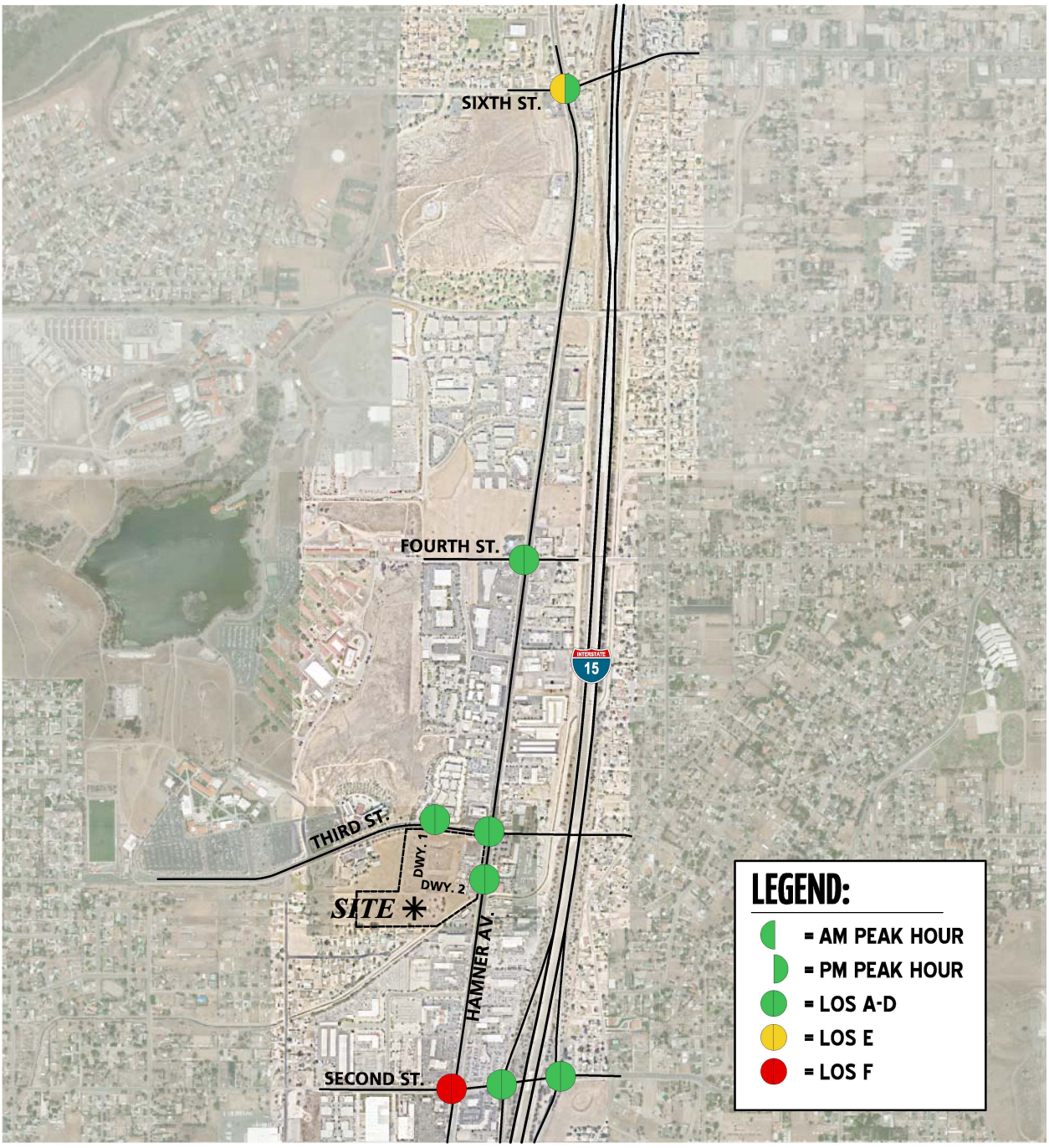


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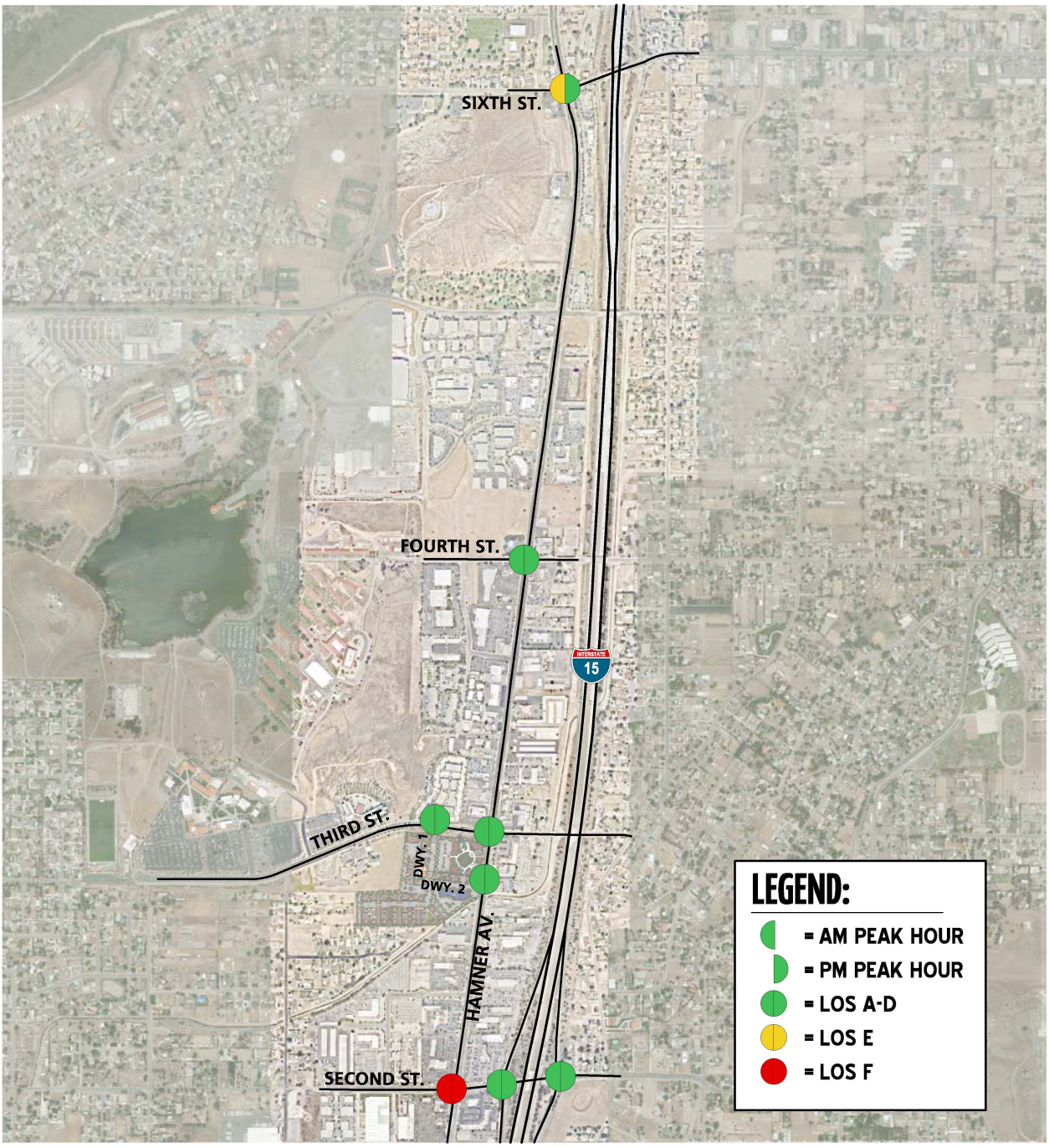
EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2023) WITH PROJECT SUMMARY OF LOS



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6.6 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Second Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 6-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 6-2 and consistent with Existing (2020) traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2023) Without Project and With Project traffic conditions. Worksheets for Opening Year Cumulative (2023) Without Project and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 6.5 and 6.6, respectively.

6.7 FREEWAY FACILITY ANALYSIS

Opening Year Cumulative (2023) Without Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-5. As shown in Table 6-3, the following study area freeway segments and merge/diverge ramp junctions analyzed are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours under Opening Year Cumulative (2023) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Second Street (#1) – LOS E AM and PM peak hours
- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Second Street (#7) – LOS F AM peak hour only
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

Opening Year Cumulative (2023) With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-6. There are no additional study area freeway segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS with the addition of Project traffic, in addition to the freeway segments and ramp junctions previously identified under Opening Year Cumulative (2023) Without Project traffic conditions. Opening Year Cumulative (2023) Without Project and With Project freeway analysis worksheets are provided in Appendix 6.7 and 6.8, respectively.

Table 6-2

Peak Hour Freeway Off-Ramp Queuing Summary for Opening Year Cumulative (2023) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2023 Without Project				2023 With Project			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
7 I-15 SB Ramps & Second St.	SBT/L	1500	76	121	Yes	Yes	76	121	Yes	Yes
	SBR	340	519 [2,3]	103	Yes	Yes	556 [2,3]	141	Yes	Yes
8 I-15 NB Ramps & Second St.	NBL	640	472	355 [2]	Yes	Yes	485	393 [2]	Yes	Yes
	NBT/L	1,265	477	365 [2]	Yes	Yes	491	397 [2]	Yes	Yes
	NBR	1,265	119	86	Yes	Yes	131	86	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer

[3] Although the 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-15 Freeway mainline.

Table 6-3

Freeway Facility Analysis for Opening Year Cumulative (2023) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	2023 Without Project				2023 With Project			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15	SB	North of Second St.	3	**37.5**	**37.0**	**E**	**E**	**37.8**	**37.3**	**E**	**E**
		Off-Ramp at Second St.	4	34.7	34.3	D	D	34.8	34.4	D	D
		On-Ramp at Second St.	5	21.6	22.2	C	C	21.6	22.2	C	C
		South of Second St.	4	19.7	21.1	C	C	19.8	21.2	C	C
	NB	North of Second St.	3	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**
		On-Ramp at Second St.	4	**43.7**	33.1	**F**	D	**43.9**	33.2	**F**	D
		Off-Ramp at Second St.	5	**63.8**	19.3	**F**	C	**64.3**	19.4	**F**	C
		South of Second St.	4	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**

[1] WB = Westbound; EB = Eastbound; SB = Southbound; NB = Northbound

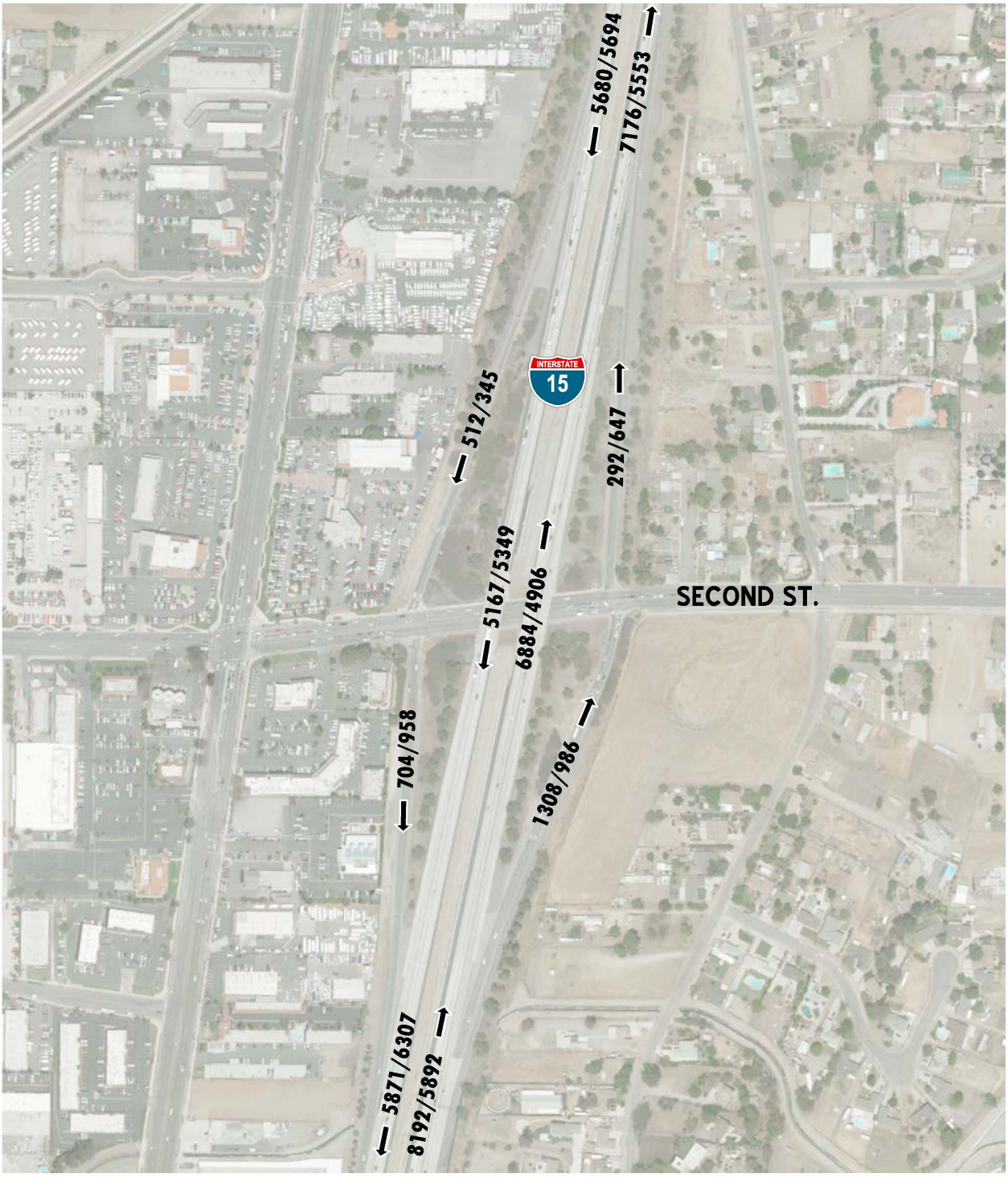
[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

[5] Analysis with constrained flow results in acceptable LOS, however, field observations indicate congestion during the peak hour. As such, the freeway is considered at capacity.

EXHIBIT 6-5: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

N

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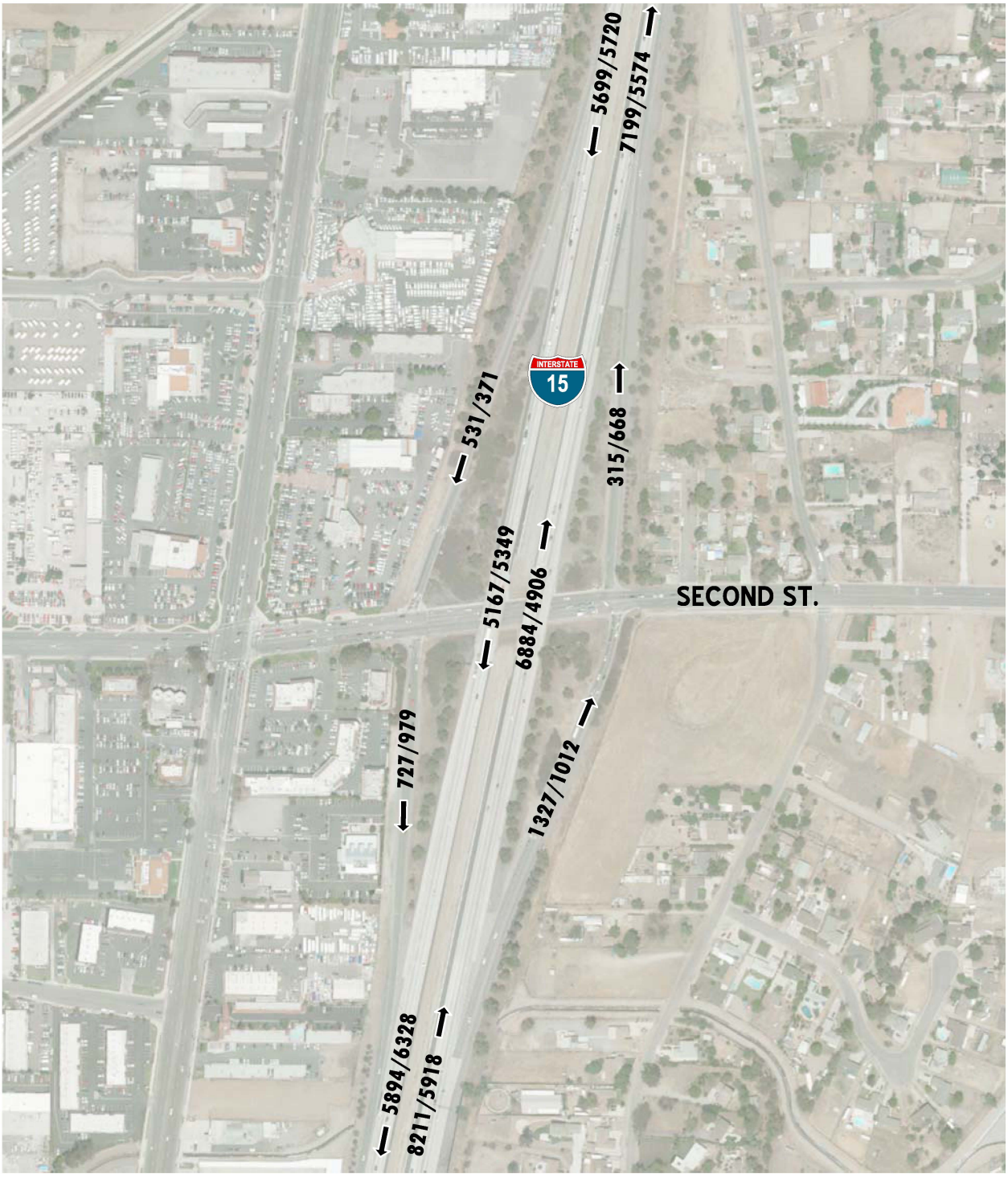
EXHIBIT 6-6: OPENING YEAR CUMULATIVE (2023) WITH PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

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6.8 RECOMMENDED IMPROVEMENTS

6.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address Opening Year Cumulative (2023) traffic deficiencies are presented in Table 6-4 and described below. The intersection operations analysis worksheets for Opening Year Cumulative (2023) Without Project and With Project traffic conditions, with improvements, are included in Appendices 6.9 and 6.10, respectively.

Recommended Improvement – Hamner Avenue & Sixth Street (#2) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the southbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Modify the traffic signal timing to optimize the cycle lengths and splits during the AM and PM peak hours.

Although the recommended improvements at the intersection of Hamner Avenue & Sixth Street (#2) will improve the LOS to acceptable levels, the queuing issues along Sixth Street will likely not improve until such time in the future when the I-15 Freeway/Sixth Street interchange improvement project is completed.

Recommended Improvement – Hamner Avenue & Second Street (#6) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound left turn lane.
- Stripe the southbound defacto right turn lane.
- Restripe the eastbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Restripe the westbound approach to provide dual left turn lanes, one through lane, and one right turn lane.
- Modify the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag, protect the eastbound and westbound left turns, and run the eastbound and westbound left turns as lead-lag, with the westbound left running as lag. As such, the northbound/southbound and eastbound/westbound left turns will run separately (not concurrently).

6.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS OFF-RAMP QUEUES

As shown previously in Table 6-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Second Street interchange for Opening Year Cumulative (2023) traffic conditions. As such, no improvements have been recommended.

Table 6-4

Intersection Analysis for Opening Year Cumulative (2023) Conditions 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
2	Hamner Av. & Sixth St.																	
	- Without Project[4]	TS	1	2	d	**2**	2	**0**	1	2	0	1	1	1	36.1	32.0	D	C
	- With Project[4]	TS	1	2	d	**2**	2	**0**	1	2	0	1	1	1	37.0	32.5	D	C
6	Hamner Av. & Second St.																	
	- Without Project[5,6]	TS	1	2	1	**2**	2	**1**	**2**	2	**0**	**2**	**1**	**1**	39.3	37.2	D	D
	- With Project[5,6]	TS	1	2	1	**2**	2	**1**	**2**	2	**0**	**2**	**1**	**1**	42.7	37.6	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[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 Highway Capacity Manual (6th Edition), 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

[3] TS = Traffic Signal

[4] Improvement includes optimization of the traffic signal cycle lengths and splits for the I-15 Freeway/Sixth Street interchange corridor.

[5] Improvement includes modification of the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag, protect the eastbound and westbound left turns, and run the eastbound and westbound left turns as lead-lag, with the westbound left turn running as lag.

[6] Improvement includes restriping the eastbound approach to provide two left turn lanes, one through lane, and one shared through-right turn lane, and restriping the westbound approach to provide two left turn lanes, one through lane, and one right turn lane

6.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

The RCTC, in partnership with Caltrans, is investing $455 million to improve the I-15 Freeway between Cajalco Road and SR-60 Freeway. The "I-15 Express Lanes Project" will add two tolled express lanes in each direction, with multiple entrances and exits. Construction began in 2018, and the express lanes will be open to traffic in July 2020.

Caltrans typically assumes a reduction of fourteen percent to the freeway mainline through volumes to account for vehicles utilizing the express lanes. The reduction to the I-15 Freeway mainline volumes (14% per lane for 2 lanes, or 28% total) has been applied to account for the proposed express lanes. The analysis has been performed assuming the same number of mixed-flow lanes and on and off-ramp configurations as existing baseline conditions at the I-15 Freeway study area interchanges.

As shown in Table 6-5, the I-15 Freeway mainline segments and merge/diverge ramp junctions are anticipated to improve operations to acceptable LOS during the peak hours with the completion of the I-15 Express Lane Project. Worksheets for Opening Year Cumulative (2023) With Project conditions freeway facility level of service analysis, with improvements, are provided in Appendix 6.11.

Table 6-5

Freeway Facility Analysis for Opening Year Cumulative (2023) With Project Conditions With Improvements

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	With Improvements			
				Density[3]		LOS[4]	
				AM	PM	AM	PM
I-15	SB	North of Second St.	3	23.9	23.7	C	C
		Off-Ramp at Second St.	4	27.8	27.4	C	C
		On-Ramp at Second St.	5	15.1	15.6	B	B
		South of Second St.	4	14.7	15.9	B	C
	NB	North of Second St.	3	32.1	23.3	D	C
		On-Ramp at Second St.	4	30.3	25.5	D	C
		Off-Ramp at Second St.	5	19.7	14.5	B	C
		South of Second St.	4	20.7	14.7	C	B

[1] SB = Southbound; NB = Northbound

[2] Number of lanes are in the specified direction and is based on existing conditions. The I-15 Freeway express lanes are assumed to be completed.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

7 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, off-ramp queuing, and freeway facility operations analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) 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 (2040) conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Horizon Year (2040) conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages).

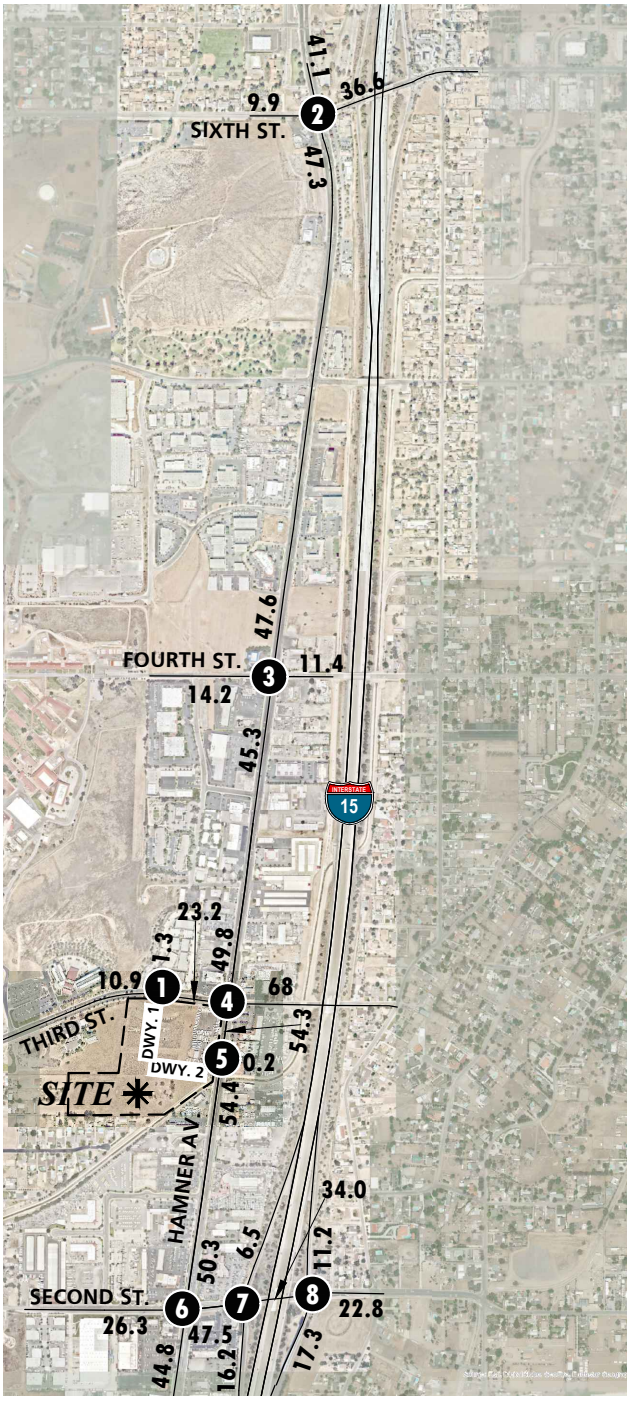
7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

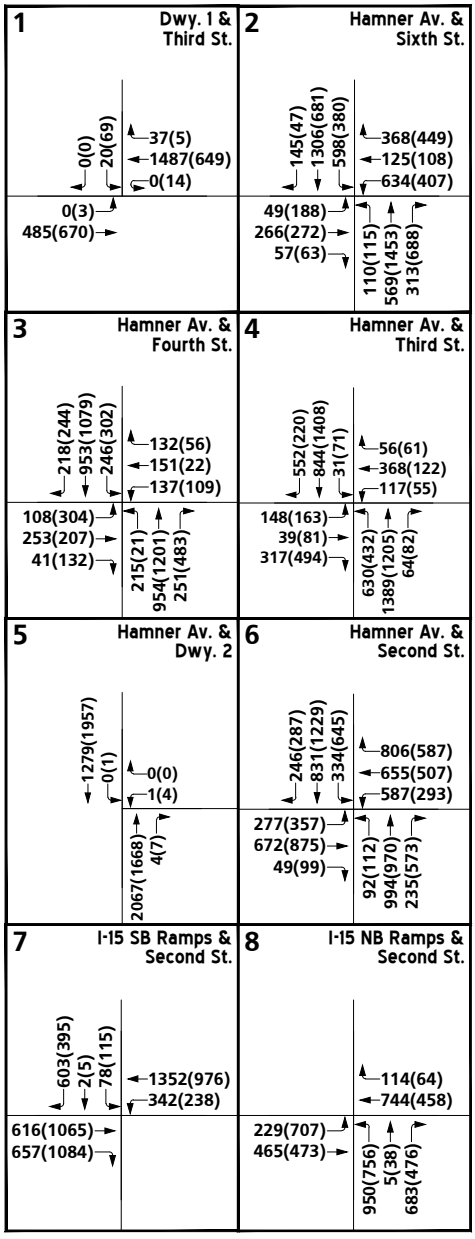
This scenario includes the refined post-processed volumes obtained from the RivTAM consistent with the currently adopted General Plan Circulation Element (see Section 4.8 *Horizon Year (2040) Traffic Conditions* of this TA for a detailed discussion on the post-processing methodology). The Horizon Year (2040) Without Project traffic forecasts reflect the future roadway network contemplated by the City's General Plan. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the RivTAM consistent with the currently adopted General Plan Circulation Element, plus proposed Project volumes. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 7-2.

EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES

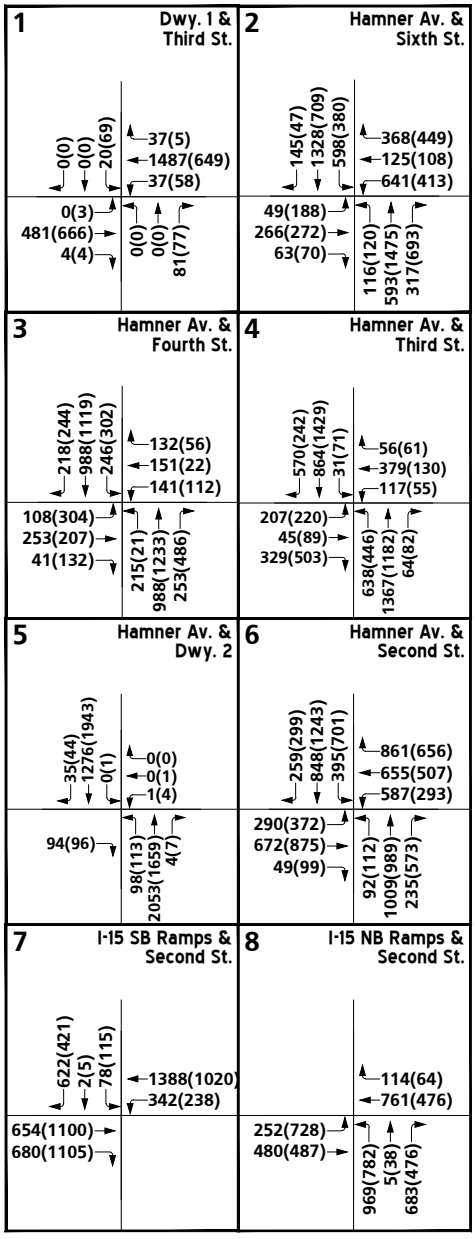




LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

Level of service calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project traffic conditions with existing roadway and intersection geometrics consistent with those described under Section 7.1 *Roadway Improvements*. As shown in Table 7-1 and illustrated on Exhibit 7-3, the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions:

- Hamner Avenue & Sixth Street (#2) – LOS F AM and PM peak hours
- Hamner Avenue & Third Street (#4) – LOS E AM peak hour only
- Hamner Avenue & Driveway 2 (#5) – LOS F PM peak hour only
- Hamner Avenue & Second Street (#6) – LOS F AM and PM peak hours
- I-15 Southbound Ramps & Second Street (#7) – LOS E AM peak hour only

The intersection operations analysis worksheets for Horizon Year (2040) Without Project traffic conditions are included in Appendix 7.1 of this report.

7.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 7-1 and illustrated on Exhibit 7-4, with the addition of Project traffic, there are no additional study area intersections anticipated to result in an unacceptable LOS, in addition to the intersections previously identified under Horizon Year (2040) Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions are included in Appendix 7.2 of this report.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants have been performed (based on CA MUTCD) for Horizon Year (2040) traffic conditions based on daily volumes. There are no additional unsignalized study area intersections anticipated to meet peak hour volume-based traffic signal warrants under Horizon Year (2040) Without Project and With Project traffic conditions, in addition to the location previously warranted under E+P traffic conditions (see Appendices 7.3 and 7.4, respectively).

Table 7-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Third St.	CSS	16.6	14.4	C	B	17.8	18.1	C	C
2	Hamner Av. & Sixth St.	TS	**117.9**	**109.2**	**F**	**F**	**119.3**	**112.9**	**F**	**F**
3	Hamner Av. & Fourth St.	TS	39.5	40.2	D	D	40.3	41.3	D	D
4	Hamner Av. & Third St.	TS	**58.3**	52.3	**E**	D	**65.4**	**64.3**	**E**	**E**
5	Hamner Av. & Driveway 2	CSS	24.3	**>100.0**	C	**F**	**44.6**	**>100.0**	**E**	**F**
6	Hamner Av. & Second St.	TS	**161.4**	**>200.0**	**F**	**F**	**>200.0**	**>200.0**	**F**	**F**
7	I-15 SB Ramps & Second St.	TS	**62.2**	51.5	**E**	D	**72.6**	**76.3**	**E**	**E**
8	I-15 NB Ramps & Second St.	TS	43.7	44.8	D	D	45.3	52.5	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), 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.

[2] CSS = Cross-street Stop; TS = Traffic Signal

EXHIBIT 7-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS

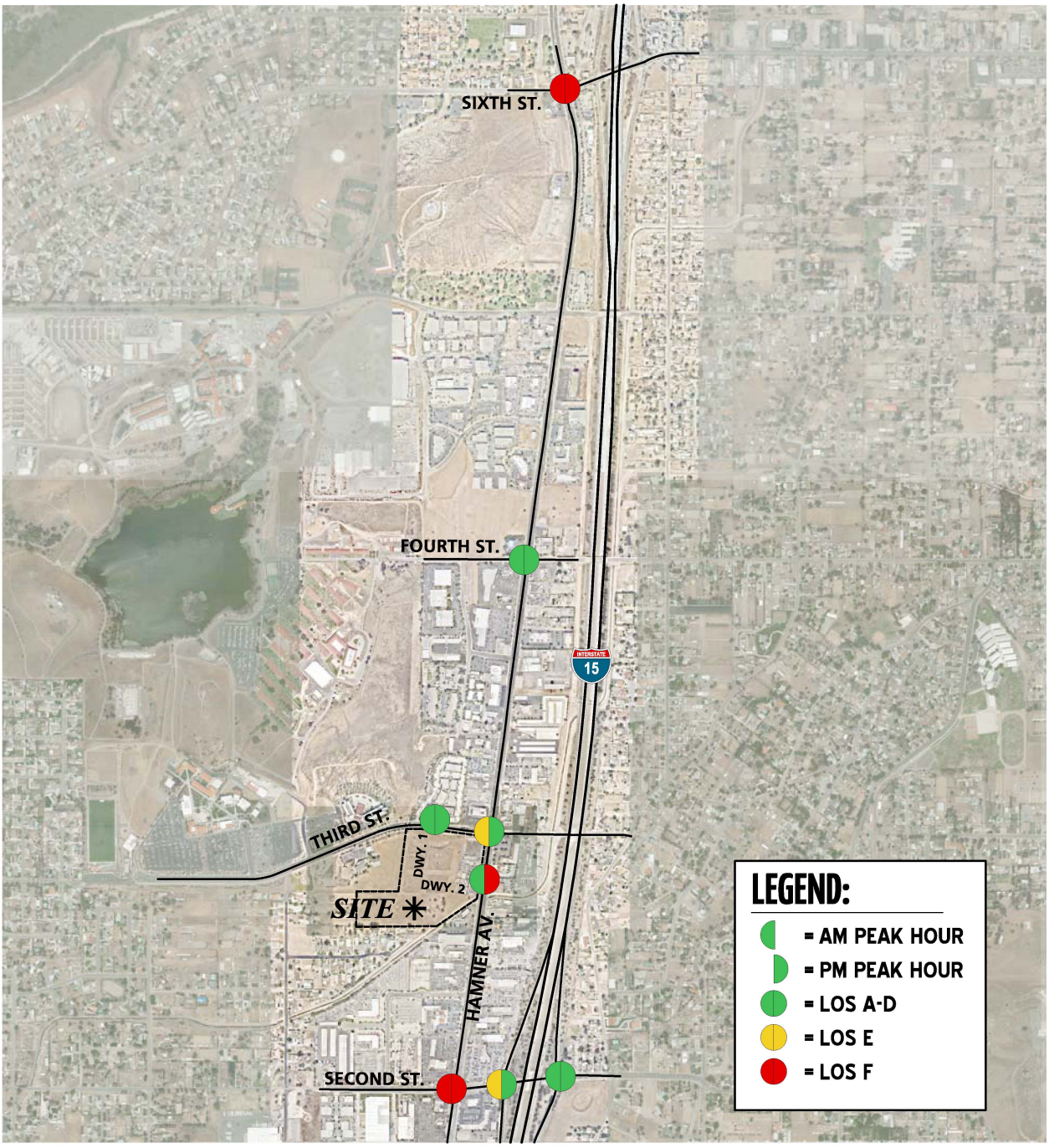

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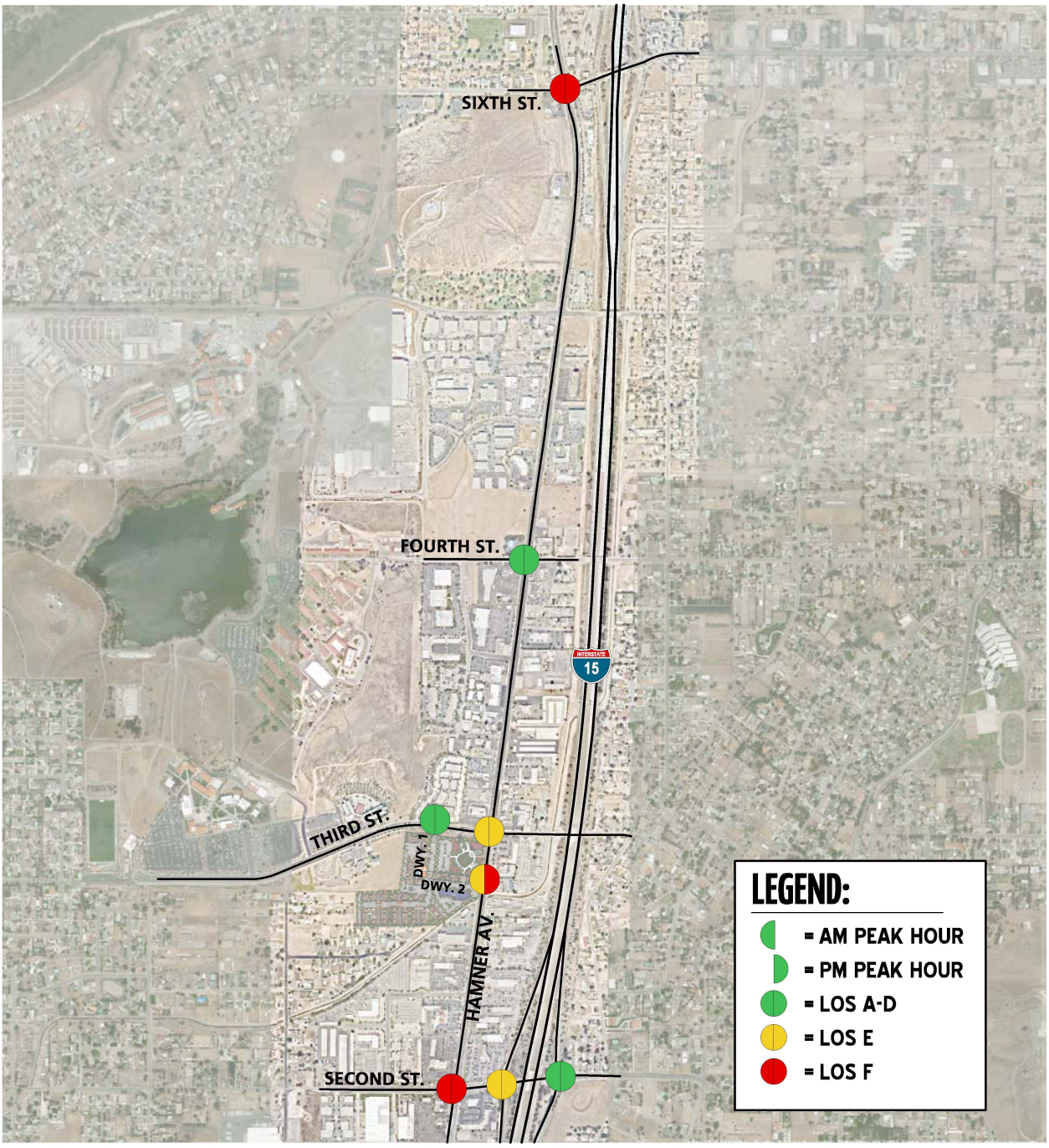
EXHIBIT 7-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



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7.6 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Second Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 7-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 7-2 and consistent with Existing (2020) traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Horizon Year (2040) Without Project and With Project traffic conditions.

7.7 FREEWAY FACILITY ANALYSIS

Horizon Year (2040) Without Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-5. As shown in Table 7-3, the following study area freeway segments and merge/diverge ramp junctions analyzed are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours under Horizon Year (2040) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Second Street (#1) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Southbound, Off-Ramp at Second Street (#2) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Northbound, North of Second Street (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Second Street (#6) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, Off-Ramp at Second Street (#7) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, South of Second Street (#8) – LOS F AM and PM peak hours

Horizon Year (2040) With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-6. With the addition of Project traffic, there are no additional study area freeway segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS, in addition to the freeway segments and ramp junctions previously identified under Horizon Year (2040) Without Project traffic conditions. Horizon Year (2040) Without Project and With Project freeway analysis worksheets are provided in Appendix 7.7 and 7.8, respectively.

Table 7-2

Peak Hour Freeway Off-Ramp Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
7 I-15 SB Ramps & Second St.	SBT/L	1500	82	141	Yes	Yes	82	141	Yes	Yes
	SBR	340	742 [2,3]	368 [2]	Yes	Yes	775 [2,3]	434 [2]	Yes	Yes
8 I-15 NB Ramps & Second St.	NBL	640	512	552 [2]	Yes	Yes	527	580 [2]	Yes	Yes
	NBT/L	1,265	518	565 [2]	Yes	Yes	533	591 [2]	Yes	Yes
	NBR	1,265	621 [2]	160	Yes	Yes	634 [2]	172	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer

[3] Although the 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the I-15 Freeway mainline.

Table 7-3

Freeway Facility Analysis for Horizon Year (2040) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	2040 Without Project				2040 With Project			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15	SB	North of Second St.	3	**42.6**	**45.0**	**E**	**F**	**42.9**	**45.0**	**E**	**F**
		Off-Ramp at Second St.	4	**37.3**	**38.8**	**E**	**F**	**37.5**	**38.8**	**E**	**E**
		On-Ramp at Second St.	5	22.6	34.0	C	D	22.6	34.0	C	D
		South of Second St.	4	21.6	23.6	C	C	21.7	23.6	C	C
	NB	North of Second St.	3	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**
		On-Ramp at Second St.	4	**50.0**	**43.0**	**F**	**F**	**50.2**	**43.2**	**F**	**F**
		Off-Ramp at Second St.	5	**76.1**	**58.3**	**F**	**F**	**76.3**	**59.0**	**F**	**F**
		South of Second St.	4	--[5]	--[5]	**F**	**F**	--[5]	--[5]	**F**	**F**

* **BOLD** = Unacceptable Level of Service

[1] WB = Westbound; EB = Eastbound; SB = Southbound; NB = Northbound

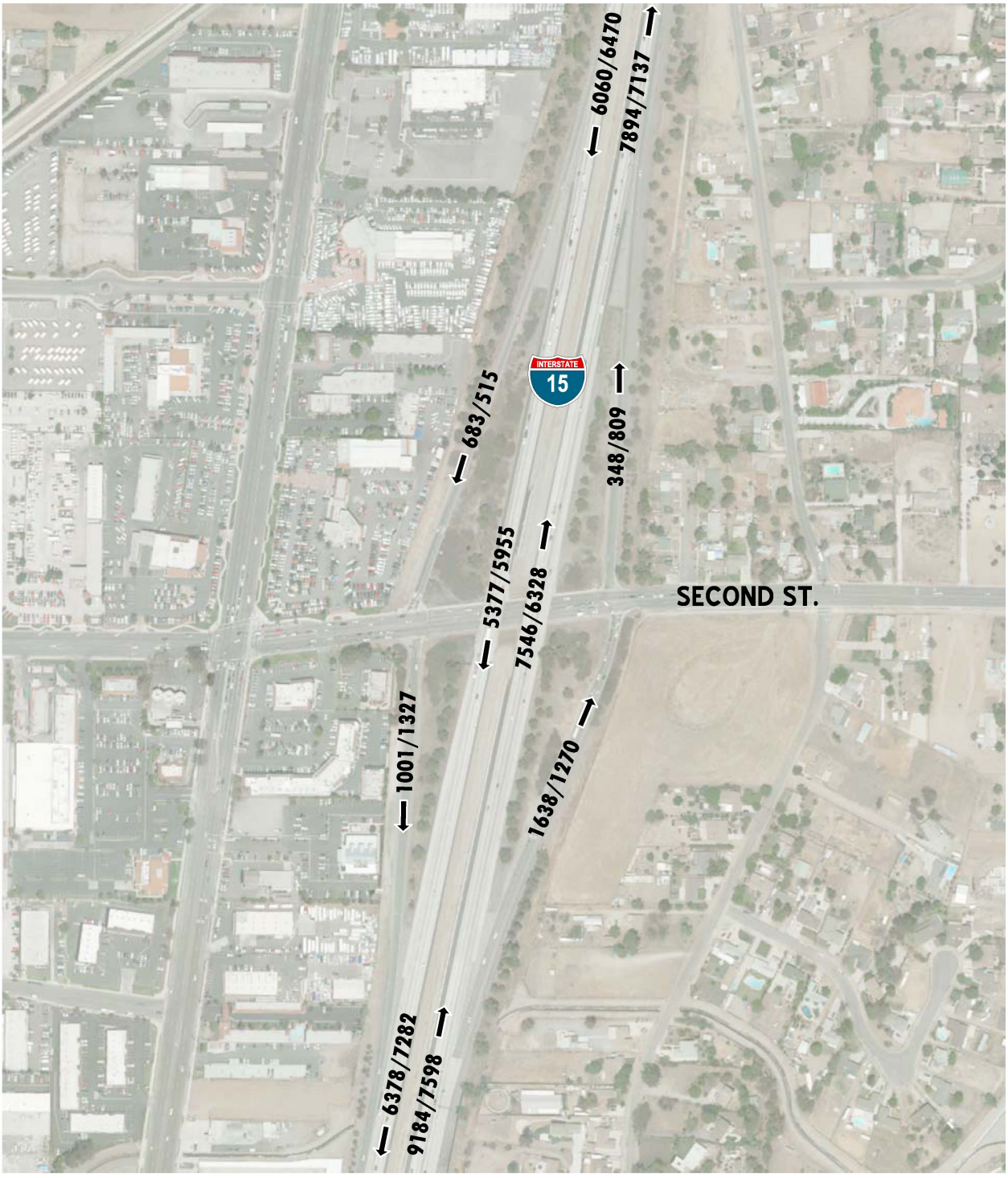
[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

[5] Analysis with constrained flow results in acceptable LOS, however, field observations indicate congestion during the peak hour. As such, the freeway is considered at capacity.

EXHIBIT 7-5: HORIZON YEAR (2040) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



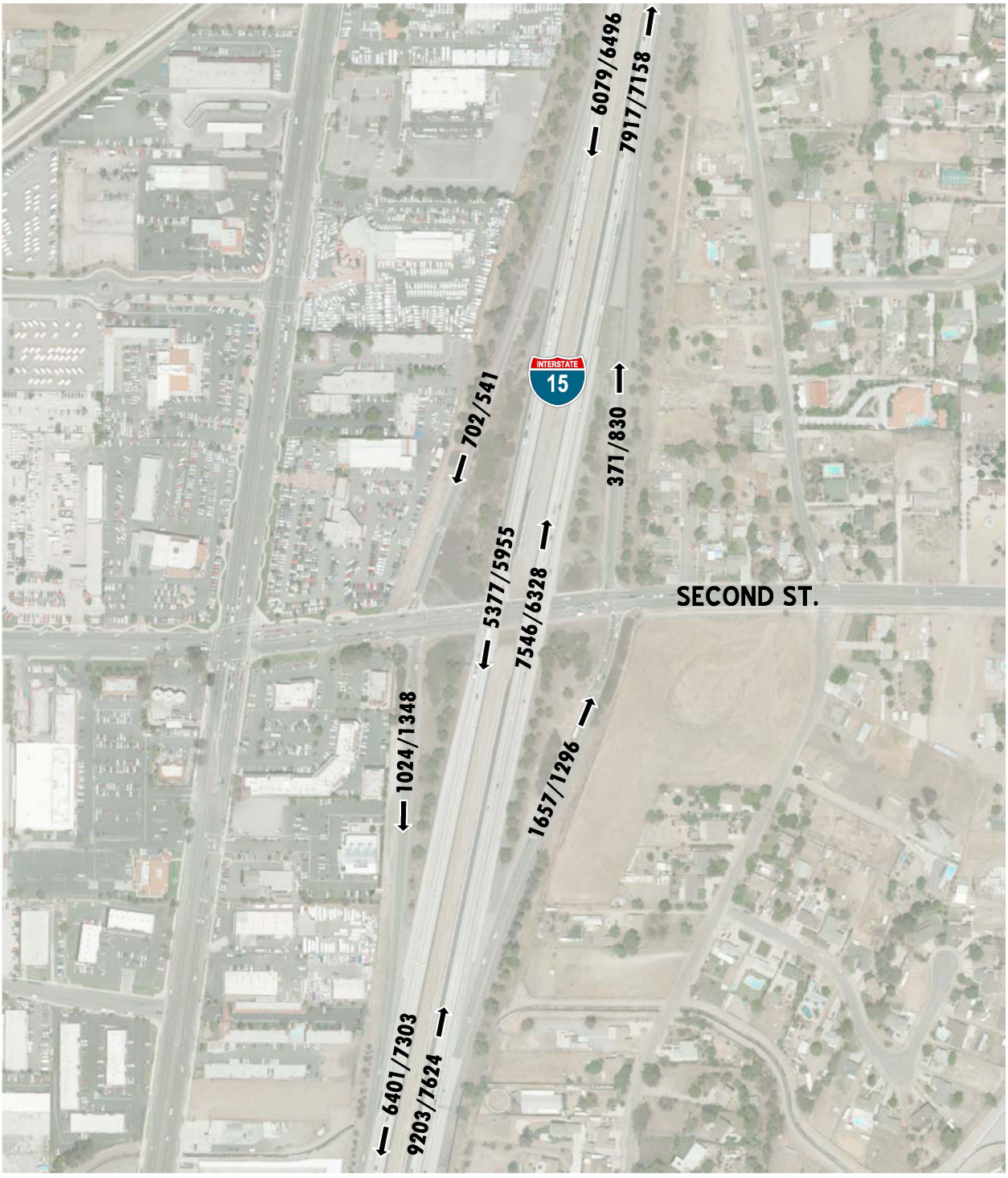
LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

N

EXHIBIT 7-6: HORIZON YEAR (2040) WITH PROJECT FREEWAY MAINLINE VOLUMES



LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

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7.8 RECOMMENDED IMPROVEMENTS

7.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address Horizon Year (2040) traffic deficiencies are presented in Table 7-4 and described below. The intersection operations analysis worksheets for Horizon Year (2040) Without Project and With Project traffic conditions, with improvements, are included in Appendices 7.9 and 7.10, respectively.

Recommended Improvement – Hamner Avenue & Sixth Street (#2) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the southbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Modify the traffic signal timing to optimize the cycle lengths and splits during the AM and PM peak hours.
- Restripe the northbound approach to provide one left turn lane, two through lanes, and one shared through-right turn lane.

Although the recommended improvements at the intersection of Hamner Avenue & Sixth Street (#2) will improve the LOS to acceptable levels, the queuing issues along Sixth Street will likely not improve until such time in the future when the I-15 Freeway/Sixth Street interchange improvement project is completed.

Recommended Improvement – Hamner Avenue & Third Street (#4) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the northbound approach to provide dual left turn lanes, two through lanes, and one shared through-right turn lane.
- Restripe the southbound approach to provide one left turn lane, two through lanes, and one shared through-right turn lane.

Recommended Improvement – Hamner Avenue & Driveway 2 (#5) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the northbound approach to provide a 3rd northbound through lane.
- Restripe the southbound approach to provide a 3rd southbound through lane.

The restriping of existing pavement at the intersection of Hamner Avenue & Driveway 2 (#5) to provide a 3rd northbound and southbound through lane is consistent with the City of Norco's Circulation Element.

Table 7-4

Intersection Analysis for Horizon Year (2040) Conditions 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
2	Hamner Av. & Sixth St.																	
	- Without Project	TS	1	**3**	**0**	**2**	2	**0**	1	2	0	1	1	1	53.2	53.8	D	D
	- With Project	TS	1	**3**	**0**	**2**	2	**0**	1	2	0	1	1	1	54.8	54.8	D	D
4	Hamner Av. & Third St.																	
	- Without Project	TS	2	**3**	**0**	1	**3**	**0**	1	1	1>	1	1	0	52.6	33.5	D	C
	- With Project	TS	2	**3**	**0**	1	**3**	**0**	1	1	1>	1	1	0	55.0	41.2	D	D
5	Hamner Av. & Driveway 2																	
	- Without Project[4]	CSS	0	**3**	0	0	**3**	0	0	1	0	0	1	0	14.6	15.4	B	C
	- With Project[4]	CSS	0	**3**	0	0	**3**	0	0	1	0	0	1	0	19.7	22.2	C	C
6	Hamner Av. & Second St.																	
	- Without Project[5,6,7]	TS	1	**3**	**0**	**2**	2	**1**	**2**	2	**0**	**2**	**1**	**1>**	52.3	52.5	D	D
	- With Project[5,6,7]	TS	1	**3**	**0**	**2**	2	**1**	**2**	2	**0**	**2**	**1**	**1>**	53.8	53.3	D	D
7	I-15 SB Ramps & Second St.																	
	- Without Project	TS	0	0	0	0	1	1	0	2	**1**	1	2	0	34.5	43.5	C	D
	- With Project	TS	0	0	0	0	1	1	0	2	**1**	1	2	0	36.8	48.5	D	D

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

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 Highway Capacity Manual (6th Edition), 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

3 CSS = Cross-street Stop; TS = Traffic Signal

4 Improvement consists of restriping the existing pavement to provide a 3rd northbound and southbound through lane, consistent with the City of Norco's Circulation Element.

5 Improvement includes restriping the eastbound and westbound shared left-through lane to an exclusive through lane.

6 Improvement includes modification of the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag, protect the eastbound and westbound left turns, and run the eastbound and westbound left turns as lead-lag, with the westbound left turn running as lag.

7 Improvement includes restriping the eastbound approach to provide two left turn lanes, one through lane, and one shared through-right turn lane, and restriping the westbound approach to provide two left turn lanes, one through lane, and one right turn lane

Recommended Improvement – Hamner Avenue & Second Street (#6) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound left turn lane.
- Stripe the southbound defacto right turn lane.
- Restripe the eastbound approach to provide dual left turn lanes, one through lane, and one shared through-right turn lane.
- Restripe the westbound approach to provide dual left turn lanes, one through lane, and one right turn lane.
- Modify the traffic signal to run the northbound and southbound left turns as lead-lag, with the southbound left turn running as lag, protect the eastbound and westbound left turns, and run the eastbound and westbound left turns as lead-lag, with the westbound left running as lag. As such, the northbound/southbound and eastbound/westbound left turns will run separately (not concurrently).
- Restripe the northbound approach to provide one left turn lane, two through lanes, and one shared through-right turn lane.

Recommended Improvement – I-15 Southbound Ramps & Second Street (#7) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add an eastbound right turn lane.

7.8.2 Recommended Improvements to Address Off-Ramp Queues

As shown previously in Table 7-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Second Street interchange for Horizon Year (2040) traffic conditions. As such, no improvements have been recommended.

7.8.3 Recommended Improvements to Address Deficiencies on Freeway Facilities

The RCTC, in partnership with Caltrans, is investing $455 million to improve the I-15 Freeway between Cajalco Road and SR-60 Freeway. The "I-15 Express Lanes Project" will add two tolled express lanes in each direction, with multiple entrances and exits. Construction began in 2018, and the express lanes will be open to traffic in July 2020.

Caltrans typically assumes a reduction of fourteen percent to the freeway mainline through volumes to account for vehicles utilizing the express lanes. The reduction to the I-15 Freeway mainline volumes (14% per lane for 2 lanes, or 28% total) has been applied to account for the proposed express lanes. The analysis has been performed assuming the same number of mixed-flow lanes and on and off-ramp configurations as existing baseline conditions at the I-15 Freeway study area interchanges.

As shown in Table 7-5, the I-15 Freeway mainline segments and merge/diverge ramp junctions are anticipated to improve operations to acceptable LOS during the peak hours with the completion of the I-15 Express Lanes Project, with the exception of the following freeway mainline segment:

- I-15 Freeway Northbound, North of Second Street (#5) – LOS E AM peak hour only

Table 7-5

Freeway Facility Analysis for Horizon Year (2040) With Project Conditions With Improvements

Freeway	Direction[1]	Mainline Segment	Lanes on Freeway[2]	With Improvements			
				Density[3]		LOS[4]	
				AM	PM	AM	PM
I-15	SB	North of Second St.	3	25.8	27.9	C	D
		Off-Ramp at Second St.	4	29.3	30.4	D	D
		On-Ramp at Second St.	5	15.6	17.3	B	B
		South of Second St.	4	16.0	18.4	B	C
	NB	North of Second St.	3	**37.6**	31.8	**E**	D
		On-Ramp at Second St.	4	33.1	31.6	D	D
		Off-Ramp at Second St.	5	23.4	18.5	C	C
		South of Second St.	4	23.7	18.9	C	C

* **BOLD** = Unacceptable Level of Service

[1] SB = Southbound; NB = Northbound

[2] Number of lanes are in the specified direction and is based on existing conditions. The I-15 Freeway express lanes are assumed to be completed.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Norco are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions. Fee programs applicable to the Project are described below.

8.1 RIVERSIDE COUNTY TRANSPORTATION UNIFORM MITIGATION FEE (TUMF)

The TUMF program is administered by the WRCOG based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (10) This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. TUMF is a truly regional mitigation fee program and is imposed and implemented in every jurisdiction in Western Riverside County.

8.2 CITY OF NORCO DEVELOPMENT IMPACT FEE (DIF) PROGRAM

The Project will also be subject to City of Norco's DIF program which includes a component for streets, traffic signals, and bridges. This program aims to mitigate the additional traffic burdens created by new development to the City's arterial and collector street system. A "Streets, Traffic Signals, and Bridges" fee will be imposed on all new development in the City to finance the costs of street improvements, including widening and reconstruction, new traffic signals, street landscaping, intersection improvements, and freeway interchange improvements.

8.3 MEASURE A

Measure A, Riverside County's half-cent sales tax for transportation, was adopted by voters in 1988 and extended in 2002. It will continue to fund transportation improvements through 2039. Measure A funds a wide variety of transportation projects and services throughout the County. RCTC is responsible for administering the program. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the 1988 election.

8.4 FAIR SHARE CONTRIBUTION

Project improvements 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. Detailed fair share calculations, for each peak hour, have been provided in Table 8-1 for the applicable deficient study area intersection. These fees are collected with the proceeds solely used as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases.

Table 8-1

Project Fair Share Calculations

#	Intersection	Existing	Project	2040 With Project	Total New Traffic	Project Fair Share[1]
2	Hamner Av. & Sixth St.					
	AM:	3,023	69	4,610	1,587	**4.3%**
	PM:	3,102	73	4,924	1,822	4.0%
6	Hamner Av. & Second St.					
	AM:	3,479	174	5,951	2,472	**7.0%**
	PM:	3,900	185	6,717	2,817	6.6%
7	I-15 SB Ramps & Second St.					
	AM:	2,526	116	3,766	1,240	**9.4%**
	PM:	2,508	126	4,005	1,497	8.4%

* Highest deficient peak hour represented in **BOLD** and shown on Table 1-3.

9 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., April 2008.
2. **California Department of Transportation.** *Guide for the Preparation of Traffic Impact Studies.* December 2002.
3. **Institute of Transportationi Engineers (ITE).** *Trip Generation Manual.* 10th Edition. 2017.
4. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.
5. **Riverside County Transportation Commission.** *2011 Riverside County Congestion Management Program.* County of Riverside : RCTC, December 14, 2011.
6. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
7. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
8. **Transportation, California Department of.** *Freeway Performance Measurement (PeMS).* [Online] http://pems.dot.ca.gov/.
9. **Southern California Association of Governments.** *2016 Regional Transportation Plan/Sustainable Communities Strategy.* April 2016.
10. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

January 9, 2020

SCOPE OF WORK

To: Steve King, City of Norco

From: Charlene So, Urban Crossroads, Inc.

Subject: Hamner Avenue Mixed-Use Traffic Impact Analysis Scope

PROJECT DESCRIPTION

The proposed Hamner Avenue Mixed-Use development is located on the southwest corner of Hamner Avenue and Third Street in the City of Norco. As shown on the conceptual site plan, the Project will consist of 5,000 square foot fast-food restaurant without drive-through window, a 128-room hotel, and 320 mid-rise multifamily dwelling units. The preliminary site plan in which the traffic study will be based on is shown on Exhibit 1. For purposes of this traffic analysis, the project will be constructed over a single phase with an anticipated Opening Year of 2023.

PROJECT STUDY ASSUMPTIONS

Study Area

The study area, as shown on Exhibit 2, is generally bounded by Fourth Street to the north, Second Street to the south, Hamner Avenue the west, and the I-15 Freeway to the east. Consistent with the County of Riverside traffic study guidelines, the study area includes any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips. The proposed intersection analysis locations are identified on Exhibit 2.

The analysis of Project driveways is critical, specifically the driveway proposed on Hamner Avenue. As such, detailed queuing analysis will be conducted at the Project driveways in conjunction with the peak hour operations analysis.

Analysis Scenarios

Consistent with County of Riverside traffic study guidelines, the following analysis scenarios will be analyzed for this traffic study:

- Existing (2020)
- Existing + Project
- Opening Year Cumulative (2023) Without and With Project
- Horizon Year (2040) Without and With Project

Required Level of Service

Since the City of Norco does not have traffic study guidelines, the guidelines prepared by the County of Riverside are proposed to be used. The County has established, as a county-wide target, a Level of Service C on all County-maintained roads and conventional State Highways. As an exception, Level of Service D is allowed in Community Development areas at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional State Highways, or at freeway ramp intersections. LOS E may be allowed in designated community centers to the extent that it would support transit-oriented development and pedestrian communities. It is our understanding that the City of Norco also accepts LOS D on its intersections, consistent with the County of Riverside. Based on this policy, level of service D is acceptable at all study area intersections.

Project Trip Generation

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. Trip generation rates for the Project and the Project trip generation summary are shown in Table 1.

The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. For purposes of this analysis, ITE land use codes 221 (Multifamily Mid-Rise Housing), 310 (Hotel), and 933 (Fast Food Restaurant Without Drive-Through Window) have been used to derive site specific trip generation estimates.

Internal capture is a percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internal to the site. In other words, trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets (e.g., interaction between residential and restaurant use). Internal capture reductions between the proposed land uses have been taken into account based on the ITE Trip Generation Handbook, 3rd Edition (2017).

Pass-by trips are defined as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. These types of trips are many times associated with retail uses. As the Project is proposed to include retail use, pass-by reduction percentages have been obtained and applied from the ITE Trip Generation Handbook, 3rd Edition (2017). All assumptions used to generate the Project trips will be explained in detail as part of the traffic impact study.

The proposed Project is anticipated to generate a total of 3,018 trip-ends per day with 214 AM peak hour trips and 238 PM peak hour trips.

Project Trip Distributions

The project trip distribution patterns for each of the proposed land uses are shown as follows:

- Exhibit 3: Project (Residential) Trip Distribution
- Exhibit 4: Project (Restaurant) Trip Distribution
- Exhibit 5: Project (Hotel) Trip Distribution

Ambient Growth Rate

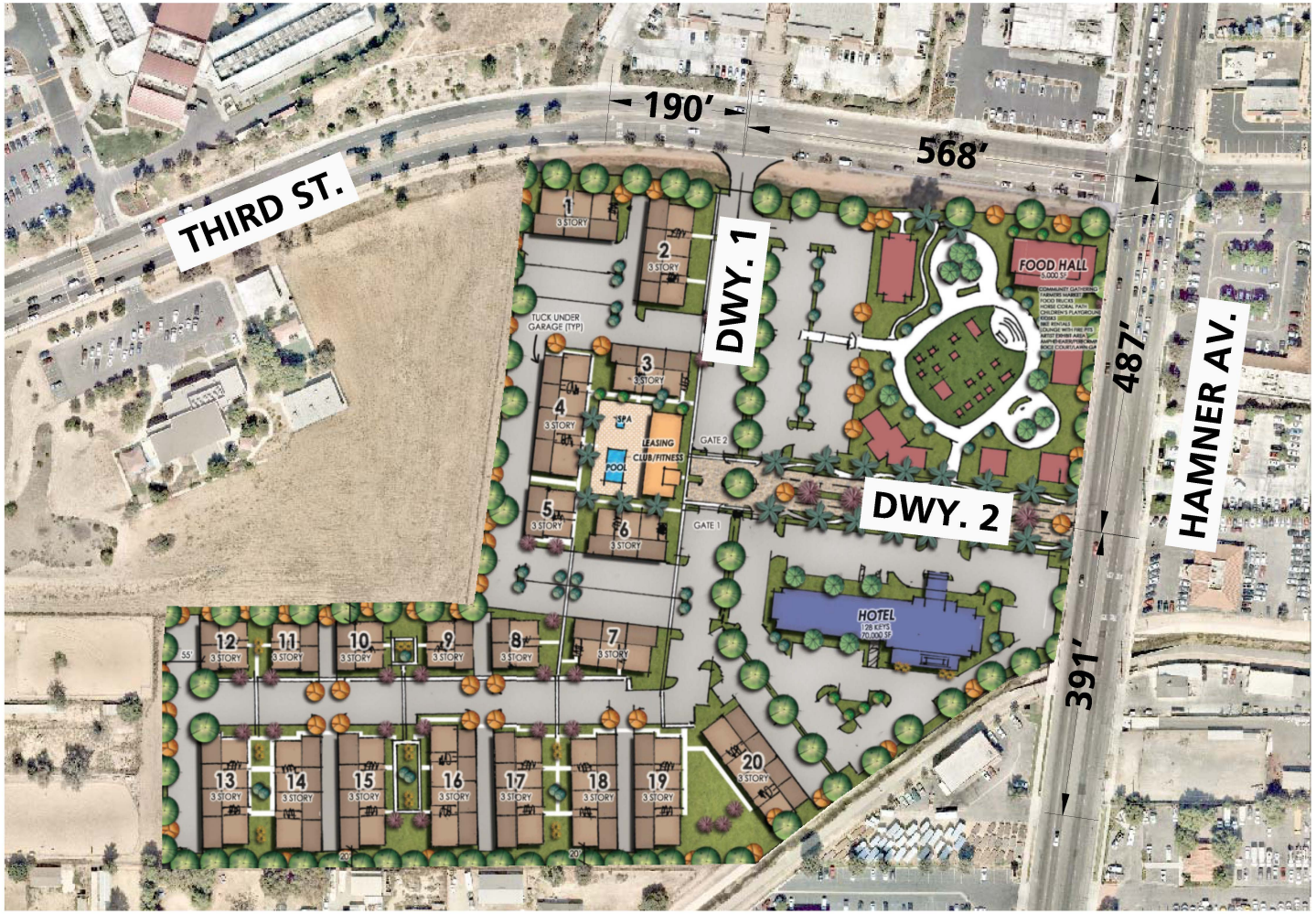
Consistent with other City of Norco traffic studies performed by Urban Crossroads, an ambient growth rate of 2 percent per year, compounded over 3 years, will be used for this analysis (2020 to 2023). If during development of the cumulative project list a substantial number of cumulative projects are identified in or near the project study area, the consultant will contact City staff to explore reducing the ambient growth rate in an effort to not overstate background traffic volumes for future traffic conditions.

Cumulative Development Projects

A preliminary list of cumulative projects and their locations are shown on Table 2 and on Exhibit 6. It is requested that the City provide any updates to the list of cumulative projects with applicable land use and intensity information for inclusion in our traffic study.

If you have any questions or comments, I can be reached at (949) 336-5982.

EXHIBIT 1: PRELIMINARY SITE PLAN



NOTE: ALL DRIVEWAYS ARE FULL ACCESS.

N

EXHIBIT 2: LOCATION MAP

LEGEND:

O = EXISTING INTERSECTION ANALYSIS LOCATION

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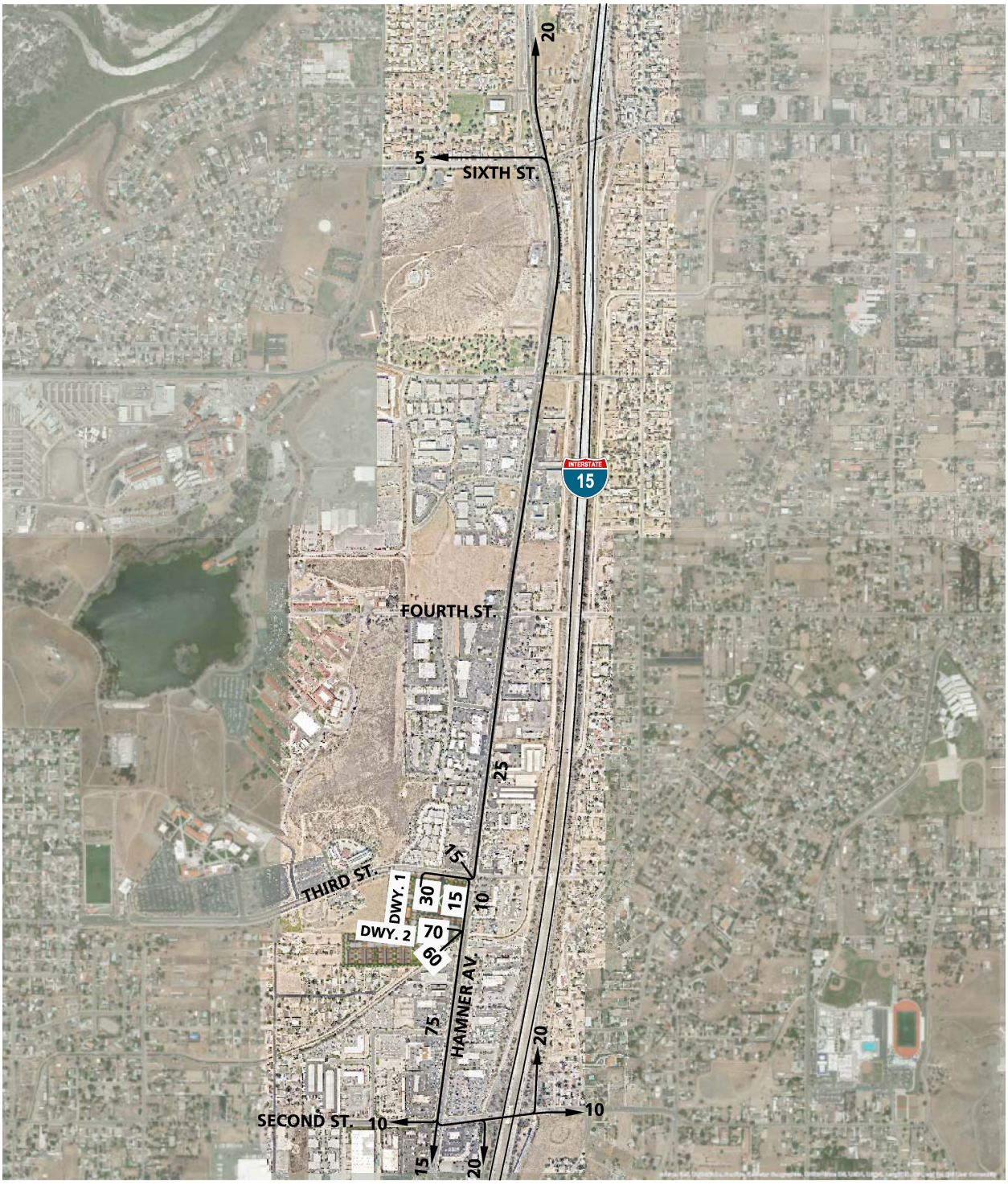
EXHIBIT 3: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION

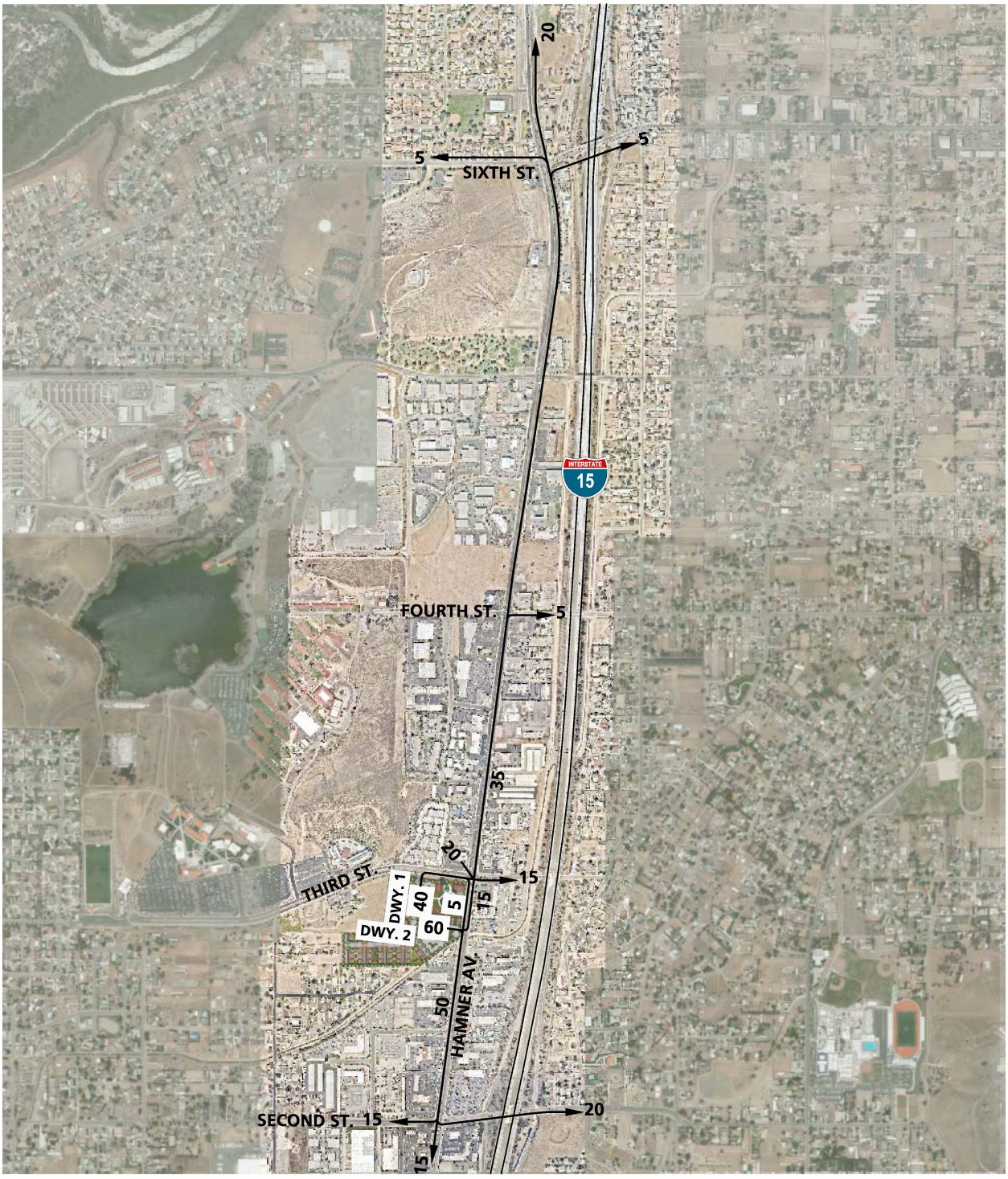


LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 4: PROJECT (RESTAURANT) TRIP DISTRIBUTION



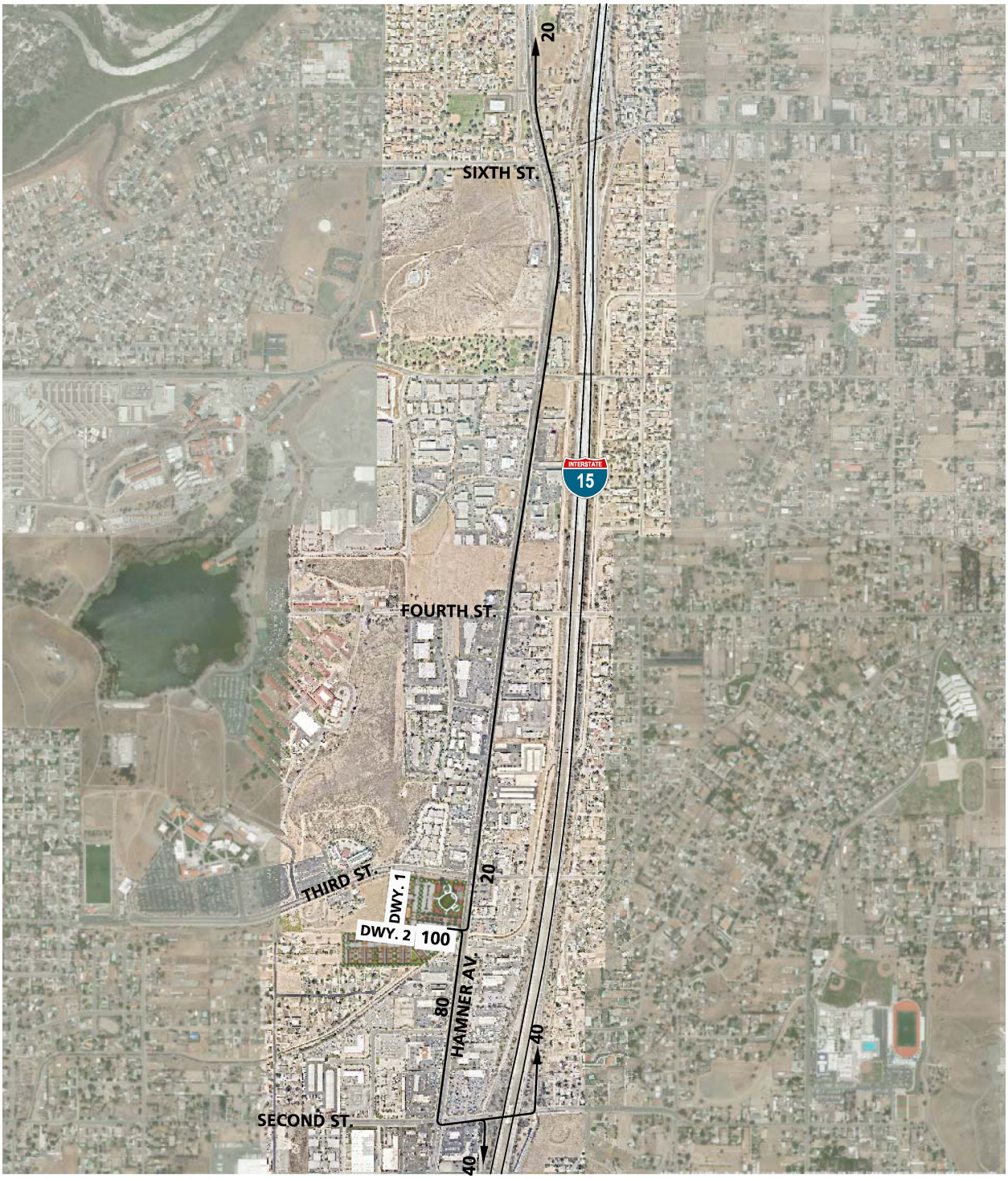
LEGEND:

10 = PERCENT TO/FROM PROJECT

N

13043 - trip.dwg

EXHIBIT 5: PROJECT (HOTEL) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 6: CUMULATIVE DEVELOPMENT LOCATION MAP

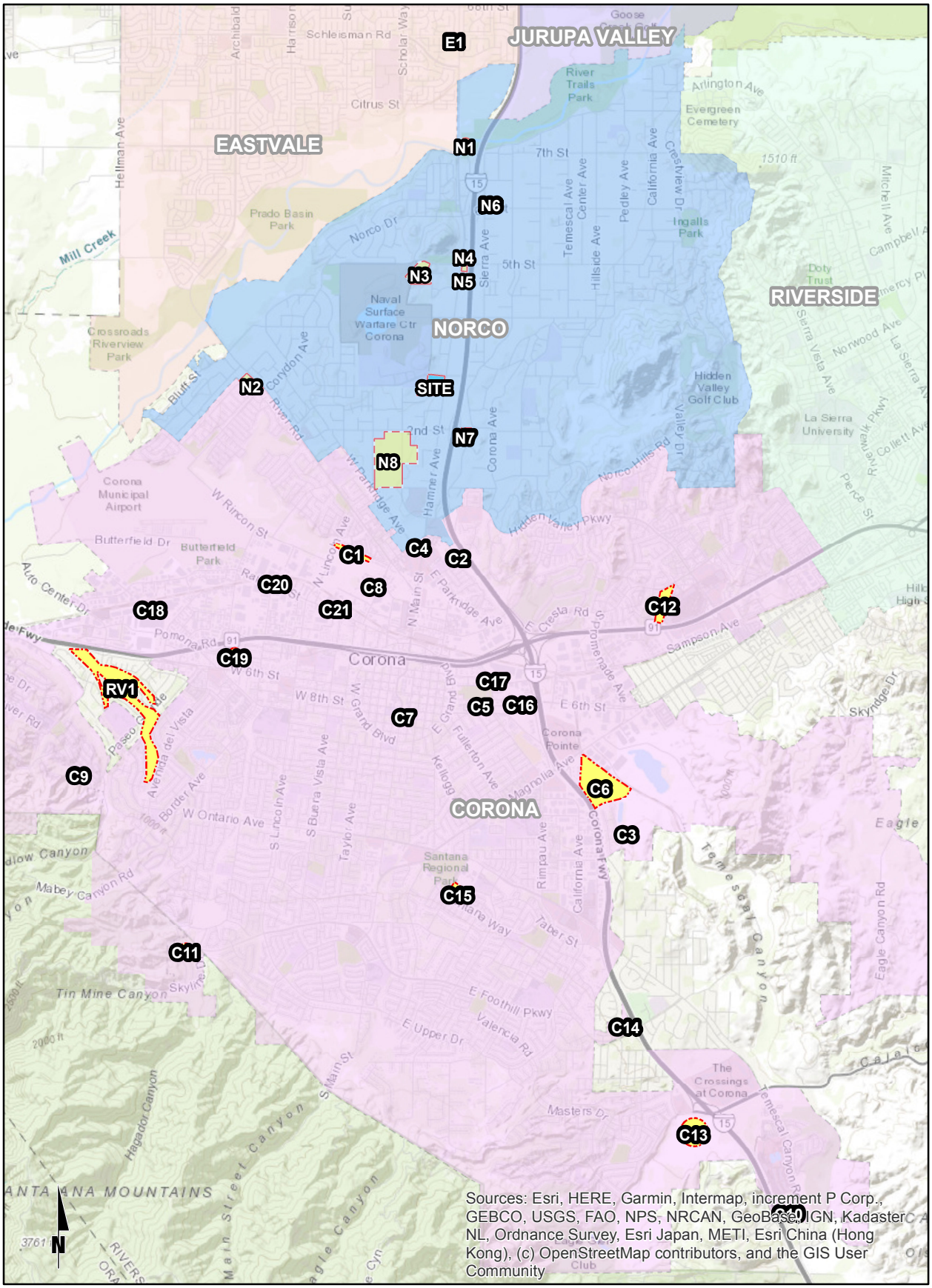


Table 1

Project Trip Generation Summary

Land Use	ITE Code	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	Weekday Daily
Trip Generation Rates[1]									
Multifamily Housing (Mid-Rise)	221	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
Hotel	310	RM	0.28	0.19	0.47	0.31	0.29	0.60	8.36
Fast-Food without Drive-Thru Window	933	TSF	15.06	10.04	25.10	14.17	14.17	28.34	346.23

Land Use	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
Trip Generation Summary									
Fast-Food without Drive-Thru Window	5.000	TSF	75	50	125	71	71	142	1,732
Internal Capture:[3]			*-17*	*-3*	*-20*	*-14*	*-18*	*-32*	*-392*
Pass-By (49% AM, 50% PM/Daily):[4]			*-23*	*-23*	*-46*	*-27*	*-27*	*-54*	*-670*
Restaurant Subtotal:			35	24	59	30	26	56	670
Hotel	128	RM	35	25	60	39	38	77	1,070
Internal Capture:[3]			*-1*	*-2*	*-3*	*-7*	*-4*	*-11*	*-154*
Hotel Subtotal:			34	23	57	32	34	66	916
Multifamily Housing (Mid-Rise)	320	DU	30	85	115	86	55	141	1,742
Internal Capture:[3]			*-2*	*-15*	*-17*	*-13*	*-12*	*-25*	*-310*
Residential Subtotal:			28	70	98	73	43	116	1,432
Project Buildout Total:			**97**	**117**	**214**	**135**	**103**	**238**	**3,018**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = Thousand Square Feet; DU = Dwelling Units; RM = Rooms

[3] Internal capture calculated from NCHRP 684 Internal Trip Capture Estimation Tool.

[4] Pass-by percentage are from the ITE Trip Generation Handbook, Third Edition (2017).

Table 2

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
		City of Norco		
N1	Silverlakes Equestrian[3]	The Field House Restaurant	250	Seats
		Stadium	5,000	Seats
N2	River Road And Corydon Street Commercial Center	General Office	22.000	TSF
		Shopping Center	13.709	TSF
		Supermarket	44.200	TSF
		Pharmacy w/ Drive-Through	14.576	TSF
		Coffee Shop w/ Drive-Through	2.000	TSF
		Fast-Food w/o Drive-Through	7.883	TSF
		Fast-Food w/ Drive-Through	5.978	TSF
		Gas Station w/ Convenience Market	12	VFP
N3	SWC Horseless Carriage Dr./Fifth St.	Warehousing	414.431	TSF
N4	SEC of Hamner Av. / Fifth St.	Hotel	90	RM
N5	3275 Hamner Av.	Hotel	122	RM
N6	SEC of Sierra Av. / Sixth St.	Commercial	37.571	TSF
N7	Norco Carmax	Automobile Sales (Used)	11.447	TSF
N8	Palomino Business Park	High-Cube Cold Storage Warehouse	602.130	TSF
		Industrial Park	1,426.460	TSF
		Commercial Retail	6.520	TSF
		Fast-Food w/o Drive-Thru	6.520	TSF
		Gas Station w/ Market	12	VFP
		Fast-Food w/ Drive-Through	4.275	TSF
		City of Eastvale		
E1	Van Leeuwen GPA	SFDR	224	DU
		City of Corona		
C1	Jeffrey Holbrook West Coast Development	Multi-Family Residential	148	DU
C2	Pecuniary Capital, LLC	Townhomes	60	DU
C3	Nova Homes	SFDR	103	DU
C4	ASTA/Strata	Townhomes	45	DU
C5	C&C Development	Affordable Housing	86	DU
C6	Sherborn, LLC	Industrial	76.00	AC
C7	Corona Regional Medical Center Expansion	Medical Office	332.000	TSF
C8	Roger Egge Private Realty Advisors	Industrial	95.500	TSF
C9	Sierra Bella	SFDR	237	DU
C10	Rexxco - Terrana Apartment Community	Apartments	279	DU
C11	Skyline Heights	SFDR	297	DU
C12	Vista Monterey	Apartments	442	DU
C13	Arantine Hills Master Planned Community	Commercial	80.000	TSF
		Residential	1,621	DU
C14	Foothill Commercial Plaza	Commercial/Retail/Restaurant	82.700	TSF
		Hotel	120	RM
C15	Van Daele Homes	Condos	92	DU
C16	Home Gardens Water District Well Collection Line	Well	--	--
C17	Household Hazardous Waste	Household Collection Facility	3.168	TSF
C18	1548 Maple St.	General Office	6.568	TSF
C19	LA Fitness	Health/Fitness Club	37.000	TSF
C20	Lincoln Av. and Rincon St. Industrial	Industrial	731.000	TSF
C21	Senior Housing	Senior Adult Housing - Attached	64	DU
		County of Riverside		
RV1	Trails at Corona	SFDR	426	DU
		Retail	8.500	TSF

[1] SFDR = Single Family Detached Residential

[2] TSF = Thousand Square Feet; DU = Dwelling Unit; VFP = Vehicle Fueling Position ; AC = Acres; RM = Rooms

[3] Source: From Silverlakes TIA (Revised), Kunzman Associates, September 25, 2008.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Norco Mixed Use	**Organization:**	Urban Crossroads, Inc.
Project Location:	City of Norco	**Performed By:**	CP
Scenario Description:		**Date:**	11/25/2019
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				0		
Restaurant				125	75	50
Cinema/Entertainment				0		
Residential				115	30	85
Hotel				60	35	25
All Other Land Uses[2]				0		
				300	140	160

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	15	0		0
Hotel	0	0	2	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	300	140	160
Internal Capture Percentage	13%	14%	13%
External Vehicle-Trips[5]	260	120	140
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	23%	6%
Cinema/Entertainment	N/A	N/A
Residential	7%	18%
Hotel	3%	8%

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Norco Mixed Use	**Organization:**	Urban Crossroads, Inc.
Project Location:	City of Norco	**Performed By:**	CP
Scenario Description:		**Date:**	11/25/2019
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				0		
Restaurant				142	71	71
Cinema/Entertainment				0		
Residential				141	86	55
Hotel				77	39	38
All Other Land Uses[2]				0		
				360	196	164

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	13	5
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	10	0		2
Hotel	0	0	4	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	360	196	164
Internal Capture Percentage	19%	17%	21%
External Vehicle-Trips[5]	292	162	130
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	20%	25%
Cinema/Entertainment	N/A	N/A
Residential	15%	22%
Hotel	18%	11%

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

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APPENDIX 1.2:

SITE ADJACENT QUEUES

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Intersection: 1: Private Driveway & Third St.

Movement	WB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	30	56	73
Average Queue (ft)	10	31	20
95th Queue (ft)	33	46	51
Link Distance (ft)		266	234
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Hamner Av. & Third St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	220	409	111	1054	1059	244	274	436	364	262	190	1368
Average Queue (ft)	181	144	51	907	1030	199	229	255	212	182	66	822
95th Queue (ft)	238	363	88	1445	1065	274	300	387	314	268	178	1557
Link Distance (ft)		433	433	1020	1020			425	425	425		1353
Upstream Blk Time (%)				59	75			1				6
Queuing Penalty (veh)				0	0			6				0
Storage Bay Dist (ft)	160					215	215				105	
Storage Blk Time (%)	40	0				5	14	4			2	62
Queuing Penalty (veh)	18	0				21	65	27			5	19

Intersection: 4: Hamner Av. & Third St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	1405	1392
Average Queue (ft)	1047	1122
95th Queue (ft)	1673	1635
Link Distance (ft)	1353	1353
Upstream Blk Time (%)	36	47
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hamner Av. & Private Driveway

Movement	EB	WB	NB	NB
Directions Served	R	LTR	L	T
Maximum Queue (ft)	98	30	92	96
Average Queue (ft)	39	5	42	9
95th Queue (ft)	65	20	79	51
Link Distance (ft)	270	286		1032
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			100	
Storage Blk Time (%)			0	0
Queuing Penalty (veh)			1	0

Network Summary

Network wide Queuing Penalty: 162

Intersection: 1: Private Driveway & Third St.

Movement	EB	EB	EB	WB	NB	SB
Directions Served	L	T	TR	L	LTR	LTR
Maximum Queue (ft)	20	55	7	74	81	155
Average Queue (ft)	1	4	0	23	38	53
95th Queue (ft)	8	43	4	55	65	115
Link Distance (ft)		970	970		266	234
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	150			150		
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Intersection: 4: Hamner Av. & Third St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	219	364	242	106	237	243	263	330	301	231	190	488
Average Queue (ft)	160	116	133	45	114	153	174	183	171	139	96	329
95th Queue (ft)	239	295	224	94	189	234	259	316	274	208	205	464
Link Distance (ft)		433	433	1020	1020			425	425	425		1353
Upstream Blk Time (%)		1						1	0			
Queuing Penalty (veh)		5						8	0			
Storage Bay Dist (ft)	160					215	215				105	
Storage Blk Time (%)	22	1				4	7	1			1	48
Queuing Penalty (veh)	19	2				14	27	6			6	34

Intersection: 4: Hamner Av. & Third St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	474	416
Average Queue (ft)	301	274
95th Queue (ft)	433	400
Link Distance (ft)	1353	1353
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Hamner Av. & Private Driveway

Movement	EB	WB	NB	NB	NB	SB	SB
Directions Served	R	LTR	L	T	T	T	TR
Maximum Queue (ft)	97	108	146	386	323	14	14
Average Queue (ft)	45	46	76	54	37	0	1
95th Queue (ft)	80	137	145	275	241	8	10
Link Distance (ft)	270	286		1032	1032	425	425
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100				
Storage Blk Time (%)			14	2			
Queuing Penalty (veh)			77	3			

Network Summary

Network wide Queuing Penalty: 202

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – JANUARY 2020

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: Driveway
E/W: Third Street
Weather: Clear

File Name : 01_NOR_Driveway_Third AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

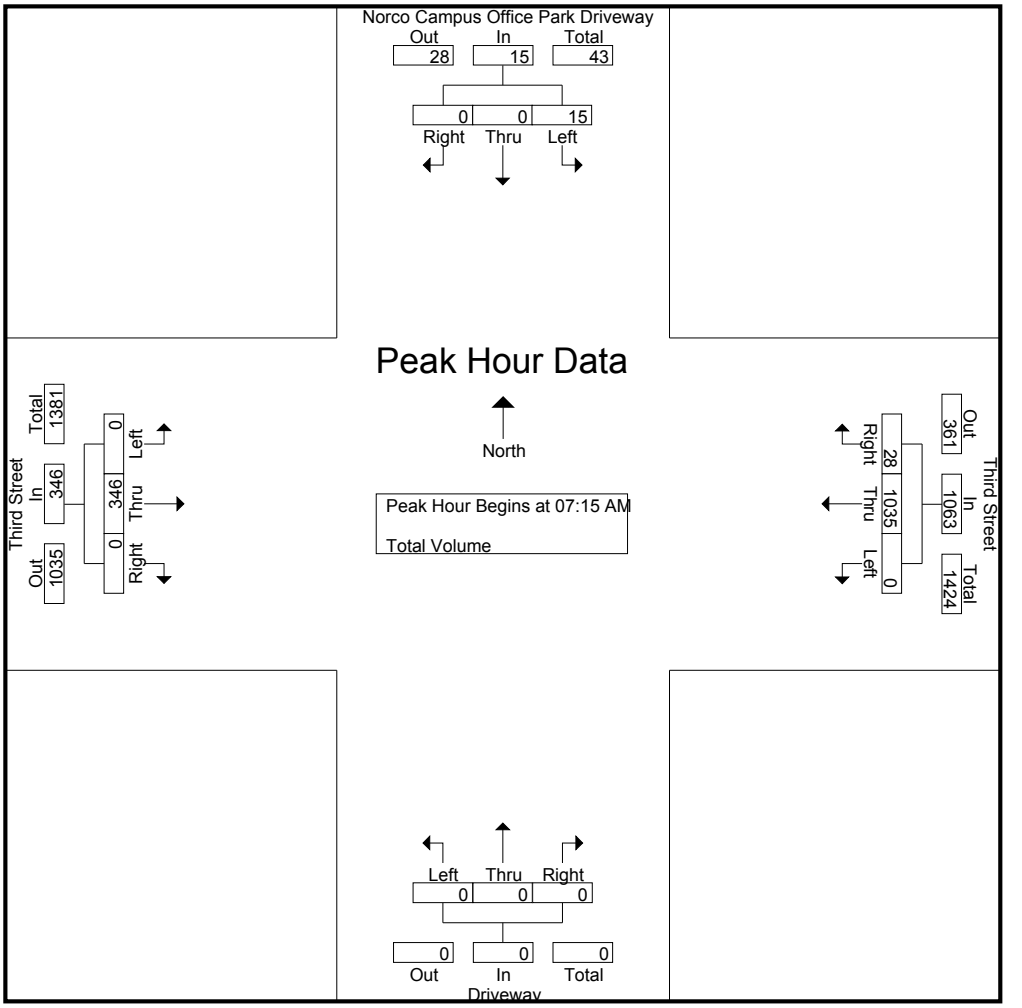
	Norco Campus Office Park Driveway Southbound				Third Street Westbound				Driveway Northbound				Third Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	0	0	2	0	123	7	130	0	0	0	0	0	51	0	51	183
07:15 AM	8	0	0	8	0	214	5	219	0	0	0	0	0	112	0	112	339
07:30 AM	1	0	0	1	0	296	9	305	0	0	0	0	0	135	0	135	441
07:45 AM	4	0	0	4	0	319	5	324	0	0	0	0	0	57	0	57	385
Total	15	0	0	15	0	952	26	978	0	0	0	0	0	355	0	355	1348
08:00 AM	2	0	0	2	0	206	9	215	0	0	0	0	0	42	0	42	259
08:15 AM	1	0	0	1	0	52	2	54	0	0	0	0	0	20	0	20	75
08:30 AM	7	0	0	7	0	68	8	76	0	0	0	0	1	28	0	29	112
08:45 AM	9	0	0	9	0	70	13	83	0	0	0	0	1	16	0	17	109
Total	19	0	0	19	0	396	32	428	0	0	0	0	2	106	0	108	555
Grand Total	34	0	0	34	0	1348	58	1406	0	0	0	0	2	461	0	463	1903
Apprch %	100	0	0		0	95.9	4.1		0	0	0		0.4	99.6	0		
Total %	1.8	0	0	1.8	0	70.8	3	73.9	0	0	0	0	0.1	24.2	0	24.3	

	Norco Campus Office Park Driveway Southbound				Third Street Westbound				Driveway Northbound				Third 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 07:15 AM																	
07:15 AM	**8**	0	0	**8**	0	214	5	219	0	0	0	0	0	112	0	112	339
07:30 AM	1	0	0	1	0	296	**9**	305	0	0	0	0	0	**135**	0	**135**	**441**
07:45 AM	4	0	0	4	0	**319**	5	**324**	0	0	0	0	0	57	0	57	385
08:00 AM	2	0	0	2	0	206	9	215	0	0	0	0	0	42	0	42	259
Total Volume	15	0	0	15	0	1035	28	1063	0	0	0	0	0	346	0	346	1424
% App. Total	100	0	0		0	97.4	2.6		0	0	0		0	100	0		
PHF	.469	.000	.000	.469	.000	.811	.778	.820	.000	.000	.000	.000	.000	.641	.000	.641	.807

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: Driveway
E/W: Third Street
Weather: Clear

File Name : 01_NOR_Driveway_Third AM
Site Code : 05120029
Start Date : 1/23/2020
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:

	08:00 AM				07:15 AM				07:00 AM				07:00 AM			
+0 mins.	2	0	0	2	0	214	5	219	0	0	0	0	0	51	0	51
+15 mins.	1	0	0	1	0	296	**9**	305	0	0	0	0	0	112	0	112
+30 mins.	7	0	0	7	0	**319**	5	**324**	0	0	0	0	0	**135**	0	**135**
+45 mins.	**9**	0	0	**9**	0	206	9	215	0	0	0	0	0	57	0	57
Total Volume	19	0	0	19	0	1035	28	1063	0	0	0	0	0	355	0	355
% App. Total	100	0	0		0	97.4	2.6		0	0	0		0	100	0	
PHF	.528	.000	.000	.528	.000	.811	.778	.820	.000	.000	.000	.000	.000	.657	.000	.657

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: Driveway
E/W: Third Street
Weather: Clear

File Name : 01_NOR_Driveway_Third PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Norco Campus Office Park Driveway Southbound				Third Street Westbound				Driveway Northbound				Third 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
04:00 PM	11	0	0	11	3	23	5	31	0	0	0	0	2	91	0	93	135
04:15 PM	7	0	0	7	4	21	1	26	0	0	0	0	1	31	0	32	65
04:30 PM	11	0	0	11	3	43	2	48	0	0	0	0	2	55	0	57	116
04:45 PM	8	0	0	8	2	40	2	44	0	0	0	0	1	48	0	49	101
Total	37	0	0	37	12	127	10	149	0	0	0	0	6	225	0	231	417
05:00 PM	28	0	0	28	2	33	1	36	0	0	0	0	1	54	0	55	119
05:15 PM	10	0	0	10	3	50	0	53	0	0	0	0	0	38	0	38	101
05:30 PM	9	0	0	9	4	63	2	69	0	0	0	0	0	34	0	34	112
05:45 PM	3	0	0	3	2	89	1	92	0	0	0	0	1	55	0	56	151
Total	50	0	0	50	11	235	4	250	0	0	0	0	2	181	0	183	483
Grand Total	87	0	0	87	23	362	14	399	0	0	0	0	8	406	0	414	900
Apprch %	100	0	0		5.8	90.7	3.5		0	0	0		1.9	98.1	0		
Total %	9.7	0	0	9.7	2.6	40.2	1.6	44.3	0	0	0	0	0.9	45.1	0	46	

	Norco Campus Office Park Driveway Southbound				Third Street Westbound				Driveway Northbound				Third 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 05:00 PM																	
05:00 PM	**28**	0	0	**28**	2	33	1	36	0	0	0	0	**1**	54	0	55	119
05:15 PM	10	0	0	10	3	50	0	53	0	0	0	0	0	38	0	38	101
05:30 PM	9	0	0	9	**4**	63	**2**	69	0	0	0	0	0	34	0	34	112
05:45 PM	3	0	0	3	2	**89**	1	**92**	0	0	0	0	1	**55**	0	**56**	**151**
Total Volume	50	0	0	50	11	235	4	250	0	0	0	0	2	181	0	183	483
% App. Total	100	0	0		4.4	94	1.6		0	0	0		1.1	98.9	0		
PHF	.446	.000	.000	.446	.688	.660	.500	.679	.000	.000	.000	.000	.500	.823	.000	.817	.800

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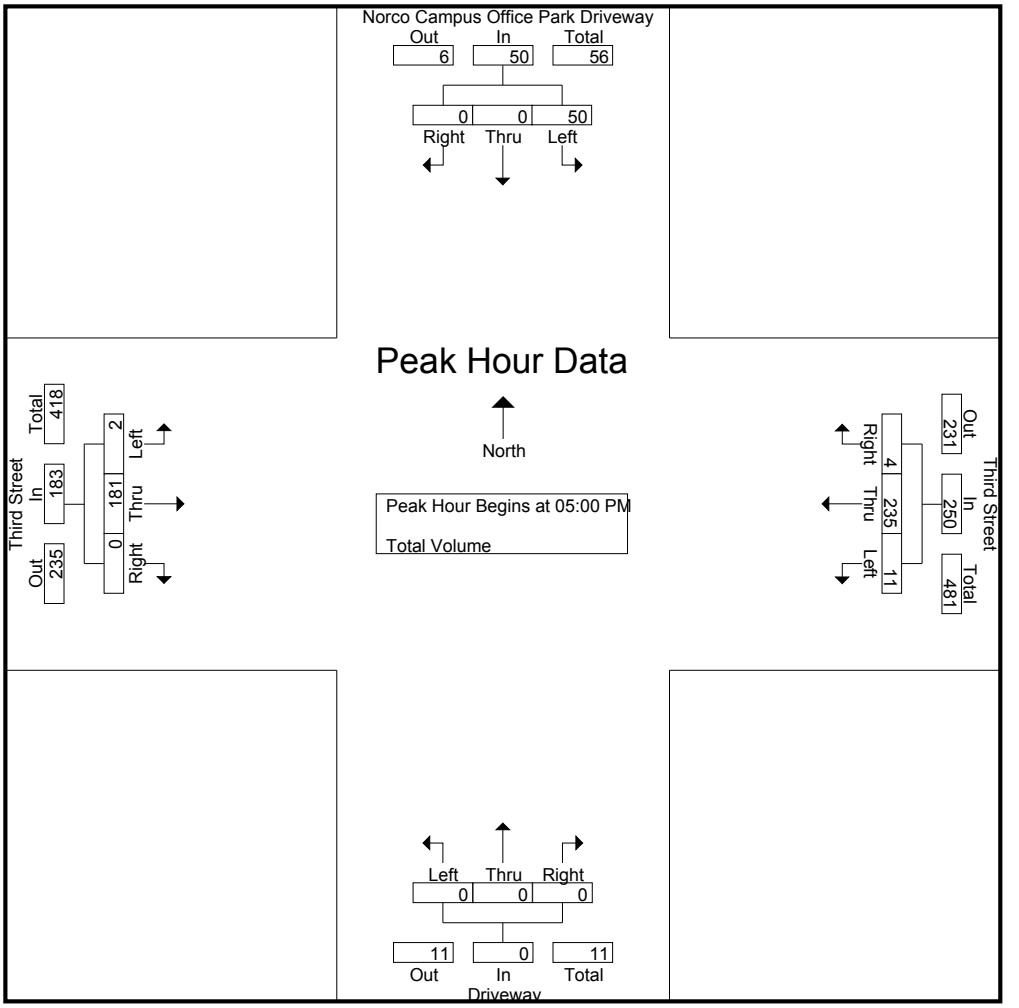
City of Norco
N/S: Driveway
E/W: Third Street
Weather: Clear

File Name : 01_NOR_Driveway_Third PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	11	0	0	11	2	33	1	36	0	0	0	0	**2**	**91**	0	**93**
+15 mins.	8	0	0	8	3	50	0	53	0	0	0	0	1	31	0	32
+30 mins.	**28**	0	0	**28**	**4**	63	**2**	69	0	0	0	0	2	55	0	57
+45 mins.	10	0	0	10	2	**89**	1	**92**	0	0	0	0	1	48	0	49
Total Volume	57	0	0	57	11	235	4	250	0	0	0	0	6	225	0	231
% App. Total	100	0	0		4.4	94	1.6		0	0	0		2.6	97.4	0	
PHF	.509	.000	.000	.509	.688	.660	.500	.679	.000	.000	.000	.000	.750	.618	.000	.621

Location: Norco
N/S: Driveway
E/W: Third Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Office Park Driveway	East Leg Third Street	South Leg Driveway	West Leg Third Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	2	0	0	0	2
7:45 AM	0	0	0	0	0
8:00 AM	0	1	0	0	1
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	1	0	0	0	1
TOTAL VOLUMES:	4	1	0	0	5

	North Leg Office Park Driveway	East Leg Third Street	South Leg Driveway	West Leg Third Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	3	0	0	0	3
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1
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:	4	0	0	0	4

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Location: Norco
N/S: Driveway
E/W: Third Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Office Park Driveway			Westbound Third Street			Northbound Driveway			Eastbound Third Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Office Park Driveway			Westbound Third Street			Northbound Driveway			Eastbound Third Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Sixth Street Westbound					Hamner Avenue Northbound					Sixth 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	79	103	2	0	184	116	17	76	49	209	7	150	66	22	223	8	44	7	3	59	74	675	749
07:15 AM	108	168	11	4	287	117	18	76	55	211	13	104	54	25	171	8	53	15	7	76	91	745	836
07:30 AM	118	179	5	2	302	130	12	71	51	213	22	122	69	27	213	8	46	10	1	64	81	792	873
07:45 AM	103	223	17	6	343	131	26	66	45	223	23	88	49	23	160	8	48	8	0	64	74	790	864
Total	408	673	35	12	1116	494	73	289	200	856	65	464	238	97	767	32	191	40	11	263	320	3002	3322
08:00 AM	95	150	12	4	257	108	24	69	51	201	11	79	68	40	158	12	57	11	2	80	97	696	793
08:15 AM	105	116	6	3	227	113	40	64	34	217	23	81	46	25	150	11	54	19	3	84	65	678	743
08:30 AM	111	194	7	0	312	96	28	76	43	200	19	84	60	26	163	14	59	20	2	93	71	768	839
08:45 AM	80	124	4	1	208	109	30	58	34	197	9	76	55	40	140	12	44	21	9	77	84	622	706
Total	391	584	29	8	1004	426	122	267	162	815	62	320	229	131	611	49	214	71	16	334	317	2764	3081
Grand Total	799	1257	64	20	2120	920	195	556	362	1671	127	784	467	228	1378	81	405	111	27	597	637	5766	6403
Apprch %	37.7	59.3	3			55.1	11.7	33.3			9.2	56.9	33.9			13.6	67.8	18.6					
Total %	13.9	21.8	1.1		36.8	16	3.4	9.6		29	2.2	13.6	8.1		23.9	1.4	7	1.9		10.4	9.9	90.1	

	Hamner Avenue Southbound				Sixth Street Westbound				Hamner Avenue Northbound				Sixth 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 07:15 AM																	
07:15 AM	108	168	11	287	117	18	**76**	211	13	104	54	171	8	53	**15**	76	745
07:30 AM	**118**	179	5	302	130	12	71	213	22	**122**	**69**	**213**	8	46	10	64	**792**
07:45 AM	103	**223**	**17**	**343**	**131**	**26**	66	**223**	**23**	88	49	160	8	48	8	64	790
08:00 AM	95	150	12	257	108	24	69	201	11	79	68	158	**12**	**57**	11	**80**	696
Total Volume	424	720	45	1189	486	80	282	848	69	393	240	702	36	204	44	284	3023
% App. Total	35.7	60.6	3.8		57.3	9.4	33.3		9.8	56	34.2		12.7	71.8	15.5		
PHF	.898	.807	.662	.867	.927	.769	.928	.951	.750	.805	.870	.824	.750	.895	.733	.888	.954

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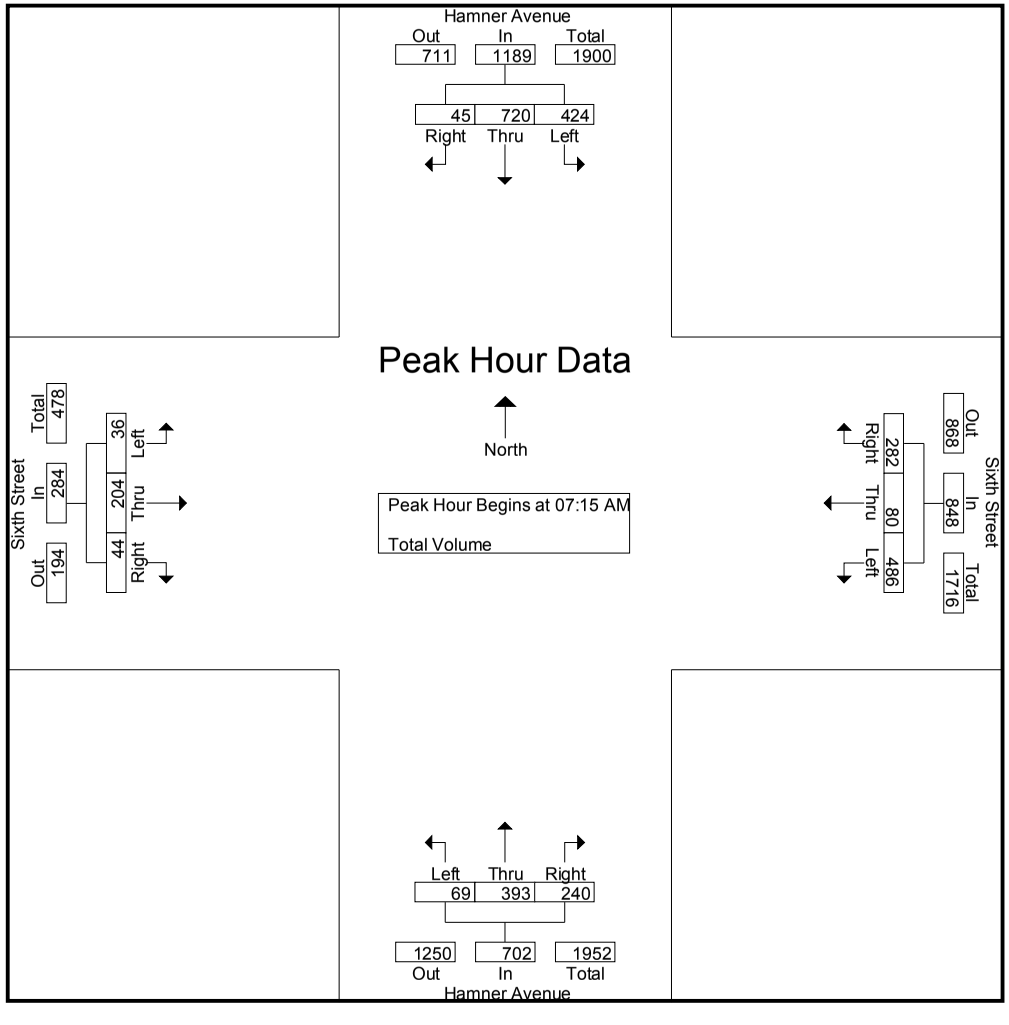
City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	Hamner Avenue Southbound				Sixth Street Westbound				Hamner Avenue Northbound				Sixth 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				08:00 AM				
+0 mins.	108	168	11	287	116	17	**76**	209	7	**150**	66	**223**	12	57	11	80	
+15 mins.	**118**	179	5	302	117	18	76	211	13	104	54	171	11	54	19	84	
+30 mins.	103	**223**	**17**	**343**	130	12	71	213	22	122	**69**	213	**14**	**59**	20	**93**	
+45 mins.	95	150	12	257	**131**	**26**	66	**223**	**23**	88	49	160	12	44	**21**	77	
Total Volume	424	720	45	1189	494	73	289	856	65	464	238	767	49	214	71	334	
% App. Total	35.7	60.6	3.8		57.7	8.5	33.8		8.5	60.5	31		14.7	64.1	21.3		
PHF	.898	.807	.662	.867	.943	.702	.951	.960	.707	.773	.862	.860	.875	.907	.845	.898	

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City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Sixth Street Westbound					Hamner Avenue Northbound					Sixth 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	74	127	9	0	210	86	21	82	43	189	22	147	114	38	283	12	50	6	1	68	82	750	832
04:15 PM	92	168	10	7	270	75	24	62	47	161	17	170	138	45	325	15	46	10	5	71	104	827	931
04:30 PM	55	121	3	0	179	71	13	77	58	161	15	167	142	48	324	11	40	11	1	62	107	726	833
04:45 PM	69	109	8	4	186	78	18	82	49	178	28	193	119	46	340	7	45	4	1	56	100	760	860
Total	290	525	30	11	845	310	76	303	197	689	82	677	513	177	1272	45	181	31	8	257	393	3063	3456
05:00 PM	75	124	13	6	212	88	28	79	48	195	28	166	128	57	322	14	38	8	4	60	115	789	904
05:15 PM	72	129	13	4	214	83	17	76	48	176	19	192	126	58	337	14	39	9	3	62	113	789	902
05:30 PM	40	56	3	2	99	70	28	68	34	166	19	148	107	39	274	12	35	6	5	53	80	592	672
05:45 PM	73	116	12	2	201	67	22	89	47	178	13	149	92	43	254	12	37	7	4	56	96	689	785
Total	260	425	41	14	726	308	95	312	177	715	79	655	453	197	1187	52	149	30	16	231	404	2859	3263
Grand Total	550	950	71	25	1571	618	171	615	374	1404	161	1332	966	374	2459	97	330	61	24	488	797	5922	6719
Apprch %	35	60.5	4.5			44	12.2	43.8			6.5	54.2	39.3			19.9	67.6	12.5					
Total %	9.3	16	1.2		26.5	10.4	2.9	10.4		23.7	2.7	22.5	16.3		41.5	1.6	5.6	1		8.2	11.9	88.1	

3.1-10

	Hamner Avenue Southbound				Sixth Street Westbound				Hamner Avenue Northbound				Sixth 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 04:15 PM																	
04:15 PM	**92**	**168**	10	**270**	75	24	62	161	17	170	138	325	**15**	**46**	10	**71**	**827**
04:30 PM	55	121	3	179	71	13	77	161	15	167	**142**	324	11	40	**11**	62	726
04:45 PM	69	109	8	186	78	18	**82**	178	**28**	**193**	119	**340**	7	45	4	56	760
05:00 PM	75	124	**13**	212	**88**	**28**	79	**195**	28	166	128	322	14	38	8	60	789
Total Volume	291	522	34	847	312	83	300	695	88	696	527	1311	47	169	33	249	3102
% App. Total	34.4	61.6	4		44.9	11.9	43.2		6.7	53.1	40.2		18.9	67.9	13.3		
PHF	.791	.777	.654	.784	.886	.741	.915	.891	.786	.902	.928	.964	.783	.918	.750	.877	.938

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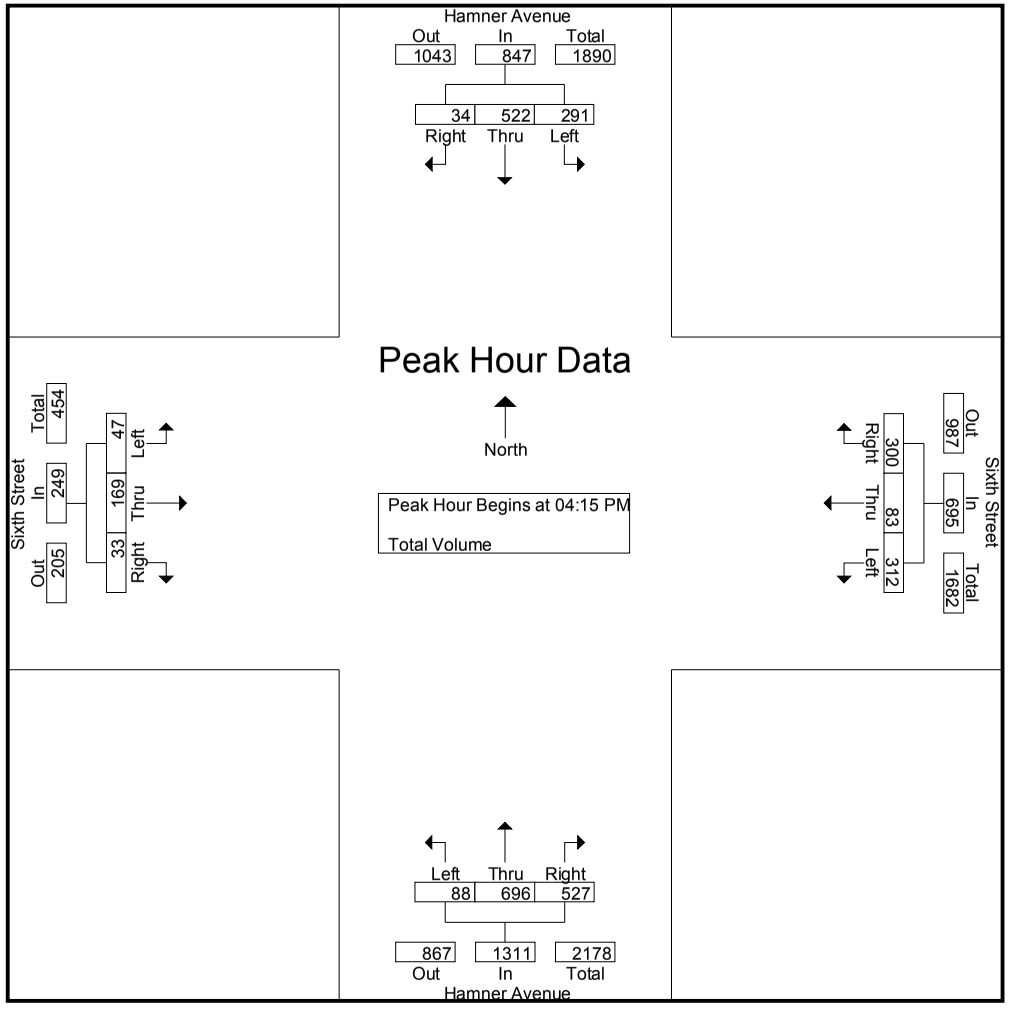
City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
E/W: Sixth Street
Weather: Clear

File Name : 02_NOR_Hamner_Sixth PM
Site Code : 05120029
Start Date : 1/23/2020

	Hamner Avenue Southbound				Sixth Street Westbound				Hamner Avenue Northbound				Sixth 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:																	
	04:15 PM				04:45 PM				04:30 PM				04:00 PM				
+0 mins.	**92**	**168**	10	**270**	78	18	**82**	178	15	167	**142**	324	12	**50**	6	68	
+15 mins.	55	121	3	179	**88**	**28**	79	**195**	**28**	**193**	119	**340**	**15**	46	10	**71**	
+30 mins.	69	109	8	186	83	17	76	176	28	166	128	322	11	40	**11**	62	
+45 mins.	75	124	**13**	212	70	28	68	166	19	192	126	337	7	45	4	56	
Total Volume	291	522	34	847	319	91	305	715	90	718	515	1323	45	181	31	257	
% App. Total	34.4	61.6	4		44.6	12.7	42.7		6.8	54.3	38.9		17.5	70.4	12.1		
PHF	.791	.777	.654	.784	.906	.813	.930	.917	.804	.930	.907	.973	.750	.905	.705	.905	

Location: Norco
N/S: Hamner Avenue
E/W: Sixth Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Hamner Avenue Pedestrians	East Leg Sixth Street Pedestrians	South Leg Hamner Avenue Pedestrians	West Leg Sixth Street Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	1	1
7:30 AM	0	0	0	1	1
7:45 AM	1	1	0	0	2
8:00 AM	1	0	0	1	2
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	1	0	3	7

	North Leg Hamner Avenue Pedestrians	East Leg Sixth Street Pedestrians	South Leg Hamner Avenue Pedestrians	West Leg Sixth Street Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	1	2
4:45 PM	0	1	0	1	2
5:00 PM	1	0	1	0	2
5:15 PM	2	0	0	2	4
5:30 PM	0	4	0	0	4
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	6	1	4	14

Location: Norco
N/S: Hamner Avenue
E/W: Sixth Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Hamner Avenue			Westbound Sixth Street			Northbound Hamner Avenue			Eastbound Sixth Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	0	0	0	0	0	0	0	0	1

	Southbound Hamner Avenue			Westbound Sixth Street			Northbound Hamner Avenue			Eastbound Sixth Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	3	0	0	0	0	0	0	0	0	0	0	3

Counts Unlimited
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City of Norco
N/S: Hamner Avenue
E/W: Fourth Street
Weather: Clear

File Name : 03_NOR_Hamner_Fourth AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Fourth Street Westbound					Hamner Avenue Northbound					Fourth 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	35	111	33	19	179	19	12	17	15	48	26	179	14	4	219	14	0	4	4	18	42	464	506
07:15 AM	35	175	34	6	244	32	17	24	17	73	29	222	10	3	261	13	0	2	2	15	28	593	621
07:30 AM	19	176	36	11	231	32	28	37	17	97	30	227	11	3	268	13	3	3	3	19	34	615	649
07:45 AM	3	202	47	12	252	38	46	39	29	123	25	146	16	8	187	15	3	3	3	21	52	583	635
Total	92	664	150	48	906	121	103	117	78	341	110	774	51	18	935	55	6	12	12	73	156	2255	2411
08:00 AM	4	177	50	15	231	15	38	13	9	66	28	136	1	1	165	13	6	1	1	20	26	482	508
08:15 AM	8	122	51	15	181	21	16	17	10	54	24	125	19	8	168	15	5	4	2	24	35	427	462
08:30 AM	3	146	35	10	184	25	14	7	5	46	24	121	14	3	159	21	6	3	3	30	21	419	440
08:45 AM	8	197	52	16	257	26	11	15	12	52	20	112	7	0	139	14	5	5	5	24	33	472	505
Total	23	642	188	56	853	87	79	52	36	218	96	494	41	12	631	63	22	13	11	98	115	1800	1915
Grand Total	115	1306	338	104	1759	208	182	169	114	559	206	1268	92	30	1566	118	28	25	23	171	271	4055	4326
Apprch %	6.5	74.2	19.2			37.2	32.6	30.2			13.2	81	5.9			69	16.4	14.6					
Total %	2.8	32.2	8.3		43.4	5.1	4.5	4.2		13.8	5.1	31.3	2.3		38.6	2.9	0.7	0.6		4.2	6.3	93.7	

3.1-15

	Hamner Avenue Southbound				Fourth Street Westbound				Hamner Avenue Northbound				Fourth 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 07:15 AM																	
07:15 AM	**35**	175	34	244	32	17	24	73	29	222	10	261	13	0	2	15	593
07:30 AM	19	176	36	231	32	28	37	97	**30**	**227**	11	**268**	13	3	**3**	19	**615**
07:45 AM	3	**202**	47	**252**	**38**	**46**	**39**	**123**	25	146	**16**	187	**15**	3	3	**21**	583
08:00 AM	4	177	**50**	231	15	38	13	66	28	136	1	165	13	**6**	1	20	482
Total Volume	61	730	167	958	117	129	113	359	112	731	38	881	54	12	9	75	2273
% App. Total	6.4	76.2	17.4		32.6	35.9	31.5		12.7	83	4.3		72	16	12		
PHF	.436	.903	.835	.950	.770	.701	.724	.730	.933	.805	.594	.822	.900	.500	.750	.893	.924

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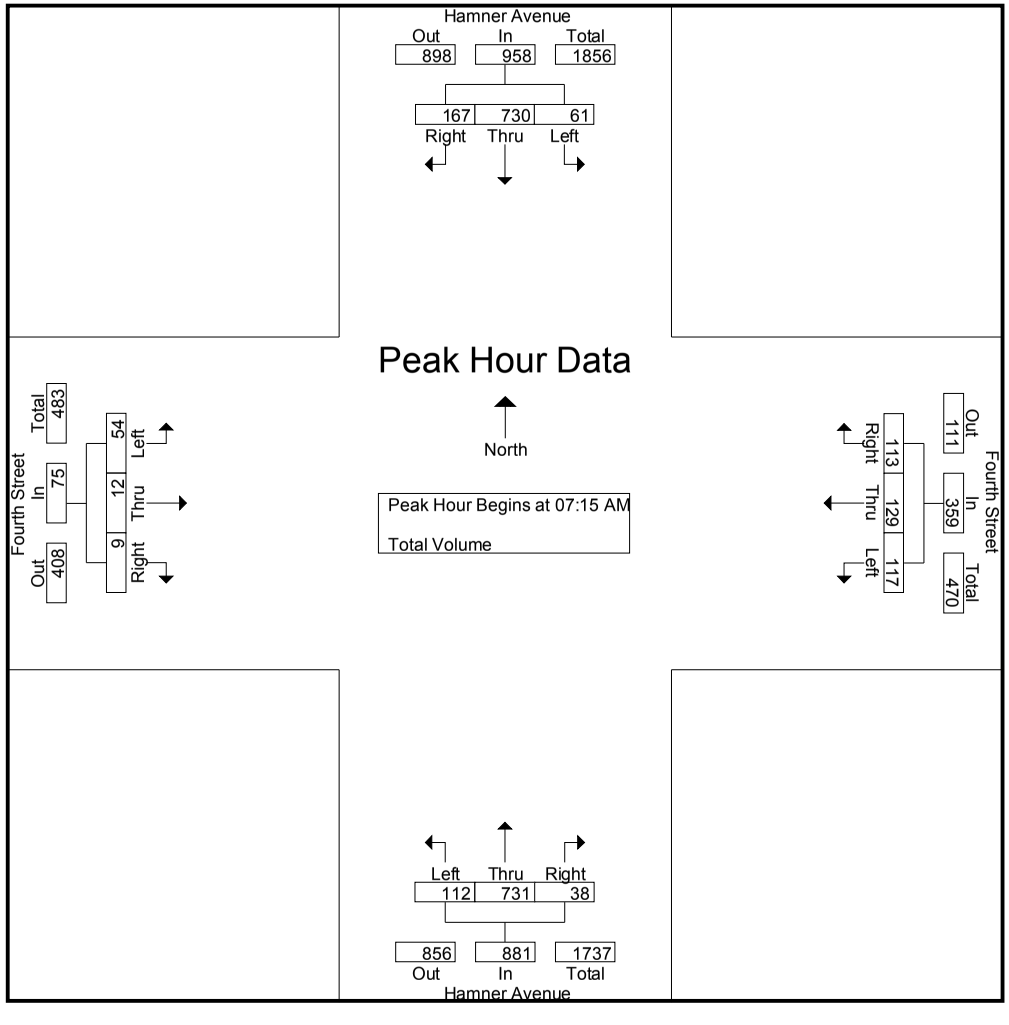
City of Norco
N/S: Hamner Avenue
E/W: Fourth Street
Weather: Clear

File Name : 03_NOR_Hamner_Fourth AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
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File Name : 03_NOR_Hamner_Fourth AM
Site Code : 05120029
Start Date : 1/23/2020
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	Hamner Avenue Southbound				Fourth Street Westbound				Hamner Avenue Northbound				Fourth 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				07:15 AM				07:00 AM				08:00 AM				
+0 mins.	**35**	175	34	244	32	17	24	73	26	179	14	219	13	**6**	1	20	
+15 mins.	19	176	36	231	32	28	37	97	29	222	10	261	15	5	4	24	
+30 mins.	3	**202**	47	**252**	**38**	**46**	**39**	**123**	**30**	**227**	11	**268**	**21**	6	3	**30**	
+45 mins.	4	177	**50**	231	15	38	13	66	25	146	**16**	187	14	5	**5**	24	
Total Volume	61	730	167	958	117	129	113	359	110	774	51	935	63	22	13	98	
% App. Total	6.4	76.2	17.4		32.6	35.9	31.5		11.8	82.8	5.5		64.3	22.4	13.3		
PHF	.436	.903	.835	.950	.770	.701	.724	.730	.917	.852	.797	.872	.750	.917	.650	.817	

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City of Norco
N/S: Hamner Avenue
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File Name : 03_NOR_Hamner_Fourth PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Fourth Street Westbound					Hamner Avenue Northbound					Fourth 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	16	222	23	7	261	24	6	15	10	45	6	218	24	12	248	58	43	27	16	128	45	682	727
04:15 PM	18	238	21	9	277	22	6	10	9	38	1	230	36	12	267	43	44	23	12	110	42	692	734
04:30 PM	12	177	19	6	208	24	3	13	6	40	2	217	34	12	253	97	50	19	9	166	33	667	700
04:45 PM	7	190	20	5	217	23	4	10	8	37	2	255	40	7	297	62	40	32	11	134	31	685	716
Total	53	827	83	27	963	93	19	48	33	160	11	920	134	43	1065	260	177	101	48	538	151	2726	2877
05:00 PM	15	205	20	5	240	20	4	12	9	36	3	216	32	16	251	64	32	22	11	118	41	645	686
05:15 PM	18	181	16	4	215	24	9	9	9	42	6	243	35	12	284	44	27	22	14	93	39	634	673
05:30 PM	5	236	16	10	257	26	4	14	13	44	3	198	35	16	236	56	42	23	8	121	47	658	705
05:45 PM	9	236	12	3	257	29	5	9	7	43	1	202	28	11	231	39	27	16	10	82	31	613	644
Total	47	858	64	22	969	99	22	44	38	165	13	859	130	55	1002	203	128	83	43	414	158	2550	2708
Grand Total	100	1685	147	49	1932	192	41	92	71	325	24	1779	264	98	2067	463	305	184	91	952	309	5276	5585
Apprch %	5.2	87.2	7.6			59.1	12.6	28.3			1.2	86.1	12.8			48.6	32	19.3					
Total %	1.9	31.9	2.8		36.6	3.6	0.8	1.7		6.2	0.5	33.7	5		39.2	8.8	5.8	3.5		18	5.5	94.5	

3.1-18

	Hamner Avenue Southbound				Fourth Street Westbound				Hamner Avenue Northbound				Fourth 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 04:00 PM																	
04:00 PM	16	222	**23**	261	**24**	**6**	**15**	**45**	**6**	218	24	248	58	43	27	128	682
04:15 PM	**18**	**238**	21	**277**	22	6	10	38	1	230	36	267	43	44	23	110	**692**
04:30 PM	12	177	19	208	24	3	13	40	2	217	34	253	**97**	**50**	19	**166**	667
04:45 PM	7	190	20	217	23	4	10	37	2	**255**	**40**	**297**	62	40	**32**	134	685
Total Volume	53	827	83	963	93	19	48	160	11	920	134	1065	260	177	101	538	2726
% App. Total	5.5	85.9	8.6		58.1	11.9	30		1	86.4	12.6		48.3	32.9	18.8		
PHF	.736	.869	.902	.869	.969	.792	.800	.889	.458	.902	.838	.896	.670	.885	.789	.810	.985

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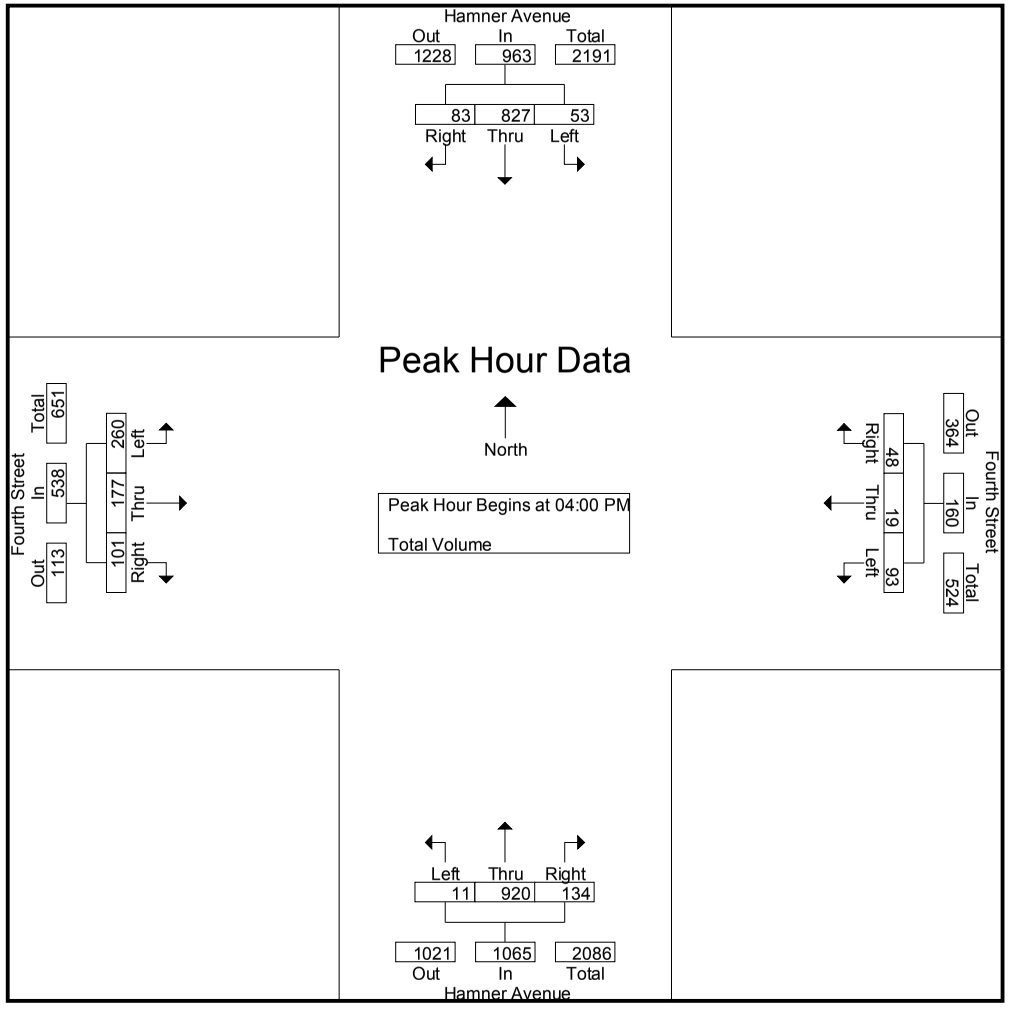
City of Norco
N/S: Hamner Avenue
E/W: Fourth Street
Weather: Clear

File Name : 03_NOR_Hamner_Fourth PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
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File Name : 03_NOR_Hamner_Fourth PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	Hamner Avenue Southbound				Fourth Street Westbound				Hamner Avenue Northbound				Fourth 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:																	
	05:00 PM				05:00 PM				04:30 PM				04:00 PM				
+0 mins.	15	205	**20**	240	20	4	12	36	2	217	34	253	58	43	27	128	
+15 mins.	**18**	181	16	215	24	**9**	9	42	2	**255**	**40**	**297**	43	44	23	110	
+30 mins.	5	**236**	16	**257**	26	4	**14**	**44**	3	216	32	251	**97**	**50**	19	**166**	
+45 mins.	9	236	12	257	**29**	5	9	43	**6**	243	35	284	62	40	**32**	134	
Total Volume	47	858	64	969	99	22	44	165	13	931	141	1085	260	177	101	538	
% App. Total	4.9	88.5	6.6		60	13.3	26.7		1.2	85.8	13		48.3	32.9	18.8		
PHF	.653	.909	.800	.943	.853	.611	.786	.938	.542	.913	.881	.913	.670	.885	.789	.810	

Location: Norco
N/S: Hamner Avenue
E/W: Fourth Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Hamner Avenue	East Leg Fourth Street	South Leg Hamner Avenue	West Leg Fourth Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
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	1	1	0	2	4
8:45 AM	2	1	1	0	4
TOTAL VOLUMES:	3	2	3	2	10

	North Leg Hamner Avenue	East Leg Fourth Street	South Leg Hamner Avenue	West Leg Fourth Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	0	0	0	0	0
4:30 PM	0	1	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	2	2
5:30 PM	0	1	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	3	5

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Location: Norco
N/S: Hamner Avenue
E/W: Fourth Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Hamner Avenue			Westbound Fourth Street			Northbound Hamner Avenue			Eastbound Fourth Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	2	0	0	0	0	2

	Southbound Hamner Avenue			Westbound Fourth Street			Northbound Hamner Avenue			Eastbound Fourth Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	1	0	0	1	0	0	0	0	0	1	0	4

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City of Norco
N/S: Hamner Avenue
E/W: Third Street
Weather: Clear

File Name : 04_NOR_Hamner_Third AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Third Street Westbound					Hamner Avenue Northbound					Third 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	5	94	35	12	134	13	27	6	0	46	69	231	18	2	318	15	6	27	16	48	30	546	576
07:15 AM	4	106	77	26	187	31	38	8	5	77	107	219	23	8	349	32	8	72	40	112	79	725	804
07:30 AM	5	141	100	27	246	30	50	10	5	90	148	217	9	0	374	47	4	78	44	129	76	839	915
07:45 AM	2	132	86	20	220	26	64	23	2	113	158	239	6	1	403	25	2	38	32	65	55	801	856
Total	16	473	298	85	787	100	179	47	12	326	482	906	56	11	1444	119	20	215	132	354	240	2911	3151
08:00 AM	3	189	64	21	256	4	23	7	3	34	121	224	4	0	349	20	4	20	12	44	36	683	719
08:15 AM	3	161	14	2	178	3	10	13	8	26	39	189	4	1	232	5	1	12	8	18	19	454	473
08:30 AM	11	168	21	7	200	13	9	9	6	31	39	210	2	1	251	9	1	22	13	32	27	514	541
08:45 AM	7	171	25	4	203	11	10	13	7	34	47	206	2	0	255	6	4	16	14	26	25	518	543
Total	24	689	124	34	837	31	52	42	24	125	246	829	12	2	1087	40	10	70	47	120	107	2169	2276
Grand Total	40	1162	422	119	1624	131	231	89	36	451	728	1735	68	13	2531	159	30	285	179	474	347	5080	5427
Apprch %	2.5	71.6	26			29	51.2	19.7			28.8	68.5	2.7			33.5	6.3	60.1					
Total %	0.8	22.9	8.3		32	2.6	4.5	1.8		8.9	14.3	34.2	1.3		49.8	3.1	0.6	5.6		9.3	6.4	93.6	

3.1-23

	Hamner Avenue Southbound				Third Street Westbound				Hamner Avenue Northbound				Third 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 07:15 AM																	
07:15 AM	4	106	77	187	**31**	38	8	77	107	219	**23**	349	32	**8**	72	112	725
07:30 AM	**5**	141	**100**	246	30	50	10	90	148	217	9	374	**47**	4	**78**	**129**	**839**
07:45 AM	2	132	86	220	26	**64**	**23**	**113**	**158**	**239**	6	**403**	25	2	38	65	801
08:00 AM	3	**189**	64	**256**	4	23	7	34	121	224	4	349	20	4	20	44	683
Total Volume	14	568	327	909	91	175	48	314	534	899	42	1475	124	18	208	350	3048
% App. Total	1.5	62.5	36		29	55.7	15.3		36.2	60.9	2.8		35.4	5.1	59.4		
PHF	.700	.751	.818	.888	.734	.684	.522	.695	.845	.940	.457	.915	.660	.563	.667	.678	.908

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City of Norco
N/S: Hamner Avenue
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Site Code : 05120029
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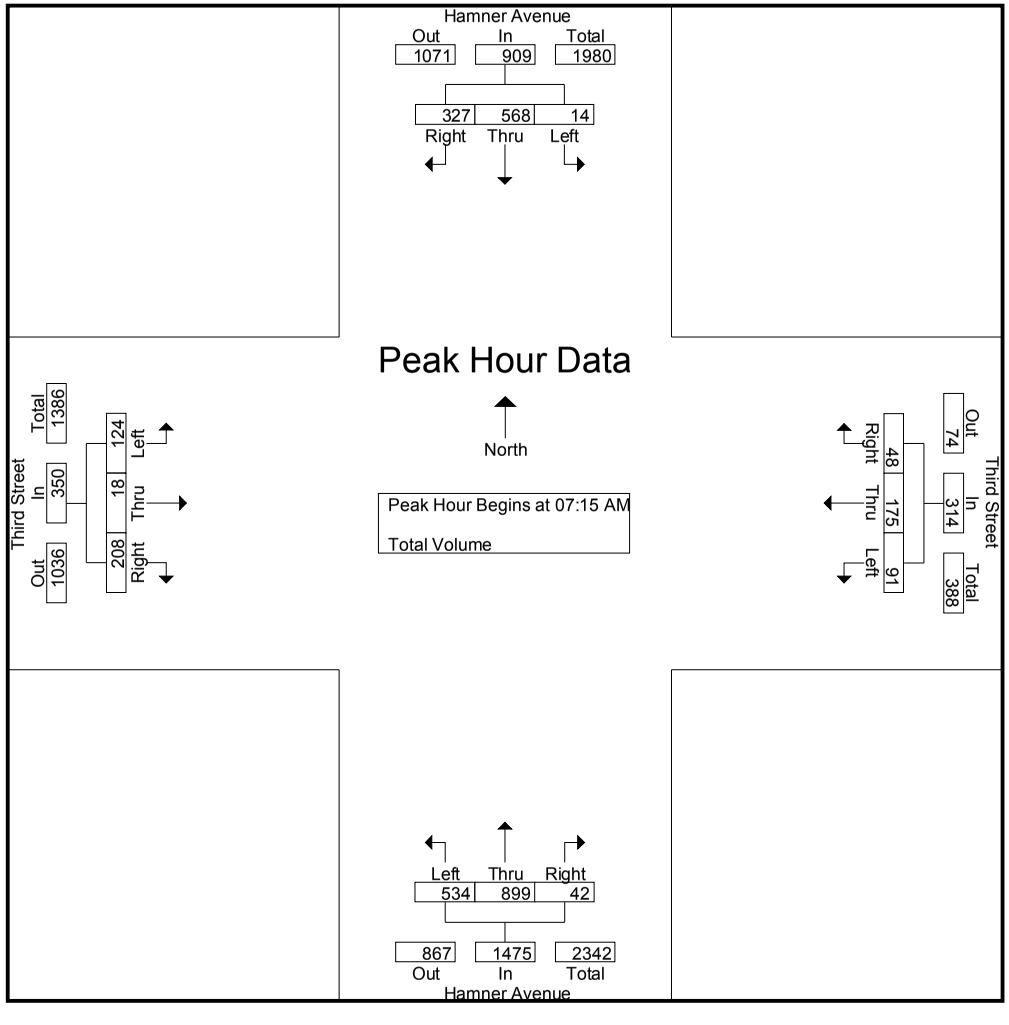
Page No : 2



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City of Norco
N/S: Hamner Avenue
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	Hamner Avenue Southbound				Third Street Westbound				Hamner Avenue Northbound				Third 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				07:15 AM				07:00 AM				
+0 mins.	4	106	77	187	13	27	6	46	107	219	**23**	349	15	6	27	48	
+15 mins.	**5**	141	**100**	246	**31**	38	8	77	148	217	9	374	32	**8**	72	112	
+30 mins.	2	132	86	220	30	50	10	90	**158**	**239**	6	**403**	**47**	4	**78**	**129**	
+45 mins.	3	**189**	64	**256**	26	**64**	**23**	**113**	121	224	4	349	25	2	38	65	
Total Volume	14	568	327	909	100	179	47	326	534	899	42	1475	119	20	215	354	
% App. Total	1.5	62.5	36		30.7	54.9	14.4		36.2	60.9	2.8		33.6	5.6	60.7		
PHF	.700	.751	.818	.888	.806	.699	.511	.721	.845	.940	.457	.915	.633	.625	.689	.686	

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Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Third Street Westbound					Hamner Avenue Northbound					Third 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	21	241	6	2	268	10	1	12	9	23	24	239	15	9	278	32	11	66	38	109	58	678	736
04:15 PM	19	295	5	1	319	9	2	7	3	18	16	265	18	3	299	17	6	23	15	46	22	682	704
04:30 PM	19	320	19	7	358	5	1	9	6	15	26	256	14	7	296	19	6	41	34	66	54	735	789
04:45 PM	14	279	10	3	303	4	2	10	7	16	28	277	11	3	316	16	6	37	18	59	31	694	725
Total	73	1135	40	13	1248	28	6	38	25	72	94	1037	58	22	1189	84	29	167	105	280	165	2789	2954
05:00 PM	9	247	9	1	265	15	5	10	7	30	21	270	18	3	309	24	6	45	26	75	37	679	716
05:15 PM	9	246	15	4	270	3	4	9	6	16	39	258	14	4	311	16	7	23	16	46	30	643	673
05:30 PM	14	245	14	3	273	4	7	9	3	20	47	207	6	0	260	11	2	32	25	45	31	598	629
05:45 PM	10	218	25	7	253	11	13	16	5	40	50	224	5	1	279	10	4	37	22	51	35	623	658
Total	42	956	63	15	1061	33	29	44	21	106	157	959	43	8	1159	61	19	137	89	217	133	2543	2676
Grand Total	115	2091	103	28	2309	61	35	82	46	178	251	1996	101	30	2348	145	48	304	194	497	298	5332	5630
Apprch %	5	90.6	4.5			34.3	19.7	46.1			10.7	85	4.3			29.2	9.7	61.2					
Total %	2.2	39.2	1.9		43.3	1.1	0.7	1.5		3.3	4.7	37.4	1.9		44	2.7	0.9	5.7		9.3	5.3	94.7	

3.1-26

	Hamner Avenue Southbound				Third Street Westbound				Hamner Avenue Northbound				Third 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 04:15 PM																	
04:15 PM	**19**	295	5	319	9	2	7	18	16	265	**18**	299	17	**6**	23	46	682
04:30 PM	19	**320**	**19**	**358**	5	1	9	15	26	256	14	296	19	6	41	66	**735**
04:45 PM	14	279	10	303	4	2	**10**	16	**28**	**277**	11	**316**	16	6	37	59	694
05:00 PM	9	247	9	265	**15**	**5**	10	**30**	21	270	18	309	**24**	6	**45**	**75**	679
Total Volume	61	1141	43	1245	33	10	36	79	91	1068	61	1220	76	24	146	246	2790
% App. Total	4.9	91.6	3.5		41.8	12.7	45.6		7.5	87.5	5		30.9	9.8	59.3		
PHF	.803	.891	.566	.869	.550	.500	.900	.658	.813	.964	.847	.965	.792	1.00	.811	.820	.949

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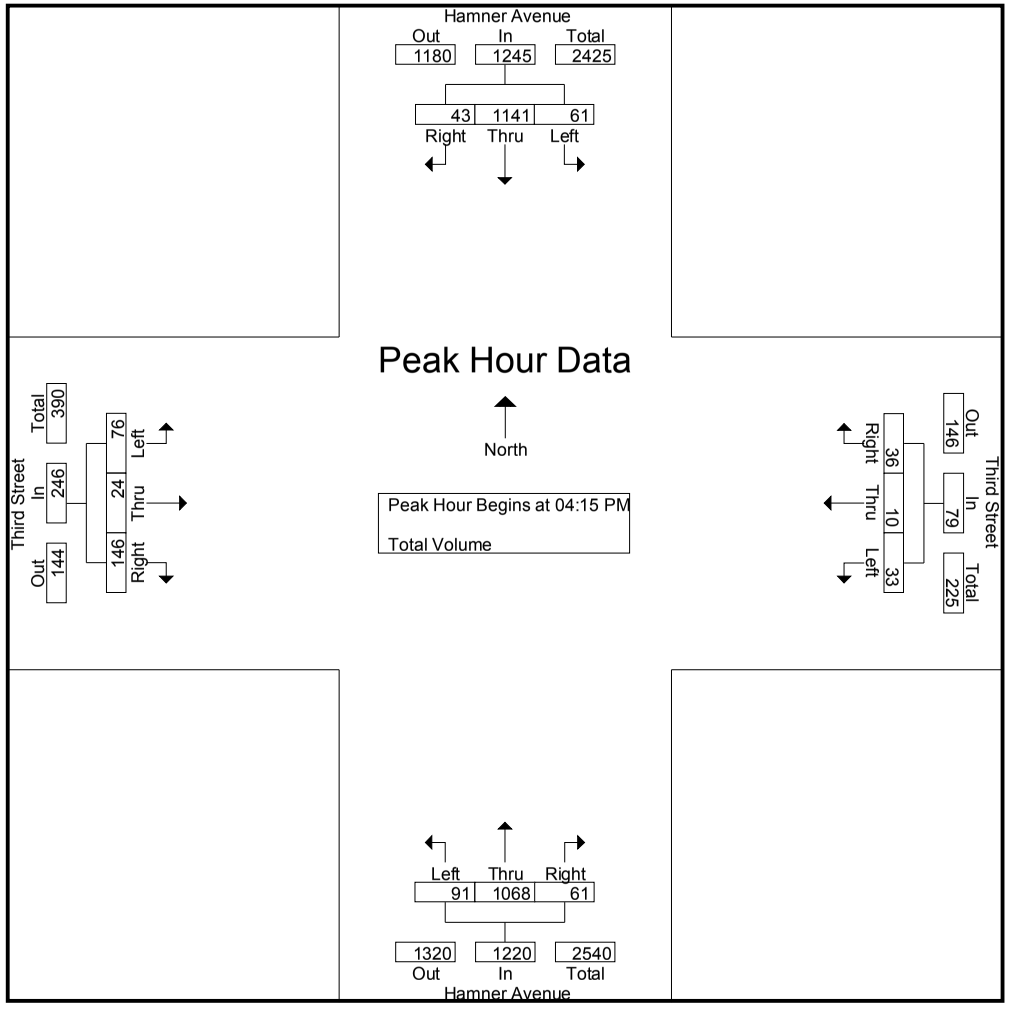
City of Norco
N/S: Hamner Avenue
E/W: Third Street
Weather: Clear

File Name : 04_NOR_Hamner_Third PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
E/W: Third Street
Weather: Clear

File Name : 04_NOR_Hamner_Third PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	Hamner Avenue Southbound				Third Street Westbound				Hamner Avenue Northbound				Third 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:																	
	04:00 PM				05:00 PM				04:30 PM				04:00 PM				
+0 mins.	**21**	241	6	268	**15**	5	10	30	26	256	14	296	**32**	**11**	**66**	**109**	
+15 mins.	19	295	5	319	3	4	9	16	28	**277**	11	**316**	17	6	23	46	
+30 mins.	19	**320**	**19**	**358**	4	7	9	20	21	270	**18**	309	19	6	41	66	
+45 mins.	14	279	10	303	11	**13**	**16**	**40**	**39**	258	14	311	16	6	37	59	
Total Volume	73	1135	40	1248	33	29	44	106	114	1061	57	1232	84	29	167	280	
% App. Total	5.8	90.9	3.2		31.1	27.4	41.5		9.3	86.1	4.6		30	10.4	59.6		
PHF	.869	.887	.526	.872	.550	.558	.688	.663	.731	.958	.792	.975	.656	.659	.633	.642	

Location: Norco
N/S: Hamner Avenue
E/W: Third Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Hamner Avenue	East Leg Third Street	South Leg Hamner Avenue	West Leg Third Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	2	0	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	1	1
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	3	1	1	5
TOTAL VOLUMES:	3	3	1	2	9

	North Leg Hamner Avenue	East Leg Third Street	South Leg Hamner Avenue	West Leg Third Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	0	1	2
4:15 PM	3	0	0	1	4
4:30 PM	1	1	0	0	2
4:45 PM	1	0	0	0	1
5:00 PM	1	1	0	3	5
5:15 PM	0	0	0	1	1
5:30 PM	0	1	2	0	3
5:45 PM	0	0	2	0	2
TOTAL VOLUMES:	7	3	4	6	20

Location: Norco
N/S: Hamner Avenue
E/W: Third Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Hamner Avenue			Westbound Third Street			Northbound Hamner Avenue			Eastbound Third Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
TOTAL VOLUMES:	0	0	1	0	0	0	0	3	0	0	0	0	4

	Southbound Hamner Avenue			Westbound Third Street			Northbound Hamner Avenue			Eastbound Third Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	1	0	0	0	2

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City of Norco
N/S: Hamner Avenue
E/W: Driveway
Weather: Clear

File Name : 05_NOR_Hamner_DW AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound			Driveway Westbound			Hamner Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	112	112	0	0	0	332	0	332	444
07:15 AM	0	188	188	0	0	0	363	0	363	551
07:30 AM	0	247	247	0	0	0	379	1	380	627
07:45 AM	0	192	192	0	0	0	420	1	421	613
Total	0	739	739	0	0	0	1494	2	1496	2235
08:00 AM	0	194	194	1	0	1	329	1	330	525
08:15 AM	0	166	166	0	0	0	246	0	246	412
08:30 AM	0	178	178	0	0	0	233	0	233	411
08:45 AM	0	201	201	0	0	0	256	0	256	457
Total	0	739	739	1	0	1	1064	1	1065	1805
Grand Total	0	1478	1478	1	0	1	2558	3	2561	4040
Apprch %	0	100		100	0		99.9	0.1		
Total %	0	36.6	36.6	0	0	0	63.3	0.1	63.4	

	Hamner Avenue Southbound			Driveway Westbound			Hamner Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 07:15 AM										
07:15 AM	0	188	188	0	0	0	363	0	363	551
07:30 AM	0	**247**	**247**	0	0	0	379	**1**	380	**627**
07:45 AM	0	192	192	0	0	0	**420**	1	**421**	613
08:00 AM	0	194	194	**1**	0	**1**	329	1	330	525
Total Volume	0	821	821	1	0	1	1491	3	1494	2316
% App. Total	0	100		100	0		99.8	0.2		
PHF	.000	.831	.831	.250	.000	.250	.888	.750	.887	.923

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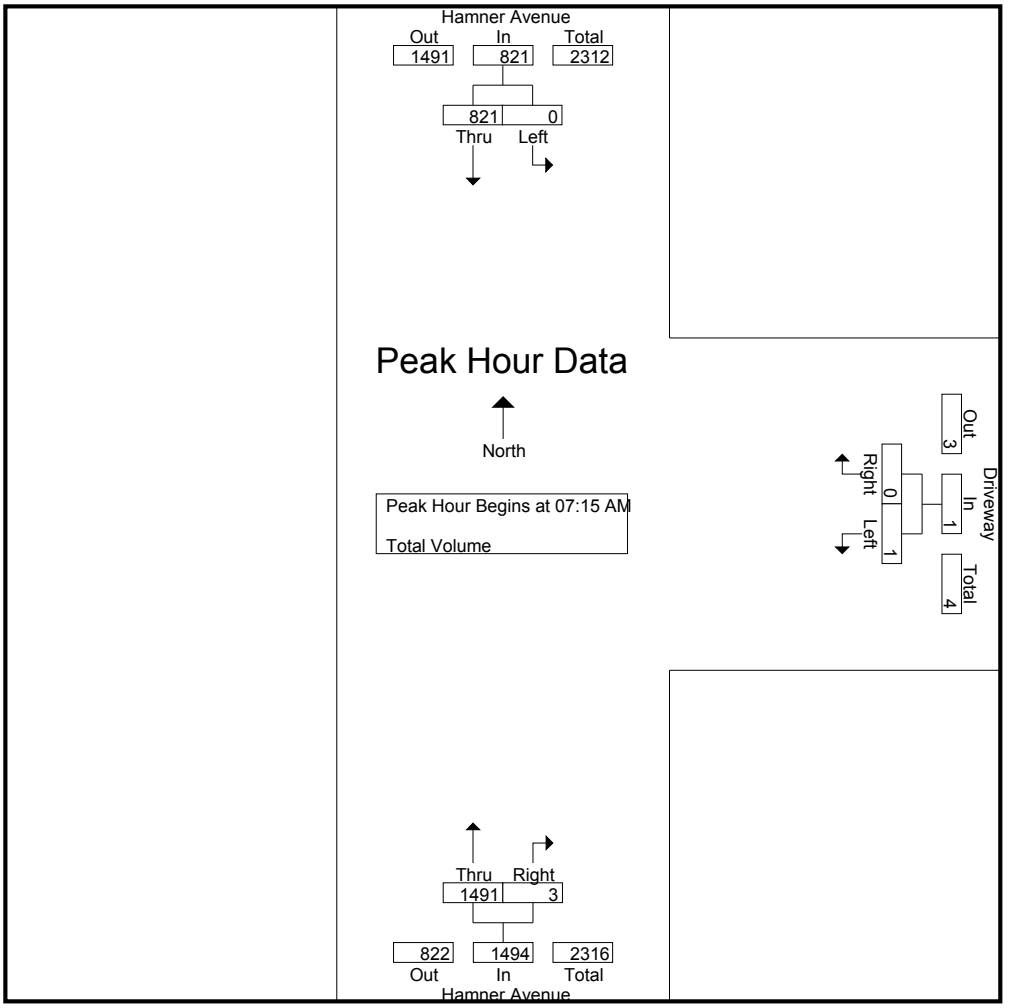
City of Norco
N/S: Hamner Avenue
E/W: Driveway
Weather: Clear

File Name : 05_NOR_Hamner_DW AM
Site Code : 05120029
Start Date : 1/23/2020
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:

	07:15 AM			07:15 AM			07:00 AM		
+0 mins.	0	188	188	0	0	0	332	0	332
+15 mins.	0	**247**	**247**	0	0	0	363	0	363
+30 mins.	0	192	192	0	0	0	379	**1**	380
+45 mins.	0	194	194	**1**	0	**1**	**420**	1	**421**
Total Volume	0	821	821	1	0	1	1494	2	1496
% App. Total	0	100		100	0		99.9	0.1	
PHF	.000	.831	.831	.250	.000	.250	.889	.500	.888

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City of Norco
N/S: Hamner Avenue
E/W: Driveway
Weather: Clear

File Name : 05_NOR_Hamner_DW PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound			Driveway Westbound			Hamner Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	1	316	317	0	1	1	289	3	292	610
04:15 PM	0	338	338	3	0	3	281	2	283	624
04:30 PM	0	347	347	0	0	0	287	0	287	634
04:45 PM	0	326	326	0	0	0	312	0	312	638
Total	1	1327	1328	3	1	4	1169	5	1174	2506
05:00 PM	0	313	313	0	0	0	295	0	295	608
05:15 PM	1	297	298	2	1	3	294	0	294	595
05:30 PM	1	299	300	0	0	0	285	0	285	585
05:45 PM	0	287	287	0	0	0	301	0	301	588
Total	2	1196	1198	2	1	3	1175	0	1175	2376
Grand Total	3	2523	2526	5	2	7	2344	5	2349	4882
Apprch %	0.1	99.9		71.4	28.6		99.8	0.2		
Total %	0.1	51.7	51.7	0.1	0	0.1	48	0.1	48.1	

	Hamner Avenue Southbound			Driveway Westbound			Hamner Avenue Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 04:00 PM										
04:00 PM	**1**	316	317	0	**1**	1	289	**3**	292	610
04:15 PM	0	338	338	**3**	0	**3**	281	2	283	624
04:30 PM	0	**347**	**347**	0	0	0	287	0	287	634
04:45 PM	0	326	326	0	0	0	**312**	0	**312**	**638**
Total Volume	1	1327	1328	3	1	4	1169	5	1174	2506
% App. Total	0.1	99.9		75	25		99.6	0.4		
PHF	.250	.956	.957	.250	.250	.333	.937	.417	.941	.982

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City of Norco
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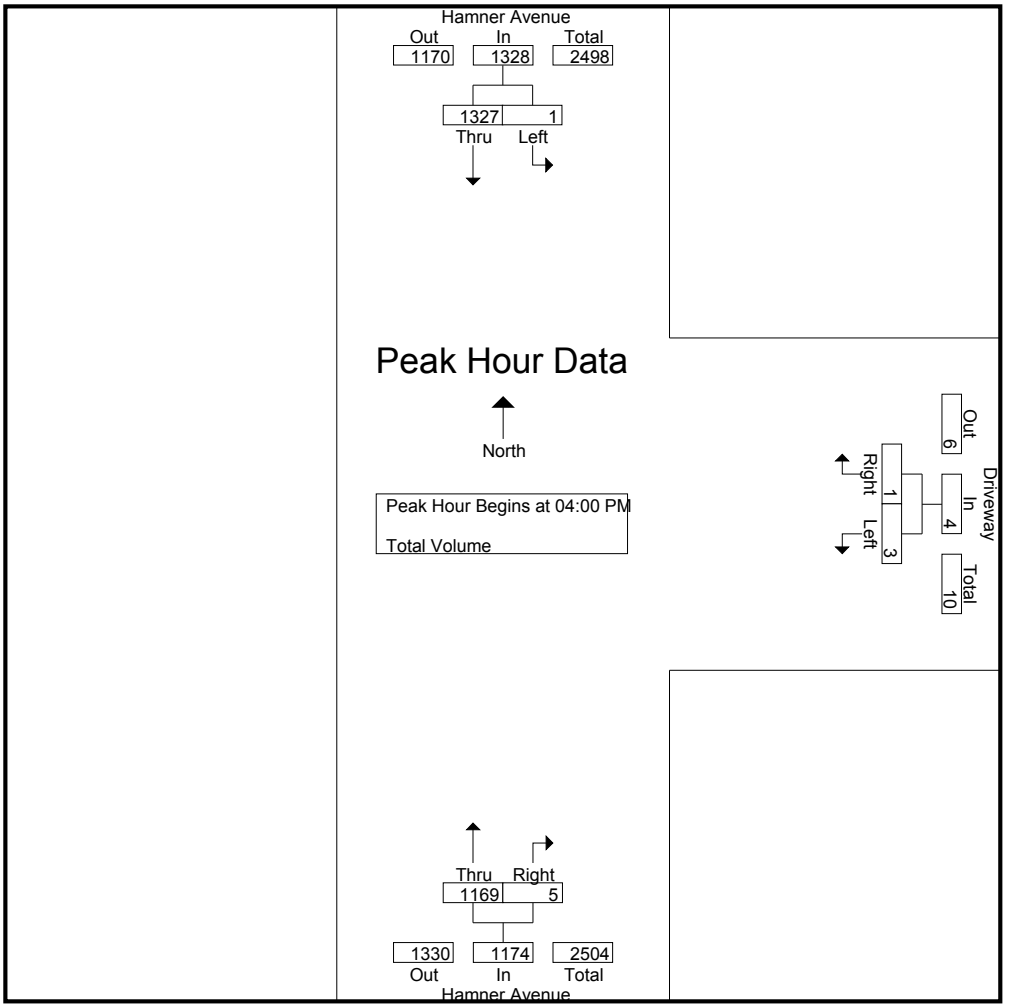
E/W: Driveway
Weather: Clear

File Name : 05_NOR_Hamner_DW PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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			04:00 PM			04:30 PM		
+0 mins.	**1**	316	317	0	**1**	1	287	0	287
+15 mins.	0	338	338	**3**	0	**3**	**312**	0	**312**
+30 mins.	0	**347**	**347**	0	0	0	295	0	295
+45 mins.	0	326	326	0	0	0	294	0	294
Total Volume	1	1327	1328	3	1	4	1188	0	1188
% App. Total	0.1	99.9		75	25		100	0	
PHF	.250	.956	.957	.250	.250	.333	.952	.000	.952

Location: Norco
N/S: Hamner Avenue
E/W: Driveway

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Hamner Avenue	East Leg Dead End	South Leg Hamner Avenue	West Leg Driveway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
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	4	4
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	4	5

	North Leg Hamner Avenue	East Leg Dead End	South Leg Hamner Avenue	West Leg Driveway	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
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: Norco
N/S: Hamner Avenue
E/W: Driveway

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Hamner Avenue			Westbound Dead End			Northbound Hamner Avenue			Eastbound Driveway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	3	0	0	0	0	0	2	0	0	0	0	5

	Southbound Hamner Avenue			Westbound Dead End			Northbound Hamner Avenue			Eastbound Driveway			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	2	0	0	0	0	2

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City of Norco
N/S: Hamner Avenue
E/W: Second Street
Weather: Clear

File Name : 06_NOR_Hamner_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Total Volume

	Hamner Avenue Southbound					Second Street Westbound					Hamner Avenue Northbound					Second 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	37	74	20	10	131	71	86	139	74	296	4	123	49	36	176	47	118	4	1	169	121	772	893
07:15 AM	51	112	34	12	197	79	89	142	79	310	8	153	61	28	222	48	107	5	3	160	122	889	1011
07:30 AM	60	121	40	14	221	76	84	141	70	301	4	160	22	12	186	37	105	11	7	153	103	861	964
07:45 AM	43	137	34	14	214	84	94	168	88	346	8	212	32	21	252	69	67	9	7	145	130	957	1087
Total	191	444	128	50	763	310	353	590	311	1253	24	648	164	97	836	201	397	29	18	627	476	3479	3955
08:00 AM	43	122	23	15	188	52	60	147	82	259	5	124	25	19	154	29	84	14	14	127	130	728	858
08:15 AM	52	114	24	11	190	39	59	112	73	210	4	102	24	16	130	27	76	9	5	112	105	642	747
08:30 AM	42	137	18	5	197	62	71	123	78	256	12	107	27	17	146	22	76	7	5	105	105	704	809
08:45 AM	61	126	30	7	217	70	55	124	76	249	6	120	33	15	159	26	60	13	10	99	108	724	832
Total	198	499	95	38	792	223	245	506	309	974	27	453	109	67	589	104	296	43	34	443	448	2798	3246
Grand Total	389	943	223	88	1555	533	598	1096	620	2227	51	1101	273	164	1425	305	693	72	52	1070	924	6277	7201
Apprch %	25	60.6	14.3			23.9	26.9	49.2			3.6	77.3	19.2			28.5	64.8	6.7					
Total %	6.2	15	3.6		24.8	8.5	9.5	17.5		35.5	0.8	17.5	4.3		22.7	4.9	11	1.1		17	12.8	87.2	

	Hamner Avenue Southbound				Second Street Westbound				Hamner Avenue Northbound				Second 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	37	74	20	131	71	86	139	296	4	123	49	176	47	**118**	4	**169**	772
07:15 AM	51	112	34	197	79	89	142	310	**8**	153	**61**	222	48	107	5	160	889
07:30 AM	**60**	121	**40**	**221**	76	84	141	301	4	160	22	186	37	105	**11**	153	861
07:45 AM	43	**137**	34	214	**84**	**94**	**168**	**346**	8	**212**	32	**252**	**69**	67	9	145	**957**
Total Volume	191	444	128	763	310	353	590	1253	24	648	164	836	201	397	29	627	3479
% App. Total	25	58.2	16.8		24.7	28.2	47.1		2.9	77.5	19.6		32.1	63.3	4.6		
PHF	.796	.810	.800	.863	.923	.939	.878	.905	.750	.764	.672	.829	.728	.841	.659	.928	.909

Counts Unlimited
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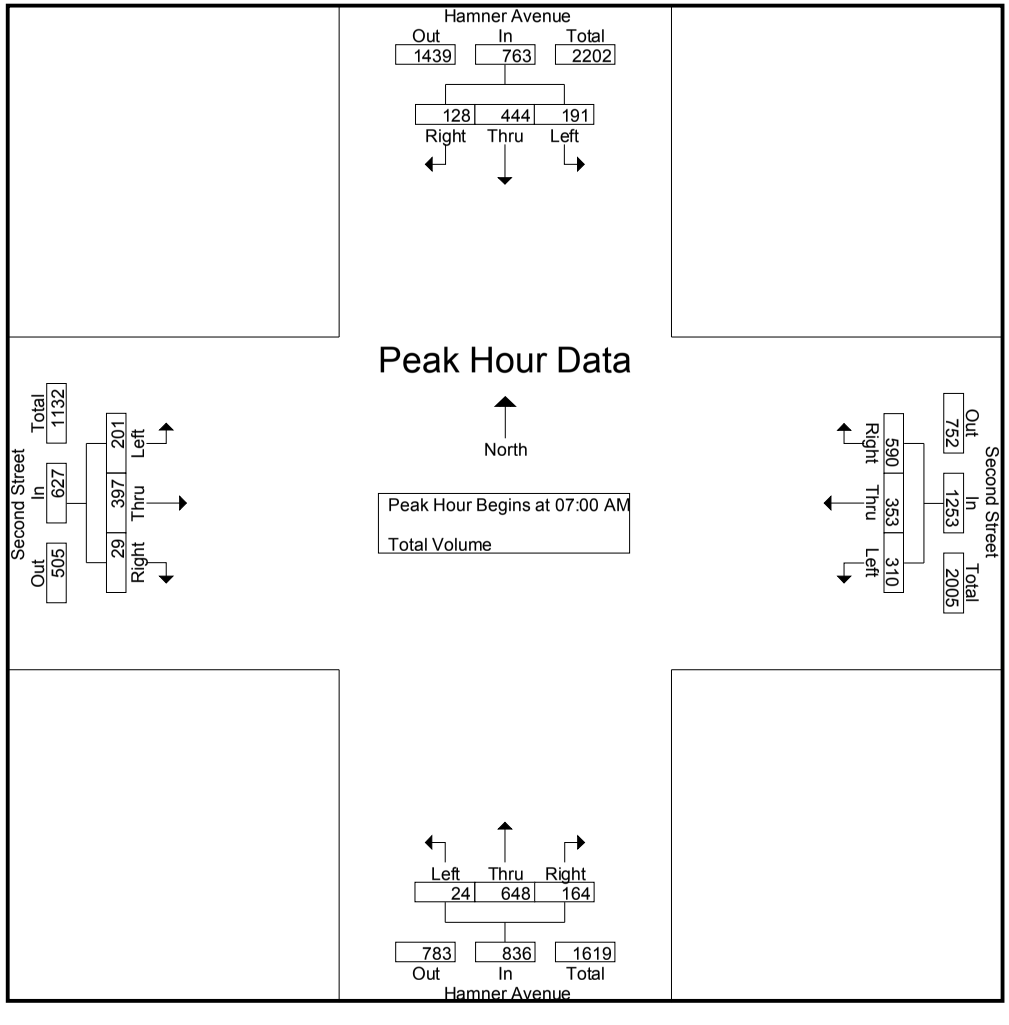
City of Norco
N/S: Hamner Avenue
E/W: Second Street
Weather: Clear

File Name : 06_NOR_Hamner_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
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	Hamner Avenue Southbound				Second Street Westbound				Hamner Avenue Northbound				Second 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.	51	112	34	197	71	86	139	296	4	123	49	176	47	**118**	4	**169**	
+15 mins.	**60**	121	**40**	**221**	79	89	142	310	**8**	153	**61**	222	48	107	5	160	
+30 mins.	43	**137**	34	214	76	84	141	301	4	160	22	186	37	105	**11**	153	
+45 mins.	43	122	23	188	**84**	**94**	**168**	**346**	8	**212**	32	**252**	**69**	67	9	145	
Total Volume	197	492	131	820	310	353	590	1253	24	648	164	836	201	397	29	627	
% App. Total	24	60	16		24.7	28.2	47.1		2.9	77.5	19.6		32.1	63.3	4.6		
PHF	.821	.898	.819	.928	.923	.939	.878	.905	.750	.764	.672	.829	.728	.841	.659	.928	

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City of Norco
N/S: Hamner Avenue
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File Name : 06_NOR_Hamner_Second PM
Site Code : 05120029
Start Date : 1/23/2020
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Groups Printed- Total Volume

	Hamner Avenue Southbound					Second Street Westbound					Hamner Avenue Northbound					Second 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	119	178	44	18	341	67	66	72	50	205	24	159	101	37	284	44	96	17	13	157	118	987	1105
04:15 PM	101	183	24	7	308	56	65	83	41	204	18	172	86	45	276	29	109	13	9	151	102	939	1041
04:30 PM	110	197	34	19	341	31	49	77	55	157	16	186	113	37	315	32	121	17	10	170	121	983	1104
04:45 PM	117	202	42	16	361	52	57	81	59	190	21	162	109	39	292	41	88	19	13	148	127	991	1118
Total	447	760	144	60	1351	206	237	313	205	756	79	679	409	158	1167	146	414	66	45	626	468	3900	4368
05:00 PM	89	166	23	15	278	59	66	83	60	208	18	161	104	42	283	48	107	10	7	165	124	934	1058
05:15 PM	115	188	36	13	339	42	59	61	44	162	13	190	95	26	298	38	99	10	9	147	92	946	1038
05:30 PM	109	174	38	12	321	60	66	65	38	191	19	165	70	27	254	38	87	12	9	137	86	903	989
05:45 PM	87	157	24	11	268	49	59	58	38	166	10	170	96	42	276	49	95	6	6	150	97	860	957
Total	400	685	121	51	1206	210	250	267	180	727	60	686	365	137	1111	173	388	38	31	599	399	3643	4042
Grand Total	847	1445	265	111	2557	416	487	580	385	1483	139	1365	774	295	2278	319	802	104	76	1225	867	7543	8410
Apprch %	33.1	56.5	10.4			28.1	32.8	39.1			6.1	59.9	34			26	65.5	8.5					
Total %	11.2	19.2	3.5		33.9	5.5	6.5	7.7		19.7	1.8	18.1	10.3		30.2	4.2	10.6	1.4		16.2	10.3	89.7	

	Hamner Avenue Southbound				Second Street Westbound				Hamner Avenue Northbound				Second 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 04:00 PM																	
04:00 PM	**119**	178	**44**	341	**67**	**66**	72	**205**	**24**	159	101	284	**44**	96	17	157	987
04:15 PM	101	183	24	308	56	65	**83**	204	18	172	86	276	29	109	13	151	939
04:30 PM	110	197	34	341	31	49	77	157	16	**186**	**113**	**315**	32	**121**	17	**170**	983
04:45 PM	117	**202**	42	**361**	52	57	81	190	21	162	109	292	41	88	**19**	148	**991**
Total Volume	447	760	144	1351	206	237	313	756	79	679	409	1167	146	414	66	626	3900
% App. Total	33.1	56.3	10.7		27.2	31.3	41.4		6.8	58.2	35		23.3	66.1	10.5		
PHF	.939	.941	.818	.936	.769	.898	.943	.922	.823	.913	.905	.926	.830	.855	.868	.921	.984

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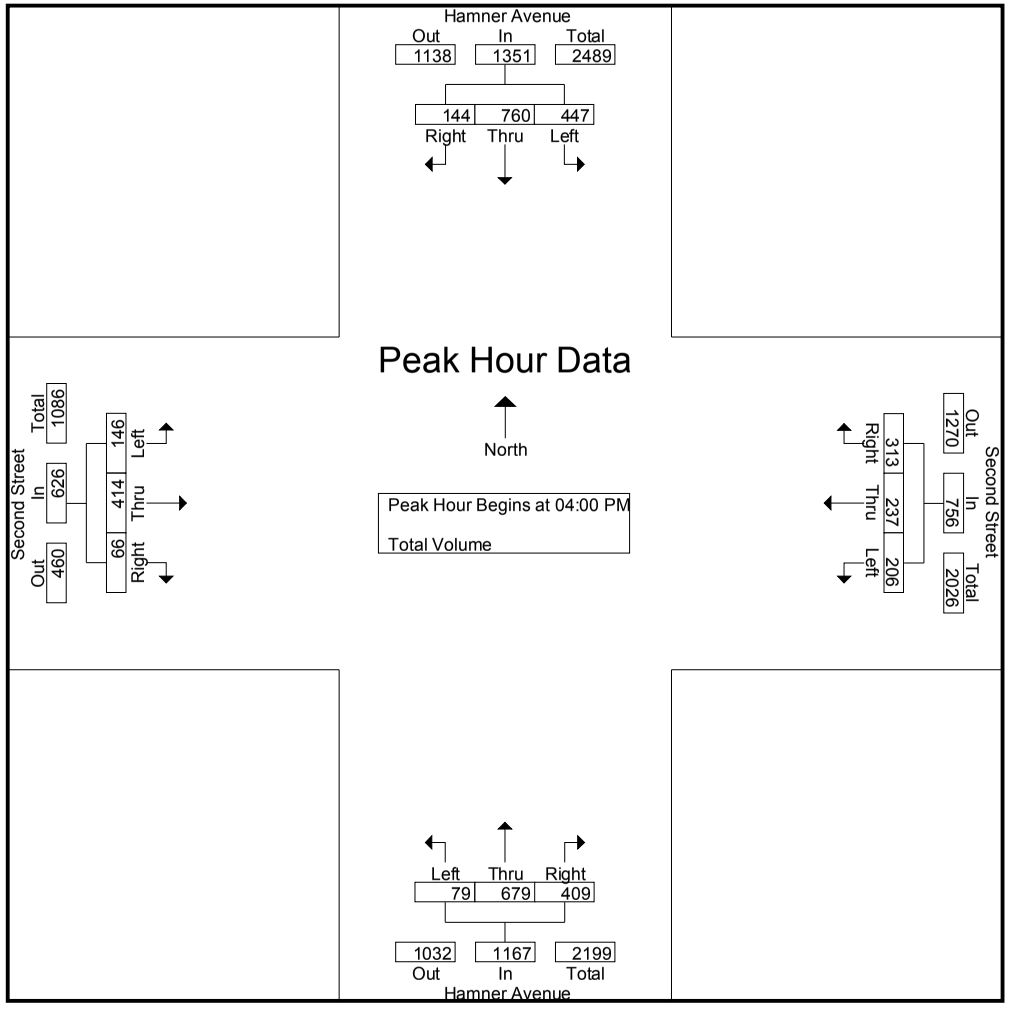
City of Norco
N/S: Hamner Avenue
E/W: Second Street
Weather: Clear

File Name : 06_NOR_Hamner_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: Hamner Avenue
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	Hamner Avenue Southbound				Second Street Westbound				Hamner Avenue Northbound				Second 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:																	
	04:00 PM				04:15 PM				04:30 PM				04:15 PM				
+0 mins.	**119**	178	**44**	341	56	65	**83**	204	16	186	**113**	**315**	29	109	13	151	
+15 mins.	101	183	24	308	31	49	77	157	**21**	162	109	292	32	**121**	17	**170**	
+30 mins.	110	197	34	341	52	57	81	190	18	161	104	283	41	88	**19**	148	
+45 mins.	117	**202**	42	**361**	**59**	**66**	83	**208**	13	**190**	95	298	**48**	107	10	165	
Total Volume	447	760	144	1351	198	237	324	759	68	699	421	1188	150	425	59	634	
% App. Total	33.1	56.3	10.7		26.1	31.2	42.7		5.7	58.8	35.4		23.7	67	9.3		
PHF	.939	.941	.818	.936	.839	.898	.976	.912	.810	.920	.931	.943	.781	.878	.776	.932	

Location: Norco
N/S: Hamner Avenue
E/W: Second Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg Hamner Avenue	East Leg Second Street	South Leg Hamner Avenue	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	1	0	2
7:15 AM	0	0	0	0	0
7:30 AM	1	1	0	1	3
7:45 AM	0	1	1	0	2
8:00 AM	1	2	1	0	4
8:15 AM	0	0	1	0	1
8:30 AM	0	0	2	0	2
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	5	6	1	14

	North Leg Hamner Avenue	East Leg Second Street	South Leg Hamner Avenue	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	4	1	5
4:15 PM	0	0	0	1	1
4:30 PM	0	0	1	0	1
4:45 PM	0	2	3	0	5
5:00 PM	0	2	2	0	4
5:15 PM	0	1	1	2	4
5:30 PM	0	0	2	1	3
5:45 PM	0	0	2	0	2
TOTAL VOLUMES:	0	5	15	5	25

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Location: Norco
N/S: Hamner Avenue
E/W: Second Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound Hamner Avenue			Westbound Second Street			Northbound Hamner Avenue			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES:	0	0	1	0	0	0	0	0	0	1	0	0	2

	Southbound Hamner Avenue			Westbound Second Street			Northbound Hamner Avenue			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	0	0	2

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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	25	0	74	25	99	56	240	0	0	296	0	0	0	0	0	0	124	85	14	209	39	604	643
07:15 AM	24	0	77	17	101	67	247	0	0	314	0	0	0	0	0	0	137	85	31	222	48	637	685
07:30 AM	8	1	87	14	96	60	242	0	0	302	0	0	0	0	0	0	79	114	16	193	30	591	621
07:45 AM	9	1	74	10	84	66	296	0	0	362	0	0	0	0	0	0	62	95	25	157	35	603	638
Total	66	2	312	66	380	249	1025	0	0	1274	0	0	0	0	0	0	402	379	86	781	152	2435	2587
08:00 AM	12	1	71	33	84	41	194	0	0	235	0	0	0	0	0	0	53	98	11	151	44	470	514
08:15 AM	11	0	55	21	66	27	178	0	0	205	0	0	0	0	0	0	67	81	11	148	32	419	451
08:30 AM	10	0	54	24	64	57	219	0	0	276	0	0	0	0	0	0	74	81	18	155	42	495	537
08:45 AM	12	2	70	29	84	49	200	0	0	249	0	0	0	0	0	0	54	97	24	151	53	484	537
Total	45	3	250	107	298	174	791	0	0	965	0	0	0	0	0	0	248	357	64	605	171	1868	2039
Grand Total	111	5	562	173	678	423	1816	0	0	2239	0	0	0	0	0	0	650	736	150	1386	323	4303	4626
Apprch %	16.4	0.7	82.9			18.9	81.1	0			0	0	0			0	46.9	53.1					
Total %	2.6	0.1	13.1		15.8	9.8	42.2	0		52	0	0	0		0	0	15.1	17.1		32.2	7	93	
Passenger Vehicles	104	3	539		811	408	1759	0		2167	0	0	0		0	0	611	692		1441	0	0	4419
% Passenger Vehicles	93.7	60	95.9	95.4	95.3	96.5	96.9	0	0	96.8	0	0	0	0	0	0	94	94	92	93.8	0	0	95.5
Large 2 Axle Vehicles	7	1	15		28	9	49	0		58	0	0	0		0	0	28	24		59	0	0	145
% Large 2 Axle Vehicles	6.3	20	2.7	2.9	3.3	2.1	2.7	0	0	2.6	0	0	0	0	0	0	4.3	3.3	4.7	3.8	0	0	3.1
3 Axle Vehicles	0	0	2		3	4	6	0		10	0	0	0		0	0	0	14		17	0	0	30
% 3 Axle Vehicles	0	0	0.4	0.6	0.4	0.9	0.3	0	0	0.4	0	0	0	0	0	0	0	1.9	2	1.1	0	0	0.6
4+ Axle Trucks	0	1	6		9	2	2	0		4	0	0	0		0	0	11	6		19	0	0	32
% 4+ Axle Trucks	0	20	1.1	1.2	1.1	0.5	0.1	0	0	0.2	0	0	0	0	0	0	1.7	0.8	1.3	1.2	0	0	0.7

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**25**	0	74	99	56	240	0	296	0	0	0	0	0	124	85	209	604
07:15 AM	24	0	77	**101**	**67**	247	0	314	0	0	0	0	0	**137**	85	**222**	**637**
07:30 AM	8	**1**	**87**	96	60	242	0	302	0	0	0	0	0	79	**114**	193	591
07:45 AM	9	1	74	84	66	**296**	0	**362**	0	0	0	0	0	62	95	157	603
Total Volume	66	2	312	380	249	1025	0	1274	0	0	0	0	0	402	379	781	2435
% App. Total	17.4	0.5	82.1		19.5	80.5	0		0	0	0		0	51.5	48.5		
PHF	.660	.500	.897	.941	.929	.866	.000	.880	.000	.000	.000	.000	.000	.734	.831	.880	.956

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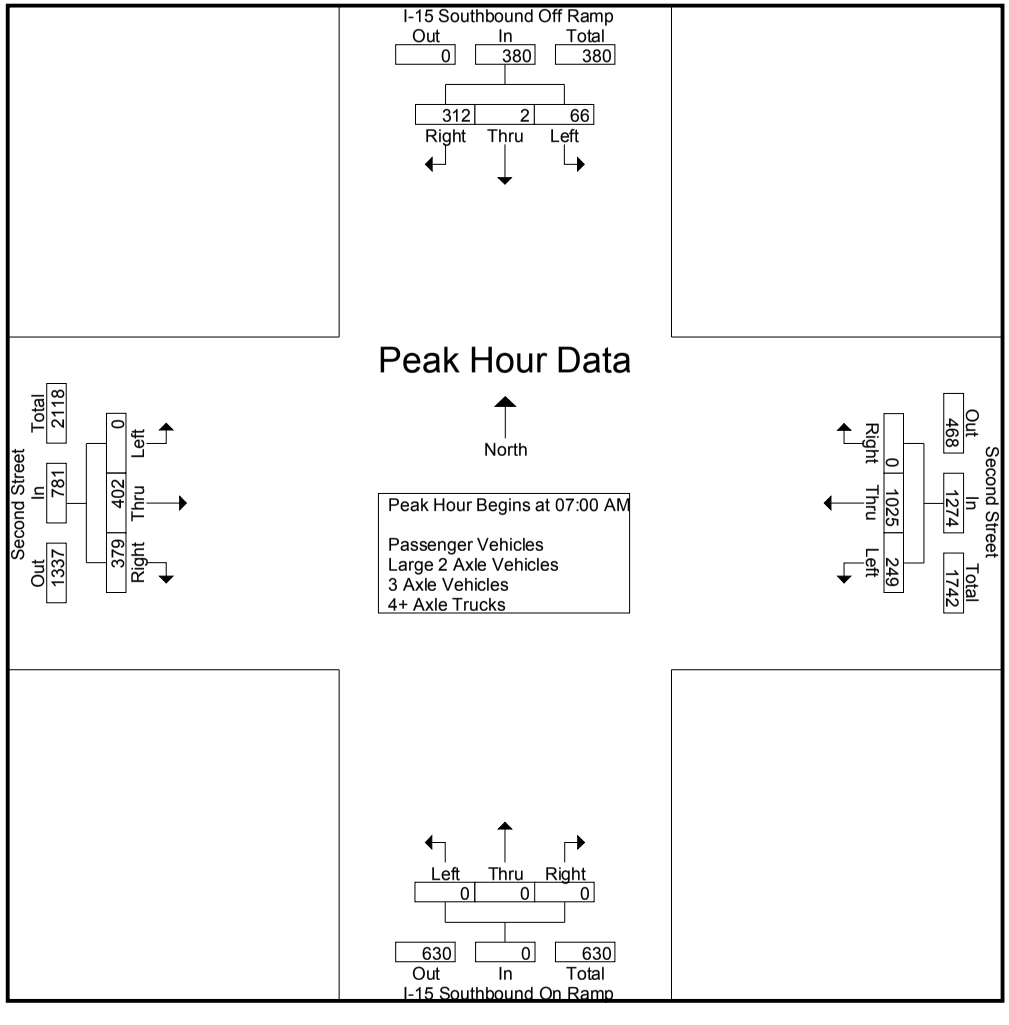
City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
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File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**25**	0	74	99	56	240	0	296	0	0	0	0	0	124	85	209	
+15 mins.	24	0	77	**101**	**67**	247	0	314	0	0	0	0	0	**137**	85	**222**	
+30 mins.	8	**1**	**87**	96	60	242	0	302	0	0	0	0	0	79	**114**	193	
+45 mins.	9	1	74	84	66	**296**	0	**362**	0	0	0	0	0	62	95	157	
Total Volume	66	2	312	380	249	1025	0	1274	0	0	0	0	0	402	379	781	
% App. Total	17.4	0.5	82.1		19.5	80.5	0		0	0	0		0	51.5	48.5		
PHF	.660	.500	.897	.941	.929	.866	.000	.880	.000	.000	.000	.000	.000	.734	.831	.880	

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City of Norco
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E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles

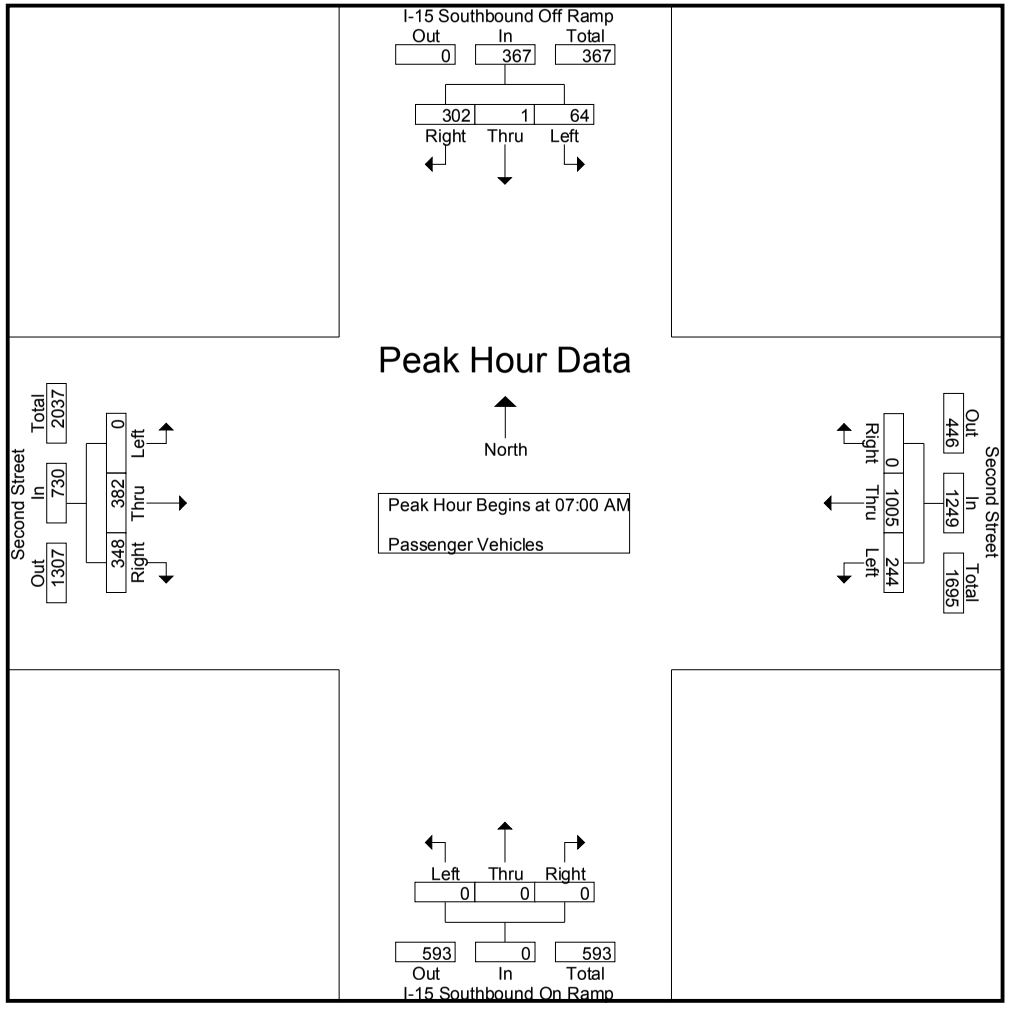
	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	25	0	72	25	97	55	234	0	0	289	0	0	0	0	0	0	120	72	11	192	36	578	614
07:15 AM	24	0	73	16	97	65	240	0	0	305	0	0	0	0	0	0	134	75	26	209	42	611	653
07:30 AM	7	1	84	13	92	59	237	0	0	296	0	0	0	0	0	0	75	110	15	185	28	573	601
07:45 AM	8	0	73	10	81	65	294	0	0	359	0	0	0	0	0	0	53	91	25	144	35	584	619
Total	64	1	302	64	367	244	1005	0	0	1249	0	0	0	0	0	0	382	348	77	730	141	2346	2487
08:00 AM	10	0	68	31	78	37	192	0	0	229	0	0	0	0	0	0	49	94	10	143	41	450	491
08:15 AM	10	0	51	20	61	26	174	0	0	200	0	0	0	0	0	0	60	79	11	139	31	400	431
08:30 AM	10	0	50	22	60	55	205	0	0	260	0	0	0	0	0	0	67	81	18	148	40	468	508
08:45 AM	10	2	68	28	80	46	183	0	0	229	0	0	0	0	0	0	53	90	22	143	50	452	502
Total	40	2	237	101	279	164	754	0	0	918	0	0	0	0	0	0	229	344	61	573	162	1770	1932
Grand Total	104	3	539	165	646	408	1759	0	0	2167	0	0	0	0	0	0	611	692	138	1303	303	4116	4419
Apprch %	16.1	0.5	83.4			18.8	81.2	0			0	0	0			0	46.9	53.1					
Total %	2.5	0.1	13.1		15.7	9.9	42.7	0		52.6	0	0	0		0	0	14.8	16.8		31.7	6.9	93.1	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**25**	0	72	**97**	55	234	0	289	0	0	0	0	0	120	72	192	578
07:15 AM	24	0	73	97	**65**	240	0	305	0	0	0	0	0	**134**	75	**209**	**611**
07:30 AM	7	**1**	**84**	92	59	237	0	296	0	0	0	0	0	75	**110**	185	573
07:45 AM	8	0	73	81	65	**294**	0	**359**	0	0	0	0	0	53	91	144	584
Total Volume	64	1	302	367	244	1005	0	1249	0	0	0	0	0	382	348	730	2346
% App. Total	17.4	0.3	82.3		19.5	80.5	0		0	0	0		0	52.3	47.7		
PHF	.640	.250	.899	.946	.938	.855	.000	.870	.000	.000	.000	.000	.000	.713	.791	.873	.960

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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.	**25**	0	72	**97**	55	234	0	289	0	0	0	0	0	120	72	192	
+15 mins.	24	0	73	97	**65**	240	0	305	0	0	0	0	0	**134**	75	**209**	
+30 mins.	7	**1**	**84**	92	59	237	0	296	0	0	0	0	0	75	**110**	185	
+45 mins.	8	0	73	81	65	**294**	0	**359**	0	0	0	0	0	53	91	144	
Total Volume	64	1	302	367	244	1005	0	1249	0	0	0	0	0	382	348	730	
% App. Total	17.4	0.3	82.3		19.5	80.5	0		0	0	0		0	52.3	47.7		
PHF	.640	.250	.899	.946	.938	.855	.000	.870	.000	.000	.000	.000	.000	.713	.791	.873	

Counts Unlimited
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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

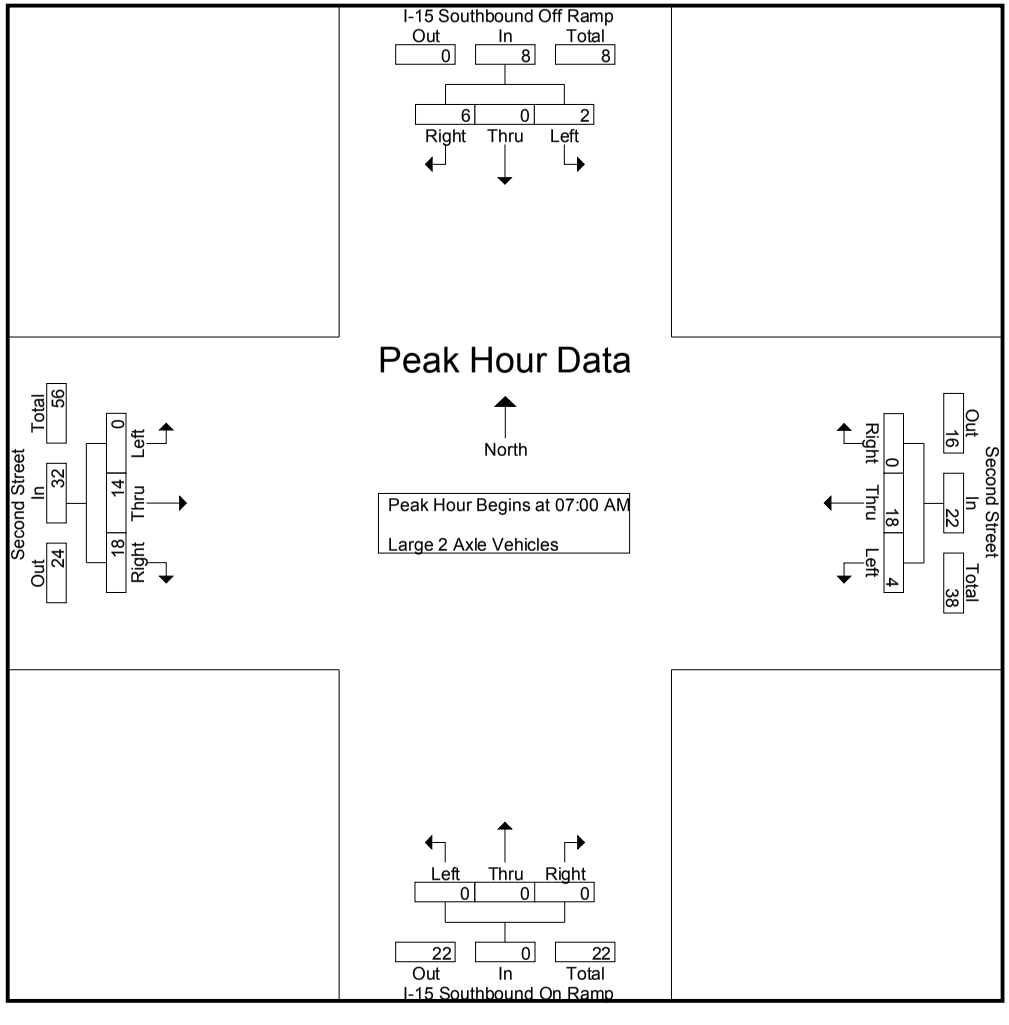
	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	0	3	7	2	10	2	17	19
07:15 AM	0	0	3	0	3	2	5	0	0	7	0	0	0	0	0	0	2	5	3	7	3	17	20
07:30 AM	1	0	3	1	4	1	5	0	0	6	0	0	0	0	0	0	3	3	0	6	1	16	17
07:45 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	6	3	0	9	0	12	12
Total	2	0	6	1	8	4	18	0	0	22	0	0	0	0	0	0	14	18	5	32	6	62	68
08:00 AM	2	1	0	0	3	3	2	0	0	5	0	0	0	0	0	0	4	3	1	7	1	15	16
08:15 AM	1	0	3	1	4	0	4	0	0	4	0	0	0	0	0	0	5	1	0	6	1	14	15
08:30 AM	0	0	4	2	4	1	10	0	0	11	0	0	0	0	0	0	4	0	0	4	2	19	21
08:45 AM	2	0	2	1	4	1	15	0	0	16	0	0	0	0	0	0	1	2	1	3	2	23	25
Total	5	1	9	4	15	5	31	0	0	36	0	0	0	0	0	0	14	6	2	20	6	71	77
Grand Total	7	1	15	5	23	9	49	0	0	58	0	0	0	0	0	0	28	24	7	52	12	133	145
Apprch %	30.4	4.3	65.2			15.5	84.5	0			0	0	0			0	53.8	46.2					
Total %	5.3	0.8	11.3		17.3	6.8	36.8	0		43.6	0	0	0		0	0	21.1	18		39.1	8.3	91.7	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	1	**6**	0	**7**	0	0	0	0	0	3	**7**	**10**	**17**
07:15 AM	0	0	**3**	3	**2**	5	0	7	0	0	0	0	0	2	5	7	17
07:30 AM	**1**	0	3	**4**	1	5	0	6	0	0	0	0	0	3	3	6	16
07:45 AM	1	0	0	1	0	2	0	2	0	0	0	0	0	**6**	3	9	12
Total Volume	2	0	6	8	4	18	0	22	0	0	0	0	0	14	18	32	62
% App. Total	25	0	75		18.2	81.8	0		0	0	0		0	43.8	56.2		
PHF	.500	.000	.500	.500	.500	.750	.000	.786	.000	.000	.000	.000	.000	.583	.643	.800	.912

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	1	**6**	0	**7**	0	0	0	0	0	3	**7**	**10**	
+15 mins.	0	0	**3**	3	**2**	5	0	7	0	0	0	0	0	2	5	7	
+30 mins.	**1**	0	3	**4**	1	5	0	6	0	0	0	0	0	3	3	6	
+45 mins.	1	0	0	1	0	2	0	2	0	0	0	0	0	**6**	3	9	
Total Volume	2	0	6	8	4	18	0	22	0	0	0	0	0	14	18	32	
% App. Total	25	0	75		18.2	81.8	0		0	0	0		0	43.8	56.2		
PHF	.500	.000	.500	.500	.500	.750	.000	.786	.000	.000	.000	.000	.000	.583	.643	.800	

Counts Unlimited
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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

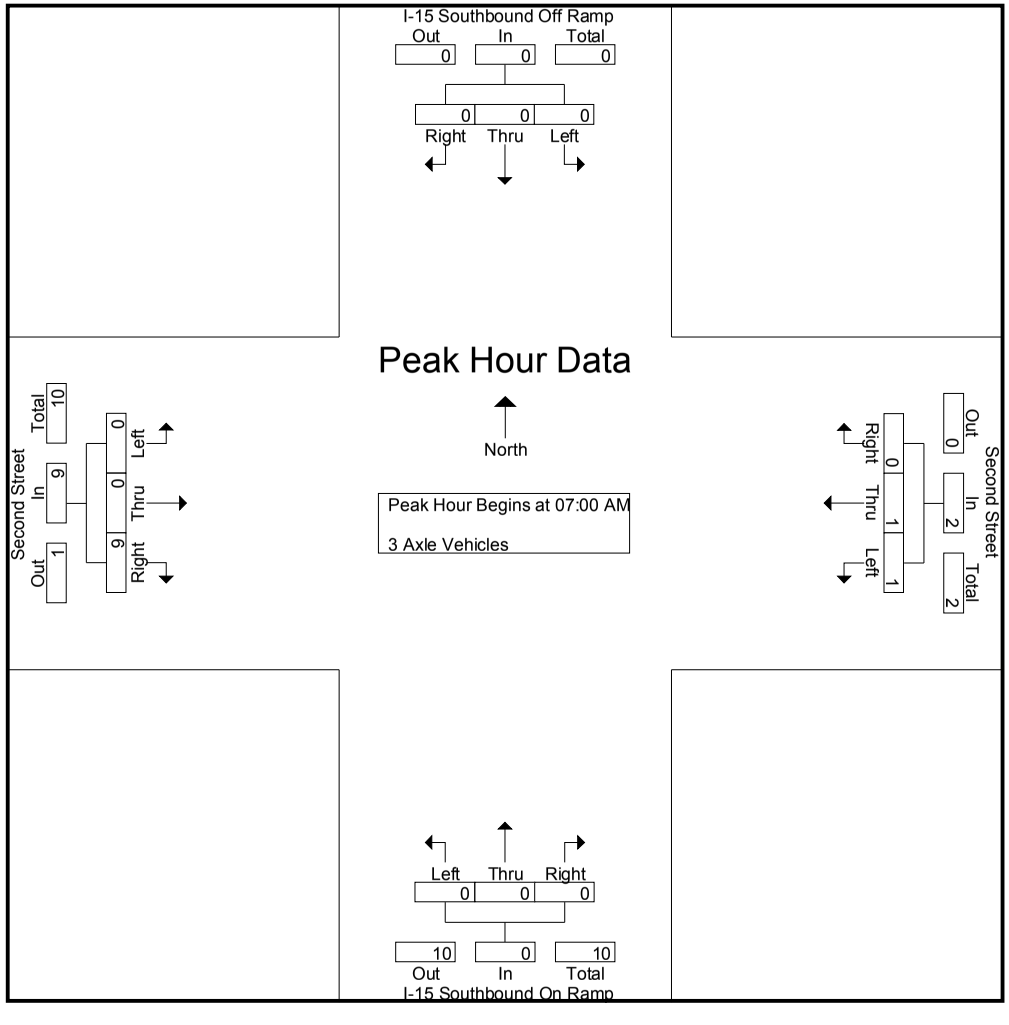
	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	5	5
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	2	4	2	5	7
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	9	2	9	2	11	13
08:00 AM	0	0	2	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	4
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4	4
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	5	1	5	1	7	8
Total	0	0	2	1	2	3	5	0	0	8	0	0	0	0	0	0	0	5	1	5	2	15	17
Grand Total	0	0	2	1	2	4	6	0	0	10	0	0	0	0	0	0	0	14	3	14	4	26	30
Apprch %	0	0	100			40	60	0			0	0	0			0	0	100					
Total %	0	0	7.7		7.7	15.4	23.1	0		38.5	0	0	0		0	0	0	53.8		53.8	13.3	86.7	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**5**	**5**	**5**
07:15 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	4	4	5
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	**1**	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	1	1	0	2	0	0	0	0	0	0	9	9	11
% App. Total	0	0	0		50	50	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.450	.450	.550

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**5**	**5**	
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	4	4	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	1	1	0	2	0	0	0	0	0	0	9	9	
% App. Total	0	0	0		50	50	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.450	.450	

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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	4	5
07:15 AM	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	1	4	5
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	2	3
07:45 AM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	6	6
Total	0	1	4	1	5	0	1	0	0	1	0	0	0	0	0	0	6	4	2	10	3	16	19
08:00 AM	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	2	3
08:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	4	4
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
08:45 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	2	1	2	2	1	0	0	3	0	0	0	0	0	0	5	2	0	7	1	12	13
Grand Total	0	1	6	2	7	2	2	0	0	4	0	0	0	0	0	0	11	6	2	17	4	28	32
Apprch %	0	14.3	85.7			50	50	0			0	0	0			0	64.7	35.3					
Total %	0	3.6	21.4		25	7.1	7.1	0		14.3	0	0	0		0	0	39.3	21.4		60.7	12.5	87.5	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**2**	**2**	0	0	0	0	0	0	0	0	0	1	**1**	2	4
07:15 AM	0	0	1	1	0	**1**	0	**1**	0	0	0	0	0	1	1	2	4
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
07:45 AM	0	**1**	1	2	0	0	0	0	0	0	0	0	0	**3**	1	**4**	**6**
Total Volume	0	1	4	5	0	1	0	1	0	0	0	0	0	6	4	10	16
% App. Total	0	20	80		0	100	0		0	0	0		0	60	40		
PHF	.000	.250	.500	.625	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	1.00	.625	.667

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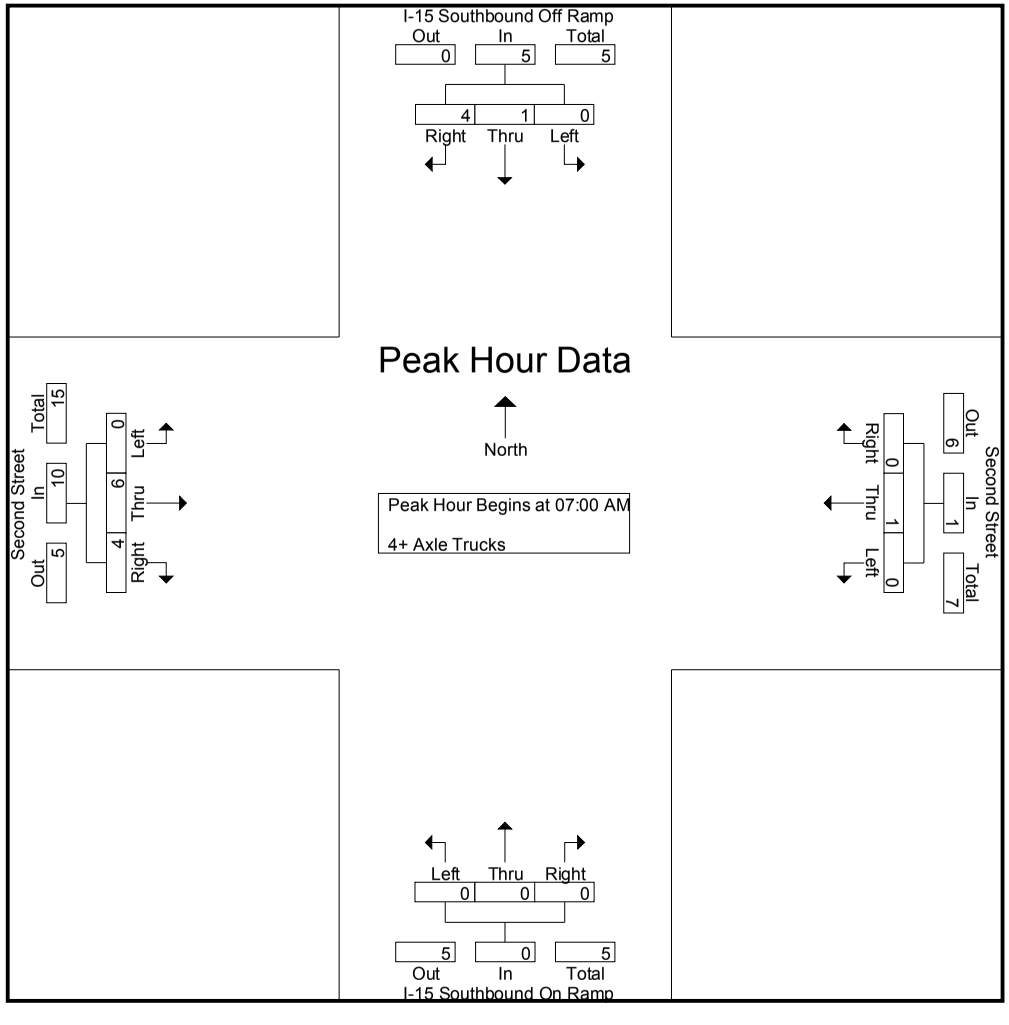
(951) 268-6268

City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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	**2**	**2**	0	0	0	0	0	0	0	0	0	1	**1**	2	
+15 mins.	0	0	1	1	0	**1**	0	**1**	0	0	0	0	0	1	1	2	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	
+45 mins.	0	**1**	1	2	0	0	0	0	0	0	0	0	0	**3**	1	**4**	
Total Volume	0	1	4	5	0	1	0	1	0	0	0	0	0	6	4	10	
% App. Total	0	20	80		0	100	0		0	0	0		0	60	40		
PHF	.000	.250	.500	.625	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	1.000	.625	

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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	17	0	44	26	61	40	179	0	0	219	0	0	0	0	0	0	146	173	28	319	54	599	653
04:15 PM	19	1	58	29	78	49	132	0	0	181	0	0	0	0	0	0	140	164	28	304	57	563	620
04:30 PM	20	2	43	31	65	31	147	0	0	178	0	0	0	0	0	0	175	194	44	369	75	612	687
04:45 PM	20	2	47	25	69	49	157	0	0	206	0	0	0	0	0	0	157	160	48	317	73	592	665
Total	76	5	192	111	273	169	615	0	0	784	0	0	0	0	0	0	618	691	148	1309	259	2366	2625
05:00 PM	23	1	53	17	77	43	181	0	0	224	0	0	0	0	0	0	165	138	22	303	39	604	643
05:15 PM	19	0	34	17	53	39	161	0	0	200	0	0	0	0	0	0	166	172	38	338	55	591	646
05:30 PM	17	1	44	29	62	46	167	0	0	213	0	0	0	0	0	0	123	151	30	274	59	549	608
05:45 PM	16	0	60	39	76	39	137	0	0	176	0	0	0	0	0	0	154	122	30	276	69	528	597
Total	75	2	191	102	268	167	646	0	0	813	0	0	0	0	0	0	608	583	120	1191	222	2272	2494
Grand Total	151	7	383	213	541	336	1261	0	0	1597	0	0	0	0	0	0	1226	1274	268	2500	481	4638	5119
Apprch %	27.9	1.3	70.8			21	79	0			0	0	0			0	49	51					
Total %	3.3	0.2	8.3		11.7	7.2	27.2	0		34.4	0	0	0		0	0	26.4	27.5		53.9	9.4	90.6	
Passenger Vehicles	149	6	359		711	328	1228	0		1556	0	0	0		0	0	1194	1256		2713	0	0	4980
% Passenger Vehicles	98.7	85.7	93.7	92.5	94.3	97.6	97.4	0	0	97.4	0	0	0	0	0	0	97.4	98.6	98.1	98	0	0	97.3
Large 2 Axle Vehicles	1	1	14		26	7	21	0		28	0	0	0		0	0	19	16		40	0	0	94
% Large 2 Axle Vehicles	0.7	14.3	3.7	4.7	3.4	2.1	1.7	0	0	1.8	0	0	0	0	0	0	1.5	1.3	1.9	1.4	0	0	1.8
3 Axle Vehicles	0	0	2		3	1	5	0		6	0	0	0		0	0	3	0		3	0	0	12
% 3 Axle Vehicles	0	0	0.5	0.5	0.4	0.3	0.4	0	0	0.4	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.2
4+ Axle Trucks	1	0	8		14	0	7	0		7	0	0	0		0	0	10	2		12	0	0	33
% 4+ Axle Trucks	0.7	0	2.1	2.3	1.9	0	0.6	0	0	0.4	0	0	0	0	0	0	0.8	0.2	0	0.4	0	0	0.6

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM																	
04:30 PM	20	**2**	43	65	31	147	0	178	0	0	0	0	0	**175**	**194**	**369**	**612**
04:45 PM	20	2	47	69	**49**	157	0	206	0	0	0	0	0	157	160	317	592
05:00 PM	**23**	1	**53**	**77**	43	**181**	0	**224**	0	0	0	0	0	165	138	303	604
05:15 PM	19	0	34	53	39	161	0	200	0	0	0	0	0	166	172	338	591
Total Volume	82	5	177	264	162	646	0	808	0	0	0	0	0	663	664	1327	2399
% App. Total	31.1	1.9	67		20	80	0		0	0	0		0	50	50		
PHF	.891	.625	.835	.857	.827	.892	.000	.902	.000	.000	.000	.000	.000	.947	.856	.899	.980

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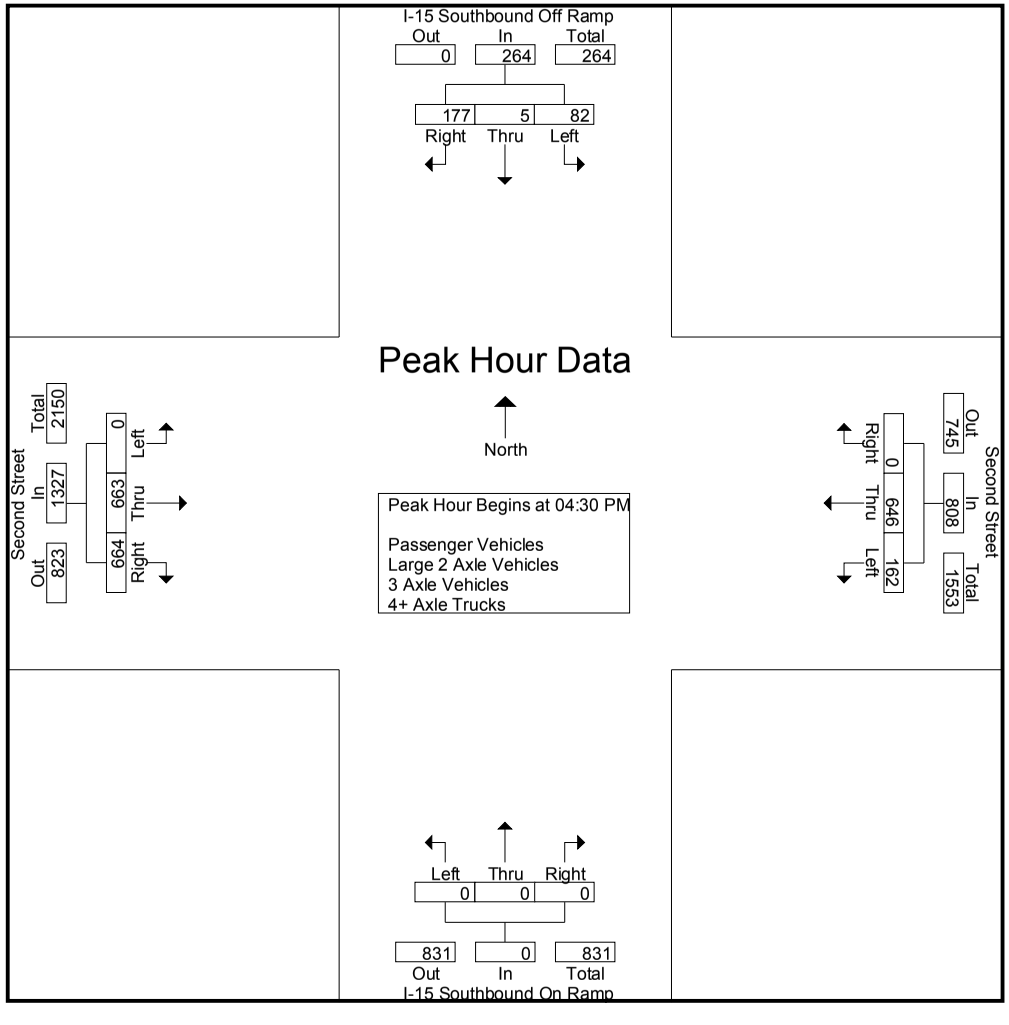
City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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:																	
	04:15 PM				04:45 PM				04:00 PM				04:30 PM				
+0 mins.	19	1	**58**	**78**	**49**	157	0	206	0	0	0	0	0	**175**	**194**	**369**	
+15 mins.	20	**2**	43	65	43	**181**	0	**224**	0	0	0	0	0	157	160	317	
+30 mins.	20	2	47	69	39	161	0	200	0	0	0	0	0	165	138	303	
+45 mins.	**23**	1	53	77	46	167	0	213	0	0	0	0	0	166	172	338	
Total Volume	82	6	201	289	177	666	0	843	0	0	0	0	0	663	664	1327	
% App. Total	28.4	2.1	69.6		21	79	0		0	0	0		0	50	50		
PHF	.891	.750	.866	.926	.903	.920	.000	.941	.000	.000	.000	.000	.000	.947	.856	.899	

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File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	17	0	40	23	57	40	174	0	0	214	0	0	0	0	0	0	143	167	26	310	49	581	630
04:15 PM	19	1	55	27	75	47	128	0	0	175	0	0	0	0	0	0	136	161	28	297	55	547	602
04:30 PM	19	2	42	30	63	30	141	0	0	171	0	0	0	0	0	0	167	192	43	359	73	593	666
04:45 PM	19	1	46	24	66	48	153	0	0	201	0	0	0	0	0	0	154	158	47	312	71	579	650
Total	74	4	183	104	261	165	596	0	0	761	0	0	0	0	0	0	600	678	144	1278	248	2300	2548
05:00 PM	23	1	47	15	71	43	175	0	0	218	0	0	0	0	0	0	164	136	22	300	37	589	626
05:15 PM	19	0	32	16	51	38	156	0	0	194	0	0	0	0	0	0	159	171	37	330	53	575	628
05:30 PM	17	1	43	29	61	46	165	0	0	211	0	0	0	0	0	0	121	149	30	270	59	542	601
05:45 PM	16	0	54	33	70	36	136	0	0	172	0	0	0	0	0	0	150	122	30	272	63	514	577
Total	75	2	176	93	253	163	632	0	0	795	0	0	0	0	0	0	594	578	119	1172	212	2220	2432
Grand Total	149	6	359	197	514	328	1228	0	0	1556	0	0	0	0	0	0	1194	1256	263	2450	460	4520	4980
Apprch %	29	1.2	69.8			21.1	78.9	0			0	0	0			0	48.7	51.3					
Total %	3.3	0.1	7.9		11.4	7.3	27.2	0		34.4	0	0	0		0	0	26.4	27.8		54.2	9.2	90.8	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	19	**2**	42	63	30	141	0	171	0	0	0	0	0	**167**	**192**	**359**	**593**
04:45 PM	19	1	46	66	**48**	153	0	201	0	0	0	0	0	154	158	312	579
05:00 PM	**23**	1	**47**	**71**	43	**175**	0	**218**	0	0	0	0	0	164	136	300	589
05:15 PM	19	0	32	51	38	156	0	194	0	0	0	0	0	159	171	330	575
Total Volume	80	4	167	251	159	625	0	784	0	0	0	0	0	644	657	1301	2336
% App. Total	31.9	1.6	66.5		20.3	79.7	0		0	0	0		0	49.5	50.5		
PHF	.870	.500	.888	.884	.828	.893	.000	.899	.000	.000	.000	.000	.000	.964	.855	.906	.985

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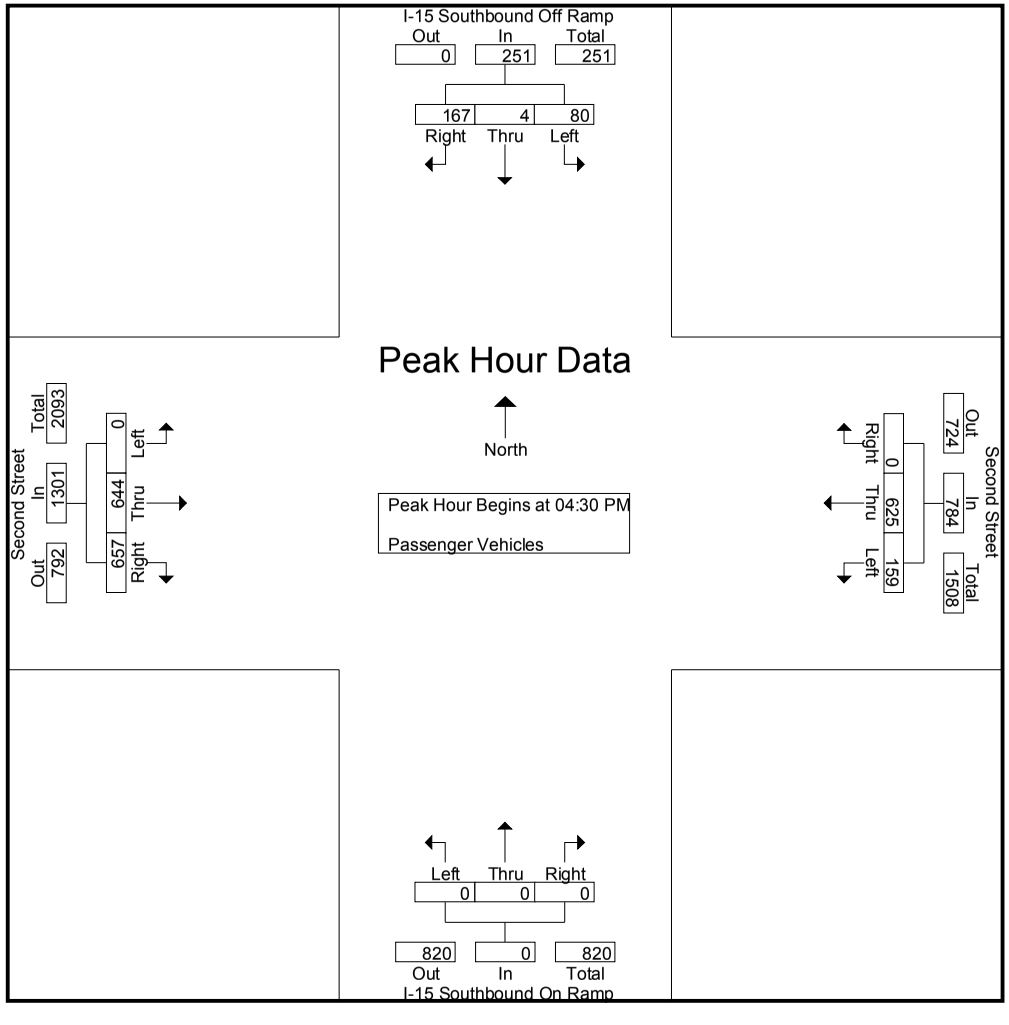
City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	19	**2**	42	63	30	141	0	171	0	0	0	0	0	**167**	**192**	**359**	
+15 mins.	19	1	46	66	**48**	153	0	201	0	0	0	0	0	154	158	312	
+30 mins.	**23**	1	**47**	**71**	43	**175**	0	**218**	0	0	0	0	0	164	136	300	
+45 mins.	19	0	32	51	38	156	0	194	0	0	0	0	0	159	171	330	
Total Volume	80	4	167	251	159	625	0	784	0	0	0	0	0	644	657	1301	
% App. Total	31.9	1.6	66.5		20.3	79.7	0		0	0	0		0	49.5	50.5		
PHF	.870	.500	.888	.884	.828	.893	.000	.899	.000	.000	.000	.000	.000	.964	.855	.906	

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	3	2	3	0	4	0	0	4	0	0	0	0	0	0	1	6	2	7	4	14	18
04:15 PM	0	0	3	2	3	1	3	0	0	4	0	0	0	0	0	0	3	2	0	5	2	12	14
04:30 PM	0	0	1	1	1	1	3	0	0	4	0	0	0	0	0	0	6	2	1	8	2	13	15
04:45 PM	1	1	1	1	3	1	3	0	0	4	0	0	0	0	0	0	1	2	1	3	2	10	12
Total	1	1	8	6	10	3	13	0	0	16	0	0	0	0	0	0	11	12	4	23	10	49	59
05:00 PM	0	0	2	1	2	0	5	0	0	5	0	0	0	0	0	0	0	2	0	2	1	9	10
05:15 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	5	1	1	6	1	9	10
05:30 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	3
05:45 PM	0	0	3	3	3	3	0	0	0	3	0	0	0	0	0	0	3	0	0	3	3	9	12
Total	0	0	6	4	6	4	8	0	0	12	0	0	0	0	0	0	8	4	1	12	5	30	35
Grand Total	1	1	14	10	16	7	21	0	0	28	0	0	0	0	0	0	19	16	5	35	15	79	94
Apprch %	6.2	6.2	87.5			25	75	0			0	0	0			0	54.3	45.7					
Total %	1.3	1.3	17.7		20.3	8.9	26.6	0		35.4	0	0	0		0	0	24.1	20.3		44.3	16	84	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	1	1	**1**	3	0	4	0	0	0	0	0	**6**	**2**	**8**	**13**
04:45 PM	**1**	**1**	1	**3**	1	3	0	4	0	0	0	0	0	1	2	3	10
05:00 PM	0	0	**2**	2	0	**5**	0	**5**	0	0	0	0	0	0	2	2	9
05:15 PM	0	0	0	0	1	2	0	3	0	0	0	0	0	5	1	6	9
Total Volume	1	1	4	6	3	13	0	16	0	0	0	0	0	12	7	19	41
% App. Total	16.7	16.7	66.7		18.8	81.2	0		0	0	0		0	63.2	36.8		
PHF	.250	.250	.500	.500	.750	.650	.000	.800	.000	.000	.000	.000	.000	.500	.875	.594	.788

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City of Norco
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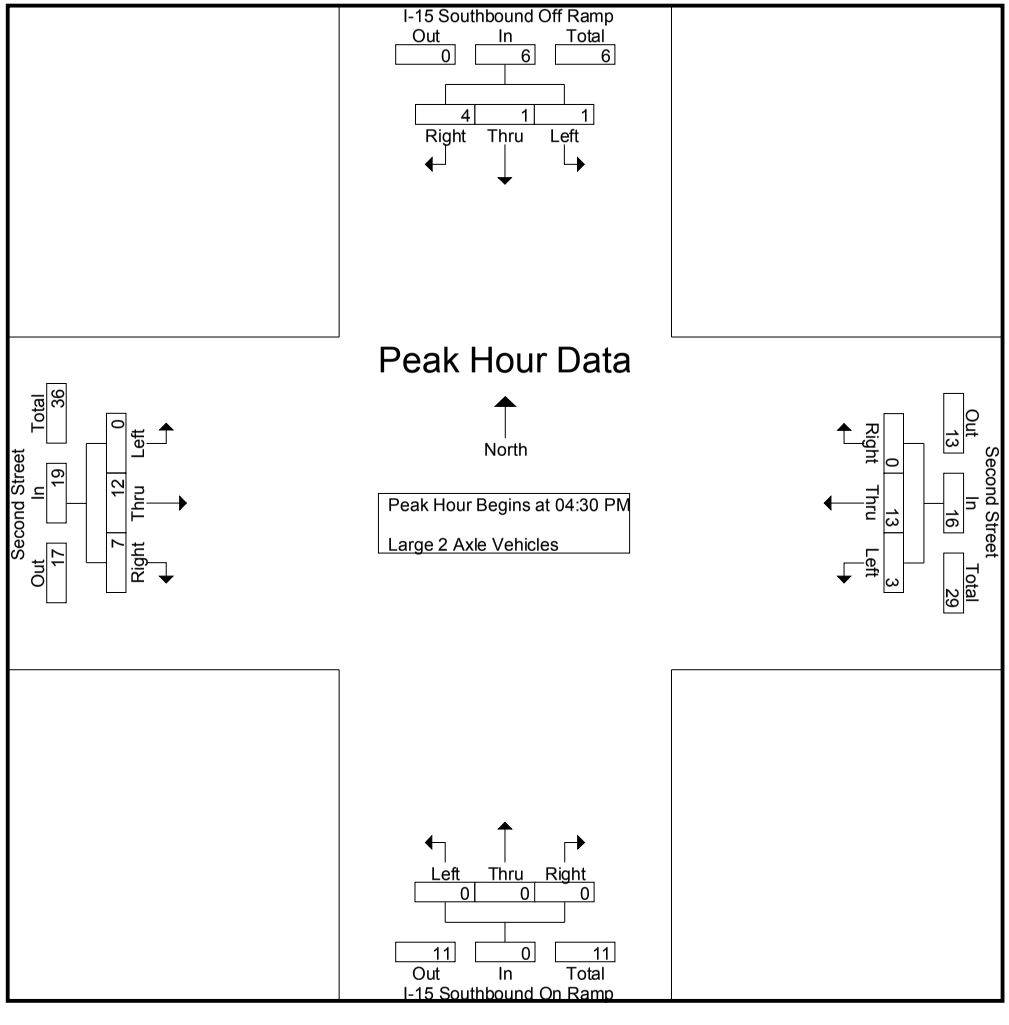

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Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	0	1	1	**1**	3	0	4	0	0	0	0	0	**6**	**2**	**8**	
+15 mins.	**1**	**1**	1	**3**	1	3	0	4	0	0	0	0	0	1	2	3	
+30 mins.	0	0	**2**	2	0	**5**	0	**5**	0	0	0	0	0	0	2	2	
+45 mins.	0	0	0	0	1	2	0	3	0	0	0	0	0	5	1	6	
Total Volume	1	1	4	6	3	13	0	16	0	0	0	0	0	12	7	19	
% App. Total	16.7	16.7	66.7		18.8	81.2	0		0	0	0		0	63.2	36.8		
PHF	.250	.250	.500	.500	.750	.650	.000	.800	.000	.000	.000	.000	.000	.500	.875	.594	

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Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
05:00 PM	0	0	1	0	1	0	0	0	0	0	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	0	0	0	0	1	0	0	1	0	2	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
05:45 PM	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	2	1	2	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	1	6	7
Grand Total	0	0	2	1	2	1	5	0	0	6	0	0	0	0	0	0	3	0	0	3	1	11	12
Apprch %	0	0	100			16.7	83.3	0			0	0	0			0	100	0					
Total %	0	0	18.2		18.2	9.1	45.5	0		54.5	0	0	0		0	0	27.3	0		27.3	8.3	91.7	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	**2**
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	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total Volume	0	0	1	1	0	2	0	2	0	0	0	0	0	2	0	2	5
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.500	.000	.500	.625

Counts Unlimited
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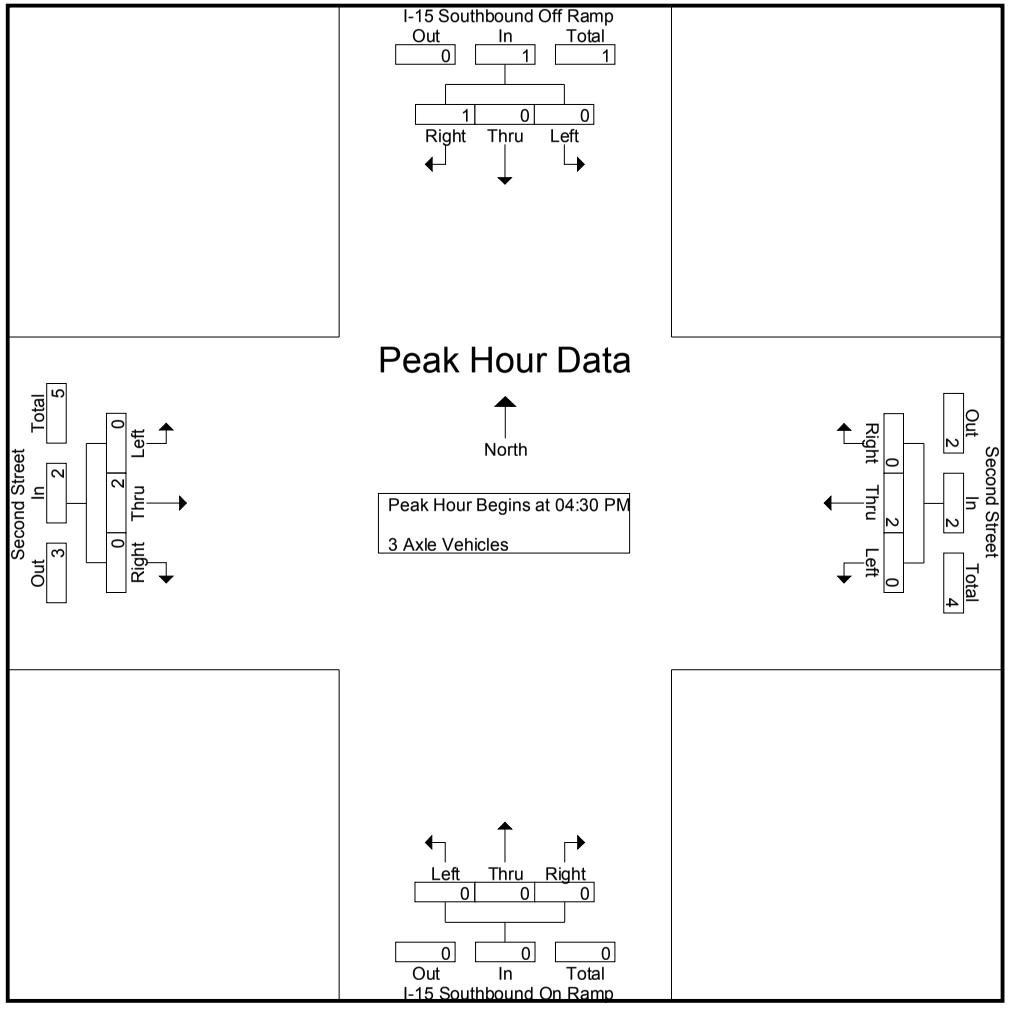
(951) 268-6268

City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	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	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	
Total Volume	0	0	1	1	0	2	0	2	0	0	0	0	0	2	0	2	
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.500	.000	.500	

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City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound					Second Street Westbound					I-15 Southbound On Ramp Northbound					Second 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	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	1	3	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	2
04:30 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
Total	1	0	1	1	2	0	3	0	0	3	0	0	0	0	0	0	6	1	0	7	1	12	13
05:00 PM	0	0	3	1	3	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	5	6
05:15 PM	0	0	2	1	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	5	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	2
05:45 PM	0	0	2	2	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	4	6
Total	0	0	7	4	7	0	4	0	0	4	0	0	0	0	0	0	4	1	0	5	4	16	20
Grand Total	1	0	8	5	9	0	7	0	0	7	0	0	0	0	0	0	10	2	0	12	5	28	33
Apprch %	11.1	0	88.9			0	100	0			0	0	0			0	83.3	16.7					
Total %	3.6	0	28.6		32.1	0	25	0		25	0	0	0		0	0	35.7	7.1		42.9	15.2	84.8	

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	0	0	1	0	**2**	0	**2**	0	0	0	0	0	1	0	1	4
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**	3
05:00 PM	0	0	**3**	**3**	0	1	0	1	0	0	0	0	0	1	0	1	**5**
05:15 PM	0	0	2	2	0	2	0	2	0	0	0	0	0	1	0	1	5
Total Volume	1	0	5	6	0	6	0	6	0	0	0	0	0	5	0	5	17
% App. Total	16.7	0	83.3		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.417	.500	.000	.750	.000	.750	.000	.000	.000	.000	.000	.625	.000	.625	.850

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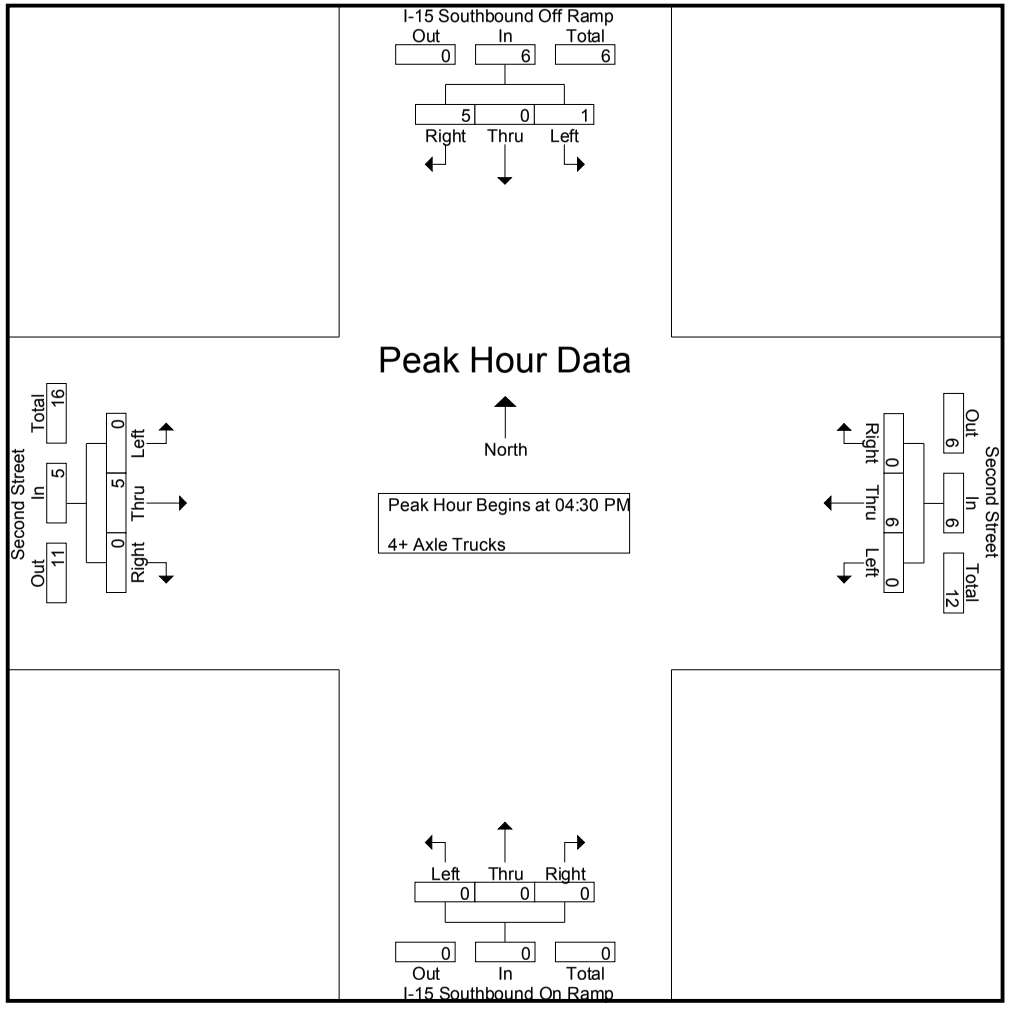
City of Norco
N/S: I-15 Southbound Ramps
E/W: Second Street
Weather: Clear

File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Southbound Ramps
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File Name : 07_NOR_15S_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Southbound Off Ramp Southbound				Second Street Westbound				I-15 Southbound On Ramp Northbound				Second 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 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:30 PM				04:30 PM				04:30 PM				
+0 mins.	**1**	0	0	1	0	**2**	0	**2**	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**	0	**2**	
+30 mins.	0	0	**3**	**3**	0	1	0	1	0	0	0	0	0	1	0	1	
+45 mins.	0	0	2	2	0	2	0	2	0	0	0	0	0	1	0	1	
Total Volume	1	0	5	6	0	6	0	6	0	0	0	0	0	5	0	5	
% App. Total	16.7	0	83.3		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.417	.500	.000	.750	.000	.750	.000	.000	.000	.000	.000	.625	.000	.625	

Location: Norco
N/S: I-15 Southbound Ramps
E/W: Second Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg I-15 Southbound Ramps	East Leg Second Street	South Leg I-15 Southbound Ramps	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	0	0	1
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	0	1	0	2

	North Leg I-15 Southbound Ramps	East Leg Second Street	South Leg I-15 Southbound Ramps	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	5	0	5
4:15 PM	1	0	0	0	1
4:30 PM	0	0	2	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	0	2	0	2
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	9	0	11

Location: Norco
N/S: I-15 Southbound Ramps
E/W: Second Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound I-15 Southbound Ramps			Westbound Second Street			Northbound I-15 Southbound Ramps			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound I-15 Southbound Ramps			Westbound Second Street			Northbound I-15 Southbound Ramps			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	125	30	10	155	180	2	94	29	276	23	133	0	0	156	39	587	626
07:15 AM	0	0	0	0	0	0	135	27	9	162	172	3	116	28	291	33	130	0	0	163	37	616	653
07:30 AM	0	0	0	0	0	0	127	28	11	155	193	0	86	28	279	31	55	0	0	86	39	520	559
07:45 AM	0	0	0	0	0	0	119	13	1	132	234	0	98	34	332	40	27	0	0	67	35	531	566
Total	0	0	0	0	0	0	506	98	31	604	779	5	394	119	1178	127	345	0	0	472	150	2254	2404
08:00 AM	0	0	0	0	0	0	63	13	9	76	169	1	41	14	211	25	36	0	0	61	23	348	371
08:15 AM	0	0	0	0	0	0	74	6	3	80	136	0	53	22	189	42	45	0	0	87	25	356	381
08:30 AM	0	0	0	0	0	0	107	16	5	123	170	0	53	22	223	44	37	0	0	81	27	427	454
08:45 AM	0	0	0	0	0	0	75	16	6	91	170	0	46	18	216	34	31	0	0	65	24	372	396
Total	0	0	0	0	0	0	319	51	23	370	645	1	193	76	839	145	149	0	0	294	99	1503	1602
Grand Total	0	0	0	0	0	0	825	149	54	974	1424	6	587	195	2017	272	494	0	0	766	249	3757	4006
Apprch %	0	0	0			0	84.7	15.3			70.6	0.3	29.1			35.5	64.5	0					
Total %	0	0	0		0	0	22	4		25.9	37.9	0.2	15.6		53.7	7.2	13.1	0		20.4	6.2	93.8	
Passenger Vehicles	0	0	0		0	0	804	148		1006	1375	3	574		2141	242	478	0		720	0	0	3867
% Passenger Vehicles	0	0	0	0	0	0	97.5	99.3	100	97.9	96.6	50	97.8	96.9	96.8	89	96.8	0	0	94	0	0	96.5
Large 2 Axle Vehicles	0	0	0		0	0	18	1		19	37	2	8		52	19	16	0		35	0	0	106
% Large 2 Axle Vehicles	0	0	0	0	0	0	2.2	0.7	0	1.8	2.6	33.3	1.4	2.6	2.4	7	3.2	0	0	4.6	0	0	2.6
3 Axle Vehicles	0	0	0		0	0	1	0		1	9	1	2		12	0	0	0		0	0	0	13
% 3 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0.1	0.6	16.7	0.3	0	0.5	0	0	0	0	0	0	0	0.3
4+ Axle Trucks	0	0	0		0	0	2	0		2	3	0	3		7	11	0	0		11	0	0	20
% 4+ Axle Trucks	0	0	0	0	0	0	0.2	0	0	0.2	0.2	0	0.5	0.5	0.3	4	0	0	0	1.4	0	0	0.5

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	0	0	125	**30**	155	180	2	94	276	23	**133**	0	156	587
07:15 AM	0	0	0	0	0	**135**	27	**162**	172	**3**	**116**	291	33	130	0	**163**	**616**
07:30 AM	0	0	0	0	0	127	28	155	193	0	86	279	31	55	0	86	520
07:45 AM	0	0	0	0	0	119	13	132	**234**	0	98	**332**	**40**	27	0	67	531
Total Volume	0	0	0	0	0	506	98	604	779	5	394	1178	127	345	0	472	2254
% App. Total	0	0	0		0	83.8	16.2		66.1	0.4	33.4		26.9	73.1	0		
PHF	.000	.000	.000	.000	.000	.937	.817	.932	.832	.417	.849	.887	.794	.648	.000	.724	.915

Counts Unlimited
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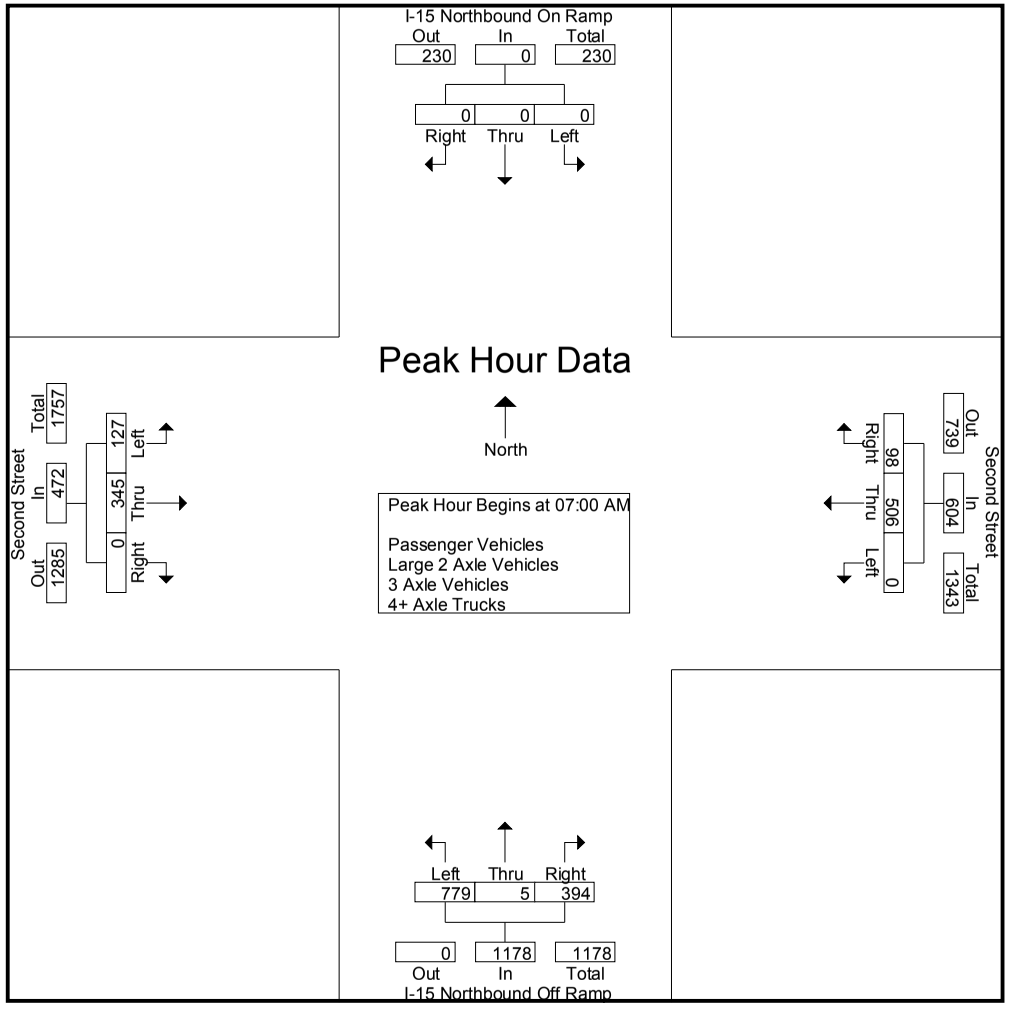
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
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File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	125	**30**	155	180	2	94	276	23	**133**	0	156	
+15 mins.	0	0	0	0	0	**135**	27	**162**	172	**3**	**116**	291	33	130	0	**163**	
+30 mins.	0	0	0	0	0	127	28	155	193	0	86	279	31	55	0	86	
+45 mins.	0	0	0	0	0	119	13	132	**234**	0	98	**332**	**40**	27	0	67	
Total Volume	0	0	0	0	0	506	98	604	779	5	394	1178	127	345	0	472	
% App. Total	0	0	0		0	83.8	16.2		66.1	0.4	33.4		26.9	73.1	0		
PHF	.000	.000	.000	.000	.000	.937	.817	.932	.832	.417	.849	.887	.794	.648	.000	.724	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles

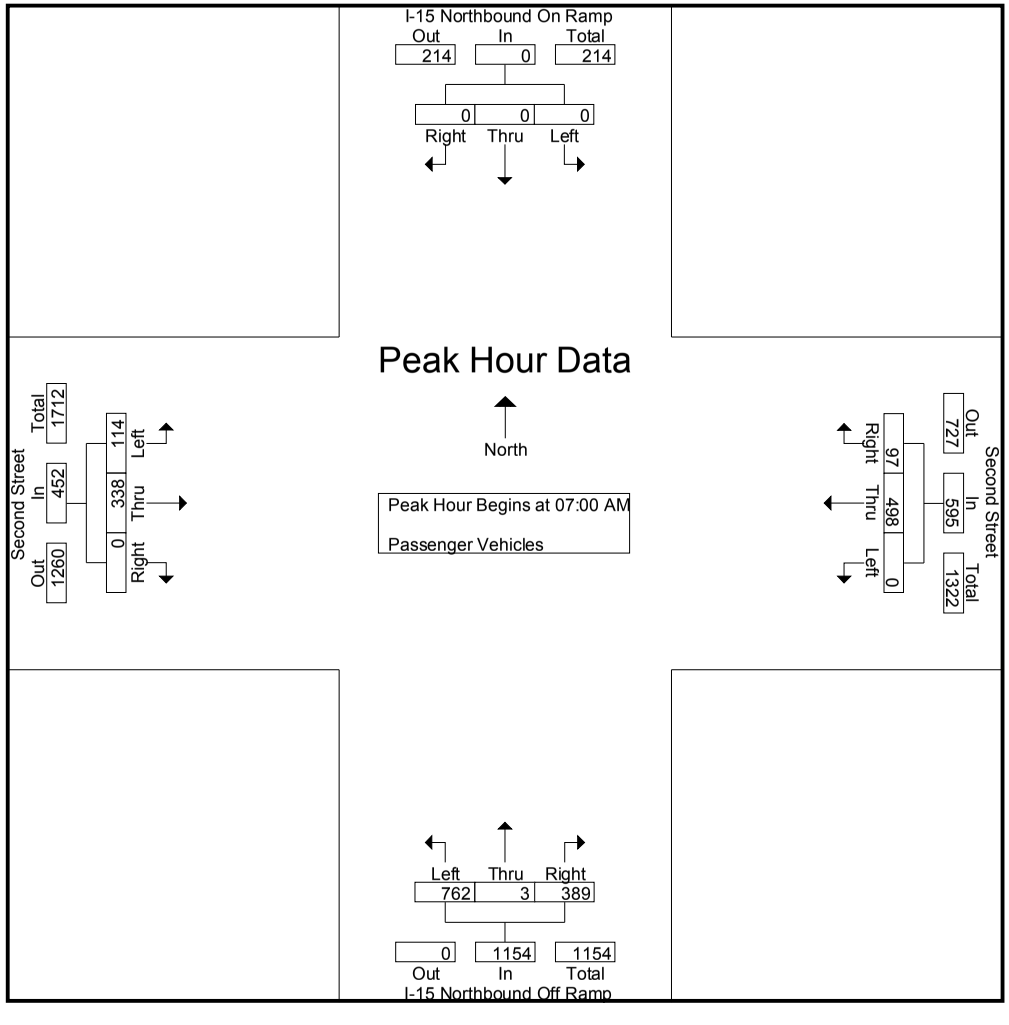
	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	123	30	10	153	175	1	94	29	270	22	131	0	0	153	39	576	615
07:15 AM	0	0	0	0	0	0	132	26	9	158	166	2	114	27	282	31	129	0	0	160	36	600	636
07:30 AM	0	0	0	0	0	0	125	28	11	153	189	0	85	27	274	28	53	0	0	81	38	508	546
07:45 AM	0	0	0	0	0	0	118	13	1	131	232	0	96	33	328	33	25	0	0	58	34	517	551
Total	0	0	0	0	0	0	498	97	31	595	762	3	389	116	1154	114	338	0	0	452	147	2201	2348
08:00 AM	0	0	0	0	0	0	60	13	9	73	167	0	41	14	208	21	33	0	0	54	23	335	358
08:15 AM	0	0	0	0	0	0	73	6	3	79	132	0	50	21	182	35	43	0	0	78	24	339	363
08:30 AM	0	0	0	0	0	0	104	16	5	120	156	0	52	22	208	40	34	0	0	74	27	402	429
08:45 AM	0	0	0	0	0	0	69	16	6	85	158	0	42	16	200	32	30	0	0	62	22	347	369
Total	0	0	0	0	0	0	306	51	23	357	613	0	185	73	798	128	140	0	0	268	96	1423	1519
Grand Total	0	0	0	0	0	0	804	148	54	952	1375	3	574	189	1952	242	478	0	0	720	243	3624	3867
Apprch %	0	0	0			0	84.5	15.5			70.4	0.2	29.4			33.6	66.4	0					
Total %	0	0	0		0	0	22.2	4.1		26.3	37.9	0.1	15.8		53.9	6.7	13.2	0		19.9	6.3	93.7	

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	123	**30**	153	175	1	94	270	22	**131**	0	153	576
07:15 AM	0	0	0	0	0	**132**	26	**158**	166	**2**	**114**	282	31	129	0	**160**	**600**
07:30 AM	0	0	0	0	0	125	28	153	189	0	85	274	28	53	0	81	508
07:45 AM	0	0	0	0	0	118	13	131	**232**	0	96	**328**	**33**	25	0	58	517
Total Volume	0	0	0	0	0	498	97	595	762	3	389	1154	114	338	0	452	2201
% App. Total	0	0	0		0	83.7	16.3		66	0.3	33.7		25.2	74.8	0		
PHF	.000	.000	.000	.000	.000	.943	.808	.941	.821	.375	.853	.880	.864	.645	.000	.706	.917

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	123	**30**	153	175	1	94	270	22	**131**	0	153	
+15 mins.	0	0	0	0	0	**132**	26	**158**	166	**2**	**114**	282	31	129	0	**160**	
+30 mins.	0	0	0	0	0	125	28	153	189	0	85	274	28	53	0	81	
+45 mins.	0	0	0	0	0	118	13	131	**232**	0	96	**328**	**33**	25	0	58	
Total Volume	0	0	0	0	0	498	97	595	762	3	389	1154	114	338	0	452	
% App. Total	0	0	0		0	83.7	16.3		66	0.3	33.7		25.2	74.8	0		
PHF	.000	.000	.000	.000	.000	.943	.808	.941	.821	.375	.853	.880	.864	.645	.000	.706	

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

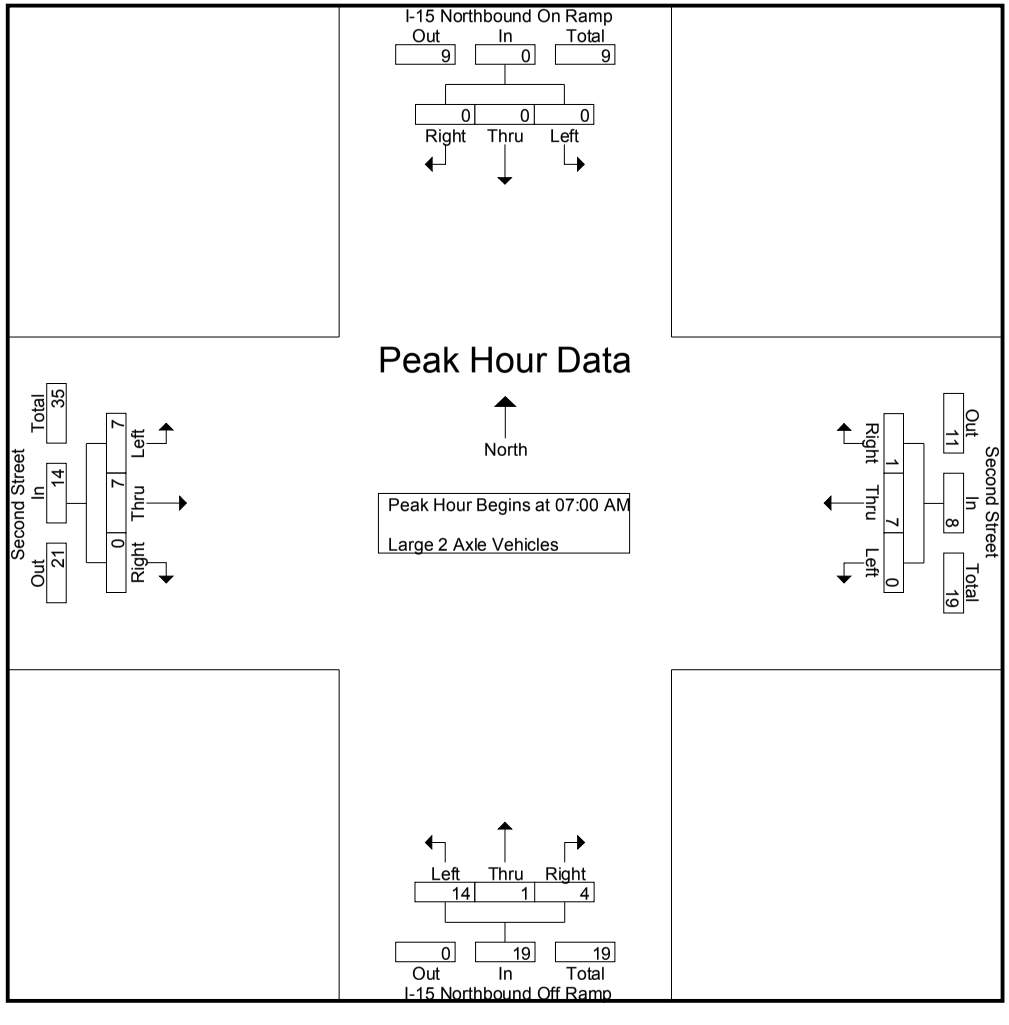
	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	5	0	0	0	5	0	2	0	0	2	0	8	8
07:15 AM	0	0	0	0	0	0	3	1	0	4	4	1	2	1	7	1	1	0	0	2	1	13	14
07:30 AM	0	0	0	0	0	0	2	0	0	2	4	0	1	1	5	2	2	0	0	4	1	11	12
07:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	1	2	4	2	0	0	6	1	9	10
Total	0	0	0	0	0	0	7	1	0	8	14	1	4	3	19	7	7	0	0	14	3	41	44
08:00 AM	0	0	0	0	0	0	3	0	0	3	1	1	0	0	2	4	3	0	0	7	0	12	12
08:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	1	0	5	5	2	0	0	7	0	12	12
08:30 AM	0	0	0	0	0	0	3	0	0	3	9	0	1	0	10	1	3	0	0	4	0	17	17
08:45 AM	0	0	0	0	0	0	5	0	0	5	9	0	2	2	11	2	1	0	0	3	2	19	21
Total	0	0	0	0	0	0	11	0	0	11	23	1	4	2	28	12	9	0	0	21	2	60	62
Grand Total	0	0	0	0	0	0	18	1	0	19	37	2	8	5	47	19	16	0	0	35	5	101	106
Apprch %	0	0	0			0	94.7	5.3			78.7	4.3	17			54.3	45.7	0					
Total %	0	0	0		0	0	17.8	1		18.8	36.6	2	7.9		46.5	18.8	15.8	0		34.7	4.7	95.3	

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	1	0	1	**5**	0	0	5	0	**2**	0	2	8
07:15 AM	0	0	0	0	0	**3**	**1**	**4**	4	**1**	**2**	**7**	1	1	0	2	**13**
07:30 AM	0	0	0	0	0	2	0	2	4	0	1	5	2	2	0	4	11
07:45 AM	0	0	0	0	0	1	0	1	1	0	1	2	**4**	2	0	**6**	9
Total Volume	0	0	0	0	0	7	1	8	14	1	4	19	7	7	0	14	41
% App. Total	0	0	0		0	87.5	12.5		73.7	5.3	21.1		50	50	0		
PHF	.000	.000	.000	.000	.000	.583	.250	.500	.700	.250	.500	.679	.438	.875	.000	.583	.788

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	1	0	1	**5**	0	0	5	0	**2**	0	2	
+15 mins.	0	0	0	0	0	**3**	**1**	**4**	4	**1**	**2**	**7**	1	1	0	2	
+30 mins.	0	0	0	0	0	2	0	2	4	0	1	5	2	2	0	4	
+45 mins.	0	0	0	0	0	1	0	1	1	0	1	2	**4**	2	0	**6**	
Total Volume	0	0	0	0	0	7	1	8	14	1	4	19	7	7	0	14	
% App. Total	0	0	0		0	87.5	12.5		73.7	5.3	21.1		50	50	0		
PHF	.000	.000	.000	.000	.000	.583	.250	.500	.700	.250	.500	.679	.438	.875	.000	.583	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

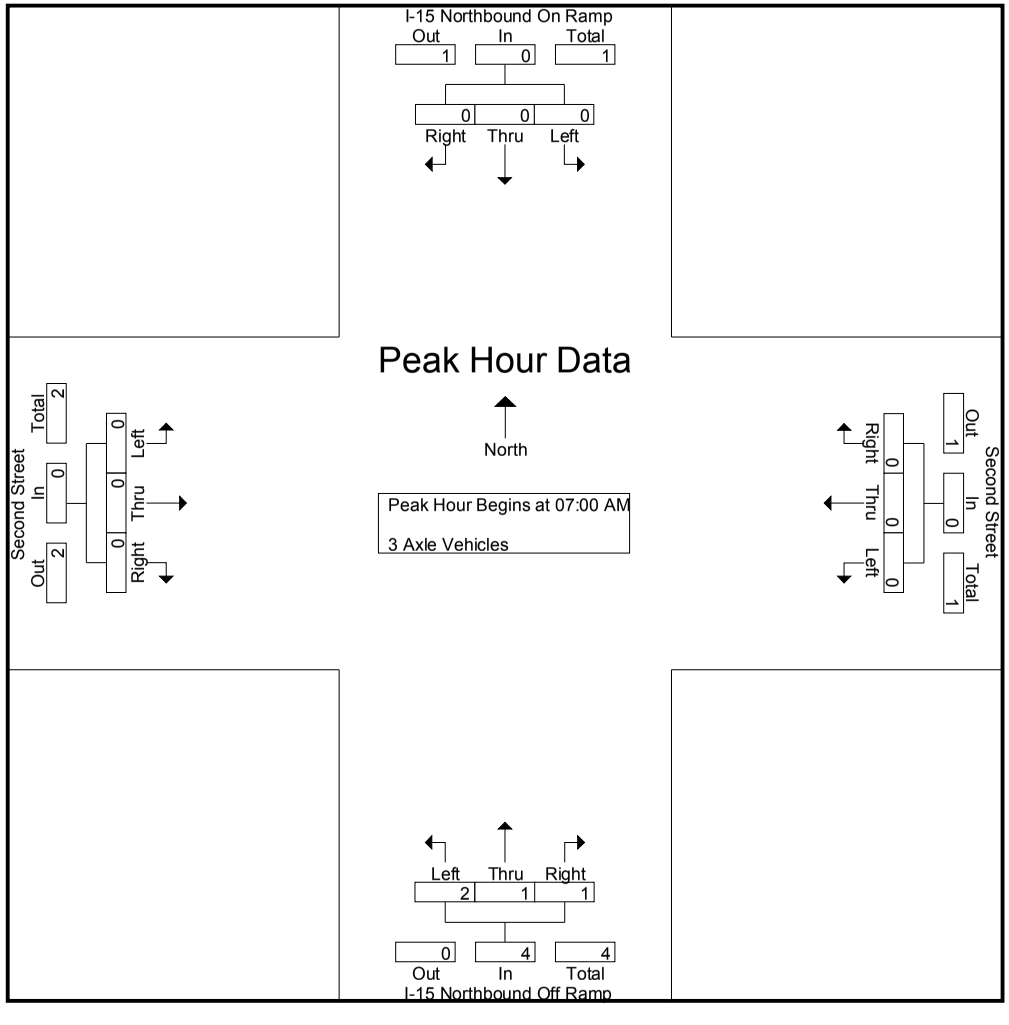
	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	2	1	1	0	4	0	0	0	0	0	0	4	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	4	4
08:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	3	3
Total	0	0	0	0	0	0	1	0	0	1	7	0	1	0	8	0	0	0	0	0	0	9	9
Grand Total	0	0	0	0	0	0	1	0	0	1	9	1	2	0	12	0	0	0	0	0	0	13	13
Apprch %	0	0	0			0	100	0			75	8.3	16.7			0	0	0					
Total %	0	0	0		0	0	7.7	0		7.7	69.2	7.7	15.4		92.3	0	0	0		0	0	100	

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	**1**	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	0	0	1
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	1	0	**1**	**2**	0	0	0	0	**2**
Total Volume	0	0	0	0	0	0	0	0	2	1	1	4	0	0	0	0	4
% App. Total	0	0	0		0	0	0		50	25	25		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.250	.500	.000	.000	.000	.000	.500

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	**1**	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	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	1	0	**1**	**2**	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	2	1	1	4	0	0	0	0	
% App. Total	0	0	0		0	0	0		50	25	25		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.250	.500	.000	.000	.000	.000	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	2	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3	3
Total	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	6	0	0	0	6	0	8	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	2	0	0	0	2	1	4	5
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	3	0	4	4
08:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	0	0	0	0	0	0	3	3
Total	0	0	0	0	0	0	1	0	0	1	2	0	3	1	5	5	0	0	0	5	1	11	12
Grand Total	0	0	0	0	0	0	2	0	0	2	3	0	3	1	6	11	0	0	0	11	1	19	20
Apprch %	0	0	0			0	100	0			50	0	50			100	0	0					
Total %	0	0	0		0	0	10.5	0		10.5	15.8	0	15.8		31.6	57.9	0	0		57.9	5	95	

3.1-89

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	**1**	0	**1**	0	0	0	0	1	0	0	1	2
07:15 AM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1	0	0	1	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	0	**3**	**3**
Total Volume	0	0	0	0	0	1	0	1	1	0	0	1	6	0	0	6	8
% App. Total	0	0	0		0	100	0		100	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250	.500	.000	.000	.500	.667

Counts Unlimited
PO Box 1178
Corona, CA 92878
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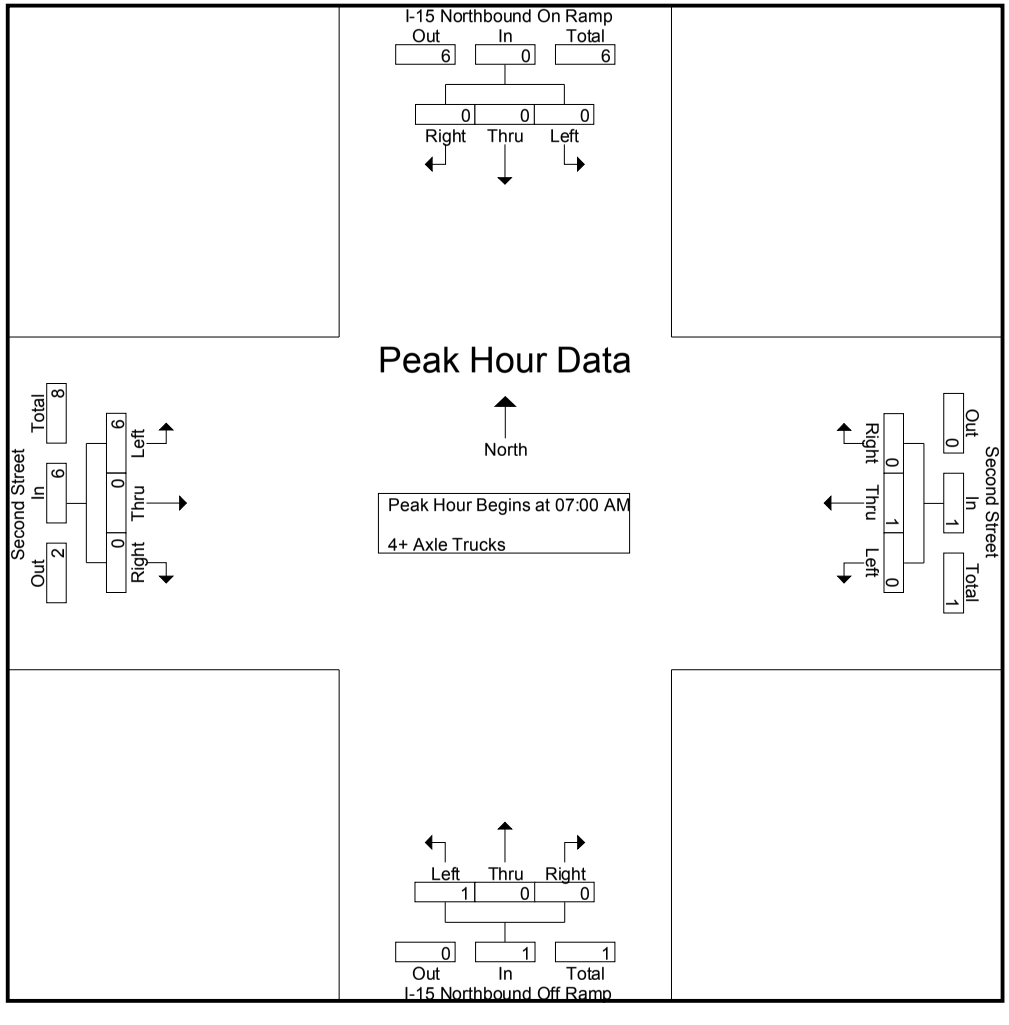
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second AM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	**1**	0	**1**	0	0	0	0	1	0	0	1	
+15 mins.	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1	0	0	1	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	0	**3**	
Total Volume	0	0	0	0	0	1	0	1	1	0	0	1	6	0	0	6	
% App. Total	0	0	0		0	100	0		100	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.000	.250	.500	.000	.000	.500	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	0	0	0	0	106	12	5	118	120	6	96	44	222	79	74	0	0	153	49	493	542
04:15 PM	0	0	0	0	0	0	74	13	2	87	103	10	84	35	197	95	71	0	0	166	37	450	487
04:30 PM	0	0	0	0	0	0	55	3	2	58	117	15	81	36	213	107	88	0	0	195	38	466	504
04:45 PM	0	0	0	0	0	0	92	12	5	104	113	13	94	39	220	100	82	0	0	182	44	506	550
Total	0	0	0	0	0	0	327	40	14	367	453	44	355	154	852	381	315	0	0	696	168	1915	2083
05:00 PM	0	0	0	0	0	0	100	9	2	109	128	7	95	45	230	103	76	0	0	179	47	518	565
05:15 PM	0	0	0	0	0	0	101	16	4	117	105	8	89	42	202	108	79	0	0	187	46	506	552
05:30 PM	0	0	0	0	0	0	90	11	1	101	127	8	98	48	233	84	65	0	0	149	49	483	532
05:45 PM	0	0	0	0	0	0	94	8	3	102	91	7	72	31	170	88	84	0	0	172	34	444	478
Total	0	0	0	0	0	0	385	44	10	429	451	30	354	166	835	383	304	0	0	687	176	1951	2127
Grand Total	0	0	0	0	0	0	712	84	24	796	904	74	709	320	1687	764	619	0	0	1383	344	3866	4210
Apprch %	0	0	0			0	89.4	10.6			53.6	4.4	42			55.2	44.8	0					
Total %	0	0	0		0	0	18.4	2.2		20.6	23.4	1.9	18.3		43.6	19.8	16	0		35.8	8.2	91.8	
Passenger Vehicles	0	0	0		0	0	700	84		808	871	69	698		1954	734	617	0		1351	0	0	4113
% Passenger Vehicles	0	0	0	0	0	0	98.3	100	100	98.5	96.3	93.2	98.4	98.8	97.4	96.1	99.7	0	0	97.7	0	0	97.7
Large 2 Axle Vehicles	0	0	0		0	0	12	0		12	20	4	9		37	17	1	0		18	0	0	67
% Large 2 Axle Vehicles	0	0	0	0	0	0	1.7	0	0	1.5	2.2	5.4	1.3	1.2	1.8	2.2	0.2	0	0	1.3	0	0	1.6
3 Axle Vehicles	0	0	0		0	0	0	0		0	5	1	2		8	4	0	0		4	0	0	12
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0.6	1.4	0.3	0	0.4	0.5	0	0	0	0.3	0	0	0.3
4+ Axle Trucks	0	0	0		0	0	0	0		0	8	0	0		8	9	1	0		10	0	0	18
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0.9	0	0	0	0.4	1.2	0.2	0	0	0.7	0	0	0.4

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	0	0	92	12	104	113	**13**	94	220	100	**82**	0	182	506
05:00 PM	0	0	0	0	0	100	9	109	**128**	7	95	230	103	76	0	179	**518**
05:15 PM	0	0	0	0	0	**101**	**16**	**117**	105	8	89	202	**108**	79	0	**187**	506
05:30 PM	0	0	0	0	0	90	11	101	127	8	**98**	**233**	84	65	0	149	483
Total Volume	0	0	0	0	0	383	48	431	473	36	376	885	395	302	0	697	2013
% App. Total	0	0	0		0	88.9	11.1		53.4	4.1	42.5		56.7	43.3	0		
PHF	.000	.000	.000	.000	.000	.948	.750	.921	.924	.692	.959	.950	.914	.921	.000	.932	.972

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Corona, CA 92878
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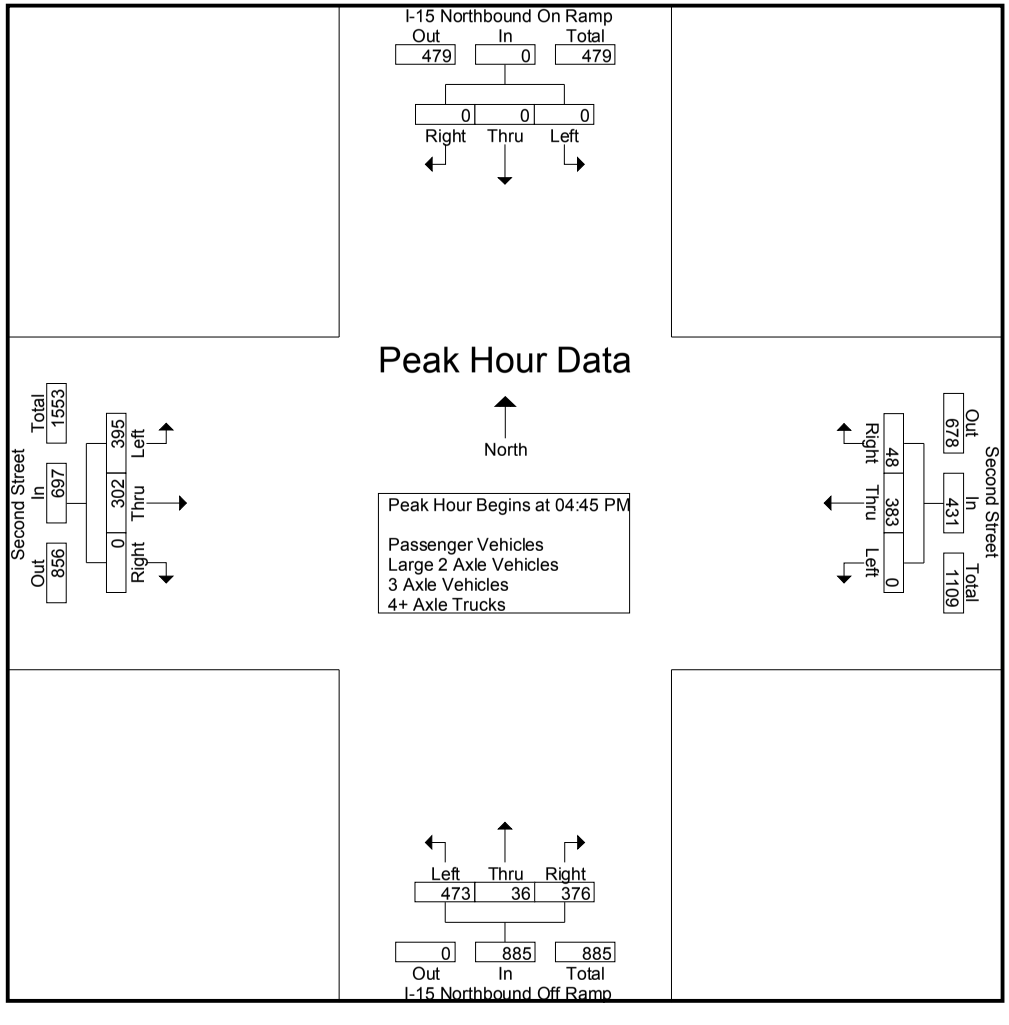
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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:																	
	04:00 PM				04:45 PM				04:45 PM				04:30 PM				
+0 mins.	0	0	0	0	0	92	12	104	113	**13**	94	220	107	**88**	0	**195**	
+15 mins.	0	0	0	0	0	100	9	109	**128**	7	95	230	100	82	0	182	
+30 mins.	0	0	0	0	0	**101**	**16**	**117**	105	8	89	202	103	76	0	179	
+45 mins.	0	0	0	0	0	90	11	101	127	8	**98**	**233**	**108**	79	0	187	
Total Volume	0	0	0	0	0	383	48	431	473	36	376	885	418	325	0	743	
% App. Total	0	0	0		0	88.9	11.1		53.4	4.1	42.5		56.3	43.7	0		
PHF	.000	.000	.000	.000	.000	.948	.750	.921	.924	.692	.959	.950	.968	.923	.000	.953	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
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Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	0	0	0	0	106	12	5	118	115	6	94	44	215	77	73	0	0	150	49	483	532
04:15 PM	0	0	0	0	0	0	74	13	2	87	97	10	83	35	190	91	71	0	0	162	37	439	476
04:30 PM	0	0	0	0	0	0	55	3	2	58	111	15	79	36	205	100	87	0	0	187	38	450	488
04:45 PM	0	0	0	0	0	0	89	12	5	101	109	11	92	37	212	97	82	0	0	179	42	492	534
Total	0	0	0	0	0	0	324	40	14	364	432	42	348	152	822	365	313	0	0	678	166	1864	2030
05:00 PM	0	0	0	0	0	0	97	9	2	106	124	7	95	45	226	102	76	0	0	178	47	510	557
05:15 PM	0	0	0	0	0	0	99	16	4	115	100	8	88	42	196	101	79	0	0	180	46	491	537
05:30 PM	0	0	0	0	0	0	88	11	1	99	126	7	96	46	229	82	65	0	0	147	47	475	522
05:45 PM	0	0	0	0	0	0	92	8	3	100	89	5	71	31	165	84	84	0	0	168	34	433	467
Total	0	0	0	0	0	0	376	44	10	420	439	27	350	164	816	369	304	0	0	673	174	1909	2083
Grand Total	0	0	0	0	0	0	700	84	24	784	871	69	698	316	1638	734	617	0	0	1351	340	3773	4113
Apprch %	0	0	0			0	89.3	10.7			53.2	4.2	42.6			54.3	45.7	0					
Total %	0	0	0		0	0	18.6	2.2		20.8	23.1	1.8	18.5		43.4	19.5	16.4	0		35.8	8.3	91.7	

3.1-95

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	89	12	101	109	**11**	92	212	97	**82**	0	179	492
05:00 PM	0	0	0	0	0	97	9	106	124	7	95	226	**102**	76	0	178	**510**
05:15 PM	0	0	0	0	0	**99**	**16**	**115**	100	8	88	196	101	79	0	**180**	491
05:30 PM	0	0	0	0	0	88	11	99	**126**	7	**96**	**229**	82	65	0	147	475
Total Volume	0	0	0	0	0	373	48	421	459	33	371	863	382	302	0	684	1968
% App. Total	0	0	0		0	88.6	11.4		53.2	3.8	43		55.8	44.2	0		
PHF	.000	.000	.000	.000	.000	.942	.750	.915	.911	.750	.966	.942	.936	.921	.000	.950	.965

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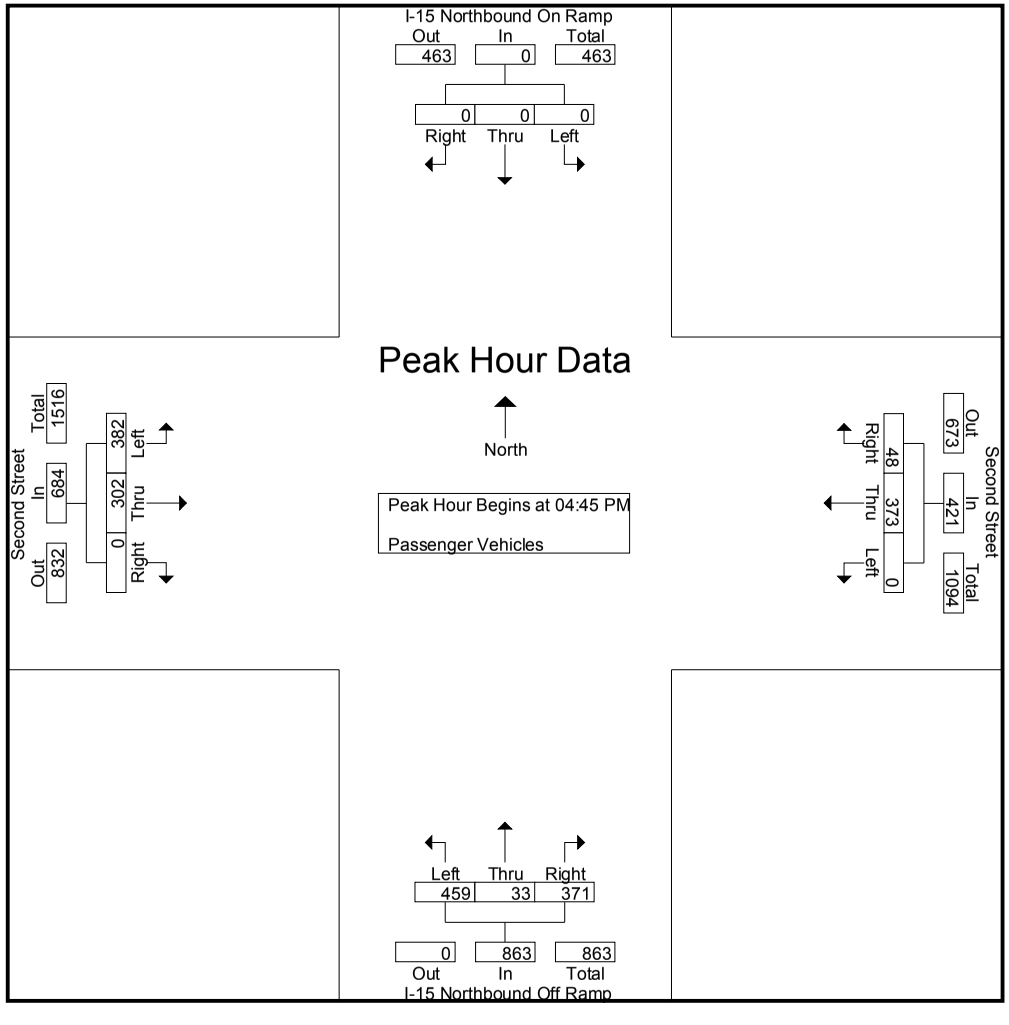
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	89	12	101	109	**11**	92	212	97	**82**	0	179	
+15 mins.	0	0	0	0	0	97	9	106	124	7	95	226	**102**	76	0	178	
+30 mins.	0	0	0	0	0	**99**	**16**	**115**	100	8	88	196	101	79	0	**180**	
+45 mins.	0	0	0	0	0	88	11	99	**126**	7	**96**	**229**	82	65	0	147	
Total Volume	0	0	0	0	0	373	48	421	459	33	371	863	382	302	0	684	
% App. Total	0	0	0		0	88.6	11.4		53.2	3.8	43		55.8	44.2	0		
PHF	.000	.000	.000	.000	.000	.942	.750	.915	.911	.750	.966	.942	.936	.921	.000	.950	

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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	0	0	0	0	0	0	0	0	4	0	1	0	5	0	1	0	0	1	0	6	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	3	0	0	0	3	0	7	7
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	2	0	5	5	0	0	0	5	0	10	10
04:45 PM	0	0	0	0	0	0	3	0	0	3	3	2	2	2	7	1	0	0	0	1	2	11	13
Total	0	0	0	0	0	0	3	0	0	3	14	2	5	2	21	9	1	0	0	10	2	34	36
05:00 PM	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	0	0	0	0	0	6	6
05:15 PM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	5	0	0	0	5	0	10	10
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	0	0	0	0	0	2	4	6
05:45 PM	0	0	0	0	0	0	2	0	0	2	1	2	1	0	4	3	0	0	0	3	0	9	9
Total	0	0	0	0	0	0	9	0	0	9	6	2	4	2	12	8	0	0	0	8	2	29	31
Grand Total	0	0	0	0	0	0	12	0	0	12	20	4	9	4	33	17	1	0	0	18	4	63	67
Apprch %	0	0	0			0	100	0			60.6	12.1	27.3			94.4	5.6	0					
Total %	0	0	0		0	0	19	0		19	31.7	6.3	14.3		52.4	27	1.6	0		28.6	6	94	

3.1-98

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	**3**	0	**3**	**3**	**2**	**2**	**7**	1	0	0	1	**11**
05:00 PM	0	0	0	0	0	3	0	3	3	0	0	3	0	0	0	0	6
05:15 PM	0	0	0	0	0	2	0	2	2	0	1	3	**5**	0	0	**5**	10
05:30 PM	0	0	0	0	0	2	0	2	0	0	2	2	0	0	0	0	4
Total Volume	0	0	0	0	0	10	0	10	8	2	5	15	6	0	0	6	31
% App. Total	0	0	0		0	100	0		53.3	13.3	33.3		100	0	0		
PHF	.000	.000	.000	.000	.000	.833	.000	.833	.667	.250	.625	.536	.300	.000	.000	.300	.705

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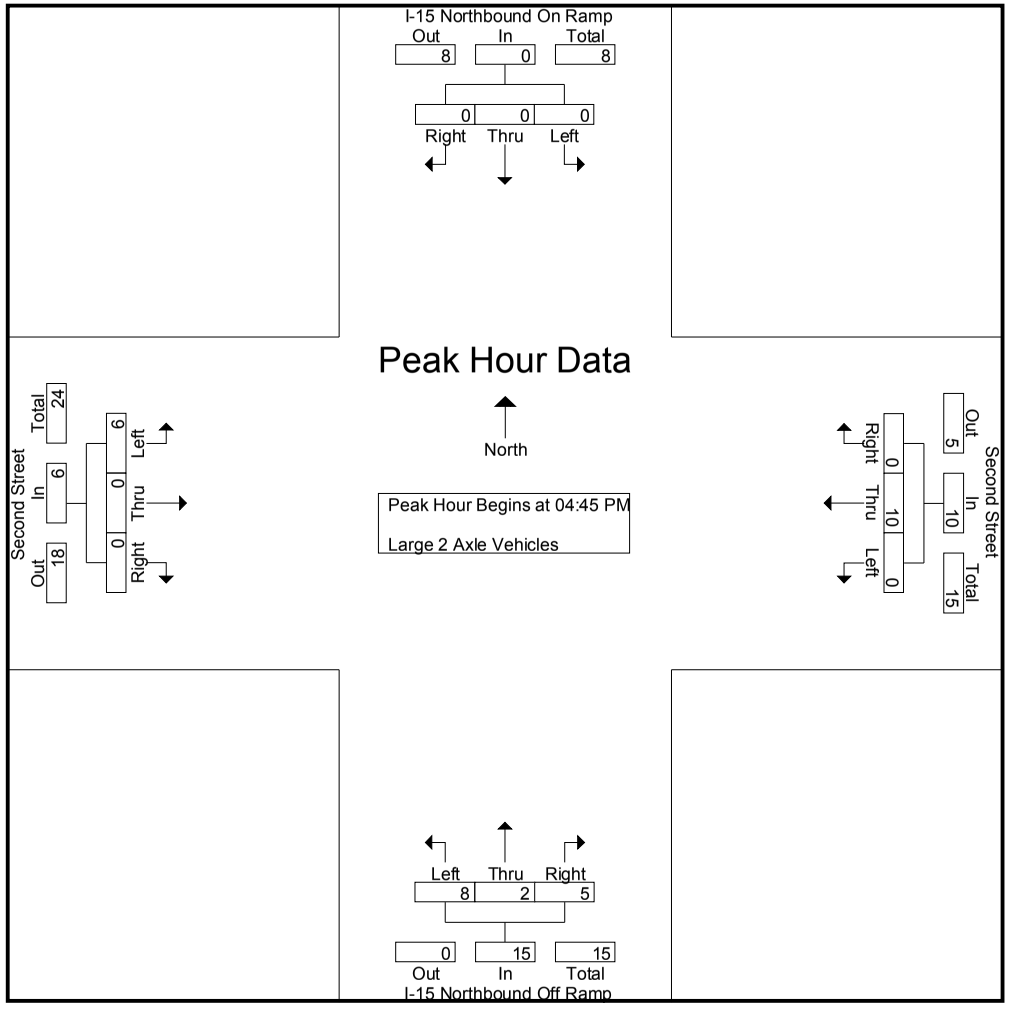
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
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Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	**3**	0	**3**	**3**	**2**	**2**	**7**	1	0	0	1	
+15 mins.	0	0	0	0	0	3	0	3	3	0	0	3	0	0	0	0	
+30 mins.	0	0	0	0	0	2	0	2	2	0	1	3	**5**	0	0	**5**	
+45 mins.	0	0	0	0	0	2	0	2	0	0	2	2	0	0	0	0	
Total Volume	0	0	0	0	0	10	0	10	8	2	5	15	6	0	0	6	
% App. Total	0	0	0		0	100	0		53.3	13.3	33.3		100	0	0		
PHF	.000	.000	.000	.000	.000	.833	.000	.833	.667	.250	.625	.536	.300	.000	.000	.300	

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City of Norco
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E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	3	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	3	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	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	3	0	2	0	5	2	0	0	0	2	0	7	7
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	1	0	0	0	1	1	0	0	0	1	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	3	3
05:45 PM	0	0	0	0	0	0	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	2	1	0	0	3	2	0	0	0	2	0	5	5
Grand Total	0	0	0	0	0	0	0	0	0	0	5	1	2	0	8	4	0	0	0	4	0	12	12
Apprch %	0	0	0			0	0	0			62.5	12.5	25			100	0	0					
Total %	0	0	0		0	0	0	0		0	41.7	8.3	16.7		66.7	33.3	0	0		33.3	0	100	

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	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	**1**	0	0	1	**1**	0	0	**1**	2
05:30 PM	0	0	0	0	0	0	0	0	1	**1**	0	**2**	1	0	0	1	**3**
Total Volume	0	0	0	0	0	0	0	0	2	1	0	3	2	0	0	2	5
% App. Total	0	0	0		0	0	0		66.7	33.3	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.000	.375	.500	.000	.000	.500	.417

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City of Norco
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File Name : 08_NOR_15N_Second PM
Site Code : 05120029
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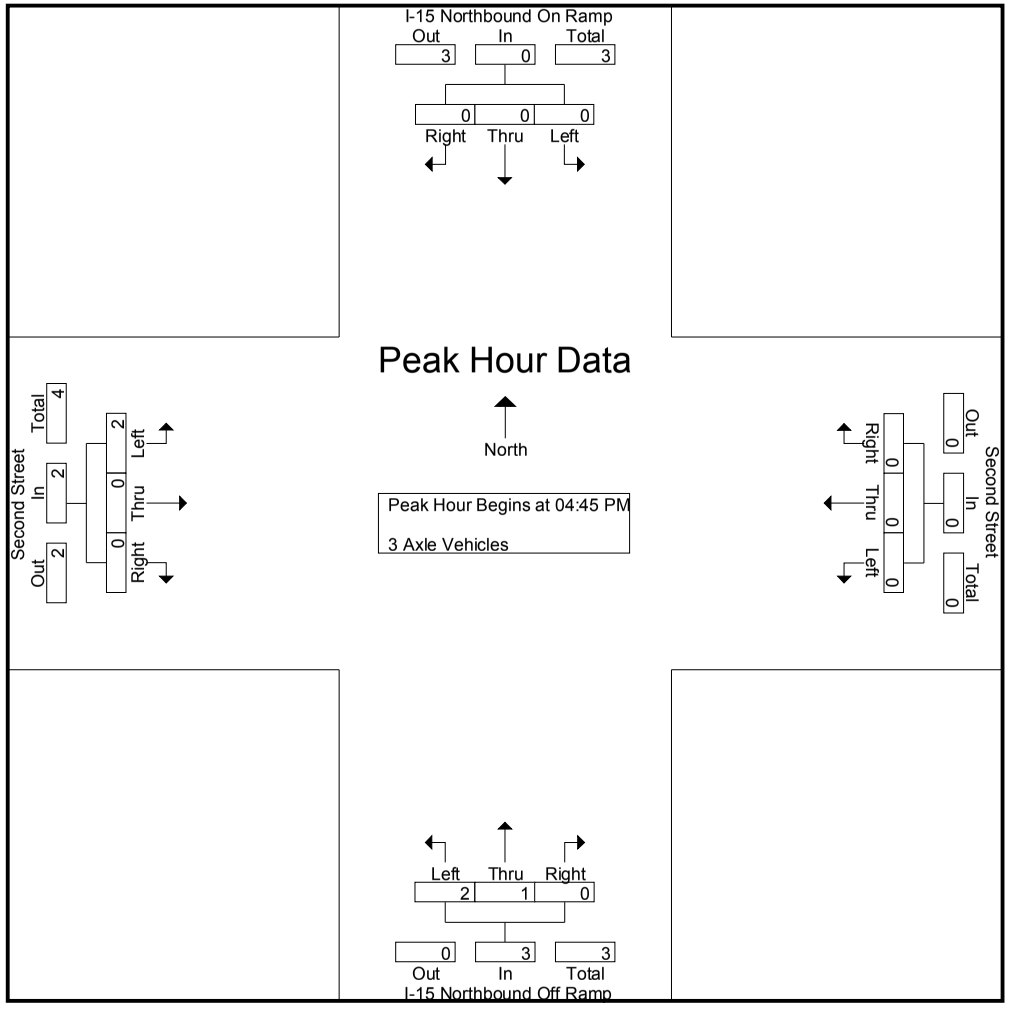
Page No : 2



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E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	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	**1**	0	0	1	**1**	0	0	**1**	
+45 mins.	0	0	0	0	0	0	0	0	1	**1**	0	**2**	1	0	0	1	
Total Volume	0	0	0	0	0	0	0	0	2	1	0	3	2	0	0	2	
% App. Total	0	0	0		0	0	0		66.7	33.3	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.000	.375	.500	.000	.000	.500	

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Second Street Westbound					I-15 Northbound Off Ramp Northbound					Second 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	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	1	1	0	0	2	0	5	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	0	3	3
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	5	1	0	0	6	0	10	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	2	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	0	0	0	4	0	8	8
Grand Total	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	9	1	0	0	10	0	18	18
Apprch %	0	0	0			0	0	0			100	0	0			90	10	0					
Total %	0	0	0		0	0	0	0		0	44.4	0	0		44.4	50	5.6	0		55.6	0	100	

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	0	0	0	1	0	0	1	**2**	0	0	**2**	**3**
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
05:15 PM	0	0	0	0	0	0	0	0	**2**	0	0	**2**	1	0	0	1	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	4	0	0	4	5	0	0	5	9
% App. Total	0	0	0		0	0	0		100	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.625	.000	.000	.625	.750

Counts Unlimited
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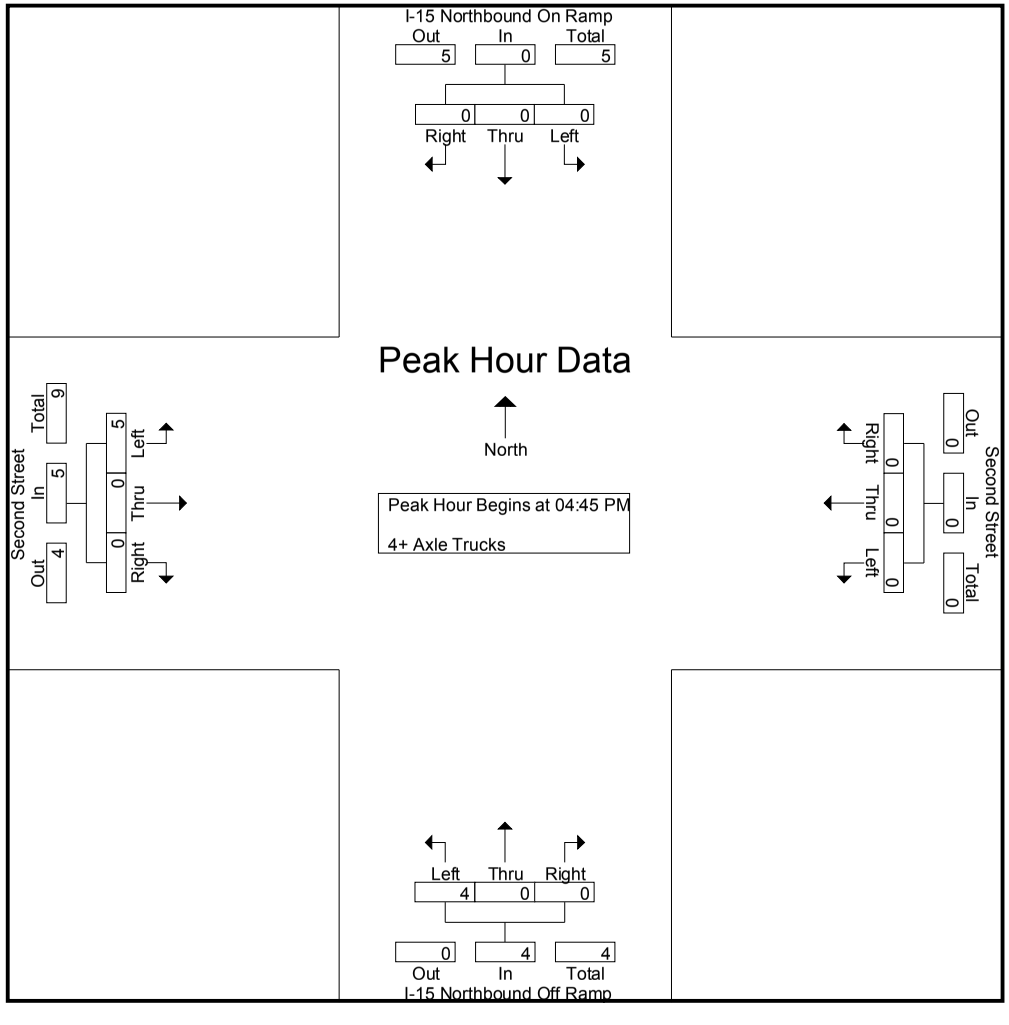
City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
Weather: Clear

File Name : 08_NOR_15N_Second PM
Site Code : 05120029
Start Date : 1/23/2020
Page No : 2



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City of Norco
N/S: I-15 Northbound Ramps
E/W: Second Street
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Site Code : 05120029
Start Date : 1/23/2020
Page No : 3

	I-15 Northbound On Ramp Southbound				Second Street Westbound				I-15 Northbound Off Ramp Northbound				Second 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	0	0	0	0	0	0	1	0	0	1	**2**	0	0	**2**	
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	
+30 mins.	0	0	0	0	0	0	0	0	**2**	0	0	**2**	1	0	0	1	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Total Volume	0	0	0	0	0	0	0	0	4	0	0	4	5	0	0	5	
% App. Total	0	0	0		0	0	0		100	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.625	.000	.000	.625	

Location: Norco
N/S: I-15 Northbound Ramps
E/W: Second Street

Date: 1/23/2020
Day: Thursday

PEDESTRIANS

	North Leg I-15 Northbound Ramps	East Leg Second Street	South Leg I-15 Northbound Ramps	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	0	0	1
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	0	1	0	2

	North Leg I-15 Northbound Ramps	East Leg Second Street	South Leg I-15 Northbound Ramps	West Leg Second Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	5	0	5
4:15 PM	1	0	0	0	1
4:30 PM	0	0	2	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	0	2	0	2
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	9	0	11

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-0268

Location: Norco
N/S: I-15 Northbound Ramps
E/W: Second Street

Date: 1/23/2020
Day: Thursday

BICYCLES

	Southbound I-15 Northbound Ramps			Westbound Second Street			Northbound I-15 Northbound Ramps			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound I-15 Northbound Ramps			Westbound Second Street			Northbound I-15 Northbound Ramps			Eastbound Second Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Norco
Hamner Avenue
S/ Third Street
24 Hour Directional Volume Count

NORHASTH
Site Code: 051-20029

Start Time	1/23/2020 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		23	280			19	304				
12:15		20	292			17	299				
12:30		7	305			12	322				
12:45		10	333	60	1210	9	304	57	1229	117	2439
01:00		12	271			12	294				
01:15		6	252			9	303				
01:30		15	255			5	265				
01:45		10	297	43	1075	15	256	41	1118	84	2193
02:00		11	273			4	269				
02:15		6	310			9	273				
02:30		10	290			9	345				
02:45		3	**338**	30	1211	4	318	26	1205	56	2416
03:00		4	**273**			4	**362**				
03:15		3	**327**			11	**366**				
03:30		7	**346**			10	**372**				
03:45		9	292	23	1238	23	**333**	48	1433	71	2671
04:00		13	297			16	336				
04:15		9	314			32	321				
04:30		16	296			35	353				
04:45		40	330	78	1237	50	316	133	1326	211	2563
05:00		23	318			42	305				
05:15		45	326			46	282				
05:30		74	285			52	306				
05:45		120	295	262	1224	49	252	189	1145	451	2369
06:00		119	229			61	303				
06:15		131	192			71	241				
06:30		201	184			88	207				
06:45		315	156	766	761	102	170	322	921	1088	1682
07:00		314	126			134	140				
07:15		**364**	148			206	155				
07:30		**365**	108			243	153				
07:45		**451**	106	1494	488	220	102	803	550	2297	1038
08:00		**332**	98			218	116				
08:15		254	119			187	129				
08:30		275	112			209	123				
08:45		289	92	1150	421	202	103	816	471	1966	892
09:00		289	78			154	127				
09:15		262	88			160	100				
09:30		269	81			203	106				
09:45		288	66	1108	313	181	78	698	411	1806	724
10:00		283	43			194	54				
10:15		305	53			230	41				
10:30		294	50			229	37				
10:45		203	29	1085	175	215	37	868	169	1953	344
11:00		213	37			**245**	22				
11:15		249	25			**269**	30				
11:30		243	21			**358**	14				
11:45		259	15	964	98	**313**	18	1185	84	2149	182
Total		7063	9451	7063	9451	5186	10062	5186	10062	12249	19513
Combined Total		16514		16514		15248		15248		31762	
AM Peak	-	07:15	-	-	-	11:00	-	-	-	-	-
Vol.	-	1512	-	-	-	1185	-	-	-	-	-
P.H.F.		0.838				0.828					
PM Peak	-	-	02:45	-	-	-	03:00	-	-	-	-
Vol.	-	-	1284	-	-	-	1433	-	-	-	-
P.H.F.			0.928				0.963				
Percentage		42.8%	57.2%			34.0%	66.0%				
ADT/AADT		ADT 31,762		AADT 31,762							

Counts Unlimited, Inc.

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City of Norco
Third Street
W/ Hamner Avenue
24 Hour Directional Volume Count

NORTHWHA
Site Code: 051-20029

Start	1/23/2020	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1	113			0	**84**				
12:15		0	114			0	**104**				
12:30		0	143			0	**179**				
12:45		0	113	1	483	0	**198**	0	565	1	1048
01:00		0	124			0	82				
01:15		0	84			1	69				
01:30		0	83			0	68				
01:45		0	75	0	366	0	73	1	292	1	658
02:00		0	87			0	79				
02:15		6	79			0	112				
02:30		1	**222**			0	134				
02:45		1	**153**	8	541	0	120	0	445	8	986
03:00		0	**124**			0	63				
03:15		1	**89**			0	63				
03:30		1	125			0	55				
03:45		0	82	2	420	0	39	0	220	2	640
04:00		0	104			0	31				
04:15		0	44			0	31				
04:30		0	70			3	58				
04:45		0	58	0	276	2	52	5	172	5	448
05:00		0	85			2	42				
05:15		0	51			4	72				
05:30		0	49			4	87				
05:45		0	55	0	240	13	102	23	303	23	543
06:00		1	61			12	88				
06:15		2	50			13	46				
06:30		1	40			17	22				
06:45		15	28	19	179	76	13	118	169	137	348
07:00		54	19			177	9				
07:15		117	28			**297**	7				
07:30		131	52			**372**	16				
07:45		62	49	364	148	**426**	14	1272	46	1636	194
08:00		44	34			**264**	18				
08:15		24	55			69	12				
08:30		35	41			95	16				
08:45		27	49	130	179	98	8	526	54	656	233
09:00		31	80			88	8				
09:15		28	54			72	15				
09:30		92	29			79	8				
09:45		71	21	222	184	144	2	383	33	605	217
10:00		64	6			185	0				
10:15		84	1			187	2				
10:30		66	1			88	2				
10:45		51	1	265	9	51	0	511	4	776	13
11:00		**74**	1			44	2				
11:15		**79**	2			73	2				
11:30		**105**	0			54	0				
11:45		**120**	0	378	3	64	0	235	4	613	7
Total		1389	3028	1389	3028	3074	2307	3074	2307	4463	5335
Combined Total		4417		4417		5381		5381		9798	
AM Peak	-	11:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	378	-	-	-	1359	-	-	-	-	-
P.H.F.		0.721				0.798					
PM Peak	-	-	02:30	-	-	-	12:00	-	-	-	-
Vol.	-	-	588	-	-	-	565	-	-	-	-
P.H.F.			0.662				0.713				
Percentage		31.4%	68.6%			57.1%	42.9%				
ADT/AADT		ADT 9,798		AADT 9,798							

APPENDIX 3.2:

EXISTING (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	346	0	0	1035	28	0	0	0	15	0	0
Future Vol, veh/h	0	346	0	0	1035	28	0	0	0	15	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	427	0	0	1278	35	0	0	0	19	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1314	0	0	427	0	0	1066	1741	214	1511	1724	658
Stage 1	-	-	-	-	-	-	427	427	-	1297	1297	-
Stage 2	-	-	-	-	-	-	639	1314	-	214	427	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	801	-	-	1129	-	-	*628	158	791	245	164	*666
Stage 1	-	-	-	-	-	-	*576	584	-	461	437	-
Stage 2	-	-	-	-	-	-	*628	426	-	768	584	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	800	-	-	1129	-	-	*628	158	791	245	164	*666
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	294	-	363	301	-
Stage 1	-	-	-	-	-	-	*576	584	-	461	437	-
Stage 2	-	-	-	-	-	-	*628	425	-	768	584	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	800	-	-	1129	-	-	363
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.051
HCM Control Delay (s)	0	0	-	-	0	-	-	15.5
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	36	204	486	80	282	69	393	240	424	720	45
Future Volume (vph)	36	204	486	80	282	69	393	240	424	720	45
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	14.6	45.4	45.4	25.0	55.8	55.8
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	12.2%	37.8%	37.8%	20.8%	46.5%	46.5%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.3	10.3	25.6	25.6	25.6	8.5	40.6	40.6	20.9	55.0	55.0
Actuated g/C Ratio	0.09	0.09	0.22	0.22	0.22	0.07	0.35	0.35	0.18	0.48	0.48
v/c Ratio	0.24	0.81	0.80	0.79	0.51	0.56	0.33	0.36	1.39	0.45	0.06
Control Delay	54.8	68.6	59.0	58.2	7.5	69.3	29.3	5.0	231.9	23.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	68.6	59.0	58.2	7.5	69.3	29.3	5.0	231.9	23.1	0.2
LOS	D	E	E	E	A	E	C	A	F	C	A
Approach Delay		66.9		41.6			24.9			96.6	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.7	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 61.7	Intersection LOS: E
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	204	44	486	80	282	69	393	240	424	720	45
Future Volume (veh/h)	36	204	44	486	80	282	69	393	240	424	720	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	215	35	572	0	84	73	414	132	446	758	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	276	44	685	0	304	94	1298	578	336	1781	792
Arrive On Green	0.09	0.09	0.09	0.19	0.00	0.19	0.05	0.37	0.37	0.19	0.50	0.50
Sat Flow, veh/h	1781	3067	492	3563	0	1580	1781	3554	1584	1781	3554	1580
Grp Volume(v), veh/h	38	123	127	572	0	84	73	414	132	446	758	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1782	1781	0	1580	1781	1777	1584	1781	1777	1580
Q Serve(g_s), s	2.2	7.5	7.7	17.1	0.0	5.0	4.5	9.3	6.4	20.9	15.0	1.1
Cycle Q Clear(g_c), s	2.2	7.5	7.7	17.1	0.0	5.0	4.5	9.3	6.4	20.9	15.0	1.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	160	161	685	0	304	94	1298	578	336	1781	792
V/C Ratio(X)	0.24	0.77	0.79	0.84	0.00	0.28	0.78	0.32	0.23	1.33	0.43	0.04
Avail Cap(c_a), veh/h	167	167	167	964	0	427	169	1298	578	336	1781	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	49.3	49.4	43.1	0.0	38.2	51.9	25.3	24.4	45.0	17.5	14.1
Incr Delay (d2), s/veh	0.7	18.7	21.4	4.6	0.0	0.5	5.2	0.6	0.9	167.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.1	4.4	7.8	0.0	2.0	2.1	3.9	2.5	24.5	6.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	68.1	70.8	47.7	0.0	38.7	57.1	25.9	25.3	212.1	18.3	14.2
LnGrp LOS	D	E	E	D	A	D	E	C	C	F	B	B
Approach Vol, veh/h		288			656			619			1234	
Approach Delay, s/veh		66.6			46.5			29.5			88.3	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.0	45.4		14.6	9.9	60.5		25.9				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	20.9	40.5		10.4	10.5	50.9		30.0				
Max Q Clear Time (g_c+I1), s	22.9	11.3		9.7	6.5	17.0		19.1				
Green Ext Time (p_c), s	0.0	3.1		0.1	0.0	5.7		1.9				

Intersection Summary			
HCM 6th Ctrl Delay		63.2	
HCM 6th LOS		E	

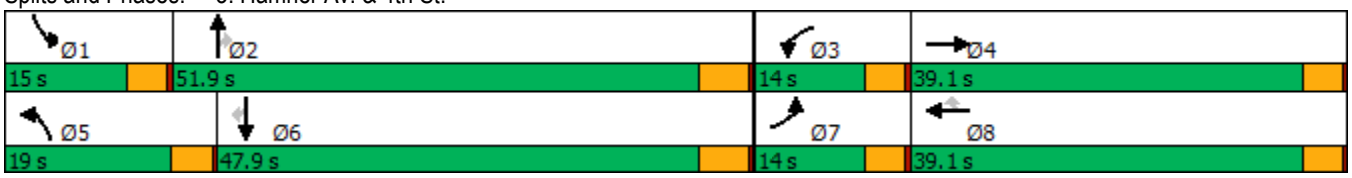
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	54	12	117	129	113	112	731	38	61	730	167
Future Volume (vph)	54	12	117	129	113	112	731	38	61	730	167
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	14.0	39.1	14.0	39.1	39.1	19.0	51.9	51.9	15.0	47.9	47.9
Total Split (%)	11.7%	32.6%	11.7%	32.6%	32.6%	15.8%	43.3%	43.3%	12.5%	39.9%	39.9%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	7.4	13.9	15.2	14.7	14.7	10.5	49.6	49.6	7.8	44.6	44.6
Actuated g/C Ratio	0.08	0.15	0.16	0.16	0.16	0.11	0.54	0.54	0.08	0.48	0.48
v/c Ratio	0.42	0.09	0.44	0.47	0.35	0.61	0.42	0.05	0.45	0.46	0.22
Control Delay	53.4	25.0	45.1	41.9	9.4	54.9	16.9	0.3	53.5	19.7	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	25.0	45.1	41.9	9.4	54.9	16.9	0.3	53.5	19.7	10.1
LOS	D	C	D	D	A	D	B	A	D	B	B
Approach Delay		45.4		32.7			21.0			20.2	
Approach LOS		D		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.4	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 23.3	Intersection LOS: C
Intersection Capacity Utilization 56.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	12	9	117	129	113	112	731	38	61	730	167
Future Volume (veh/h)	54	12	9	117	129	113	112	731	38	61	730	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	13	0	127	140	40	122	795	25	66	793	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	221	0	159	306	259	154	1938	864	85	1801	803
Arrive On Green	0.04	0.12	0.00	0.09	0.16	0.16	0.09	0.55	0.55	0.05	0.51	0.51
Sat Flow, veh/h	1781	1870	0	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	59	13	0	127	140	40	122	795	25	66	793	134
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	0.5	0.0	6.0	5.8	1.9	5.8	11.3	0.6	3.2	12.2	3.9
Cycle Q Clear(g_c), s	2.8	0.5	0.0	6.0	5.8	1.9	5.8	11.3	0.6	3.2	12.2	3.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	221	0	159	306	259	154	1938	864	85	1801	803
V/C Ratio(X)	0.75	0.06	0.00	0.80	0.46	0.15	0.79	0.41	0.03	0.78	0.44	0.17
Avail Cap(c_a), veh/h	205	760	0	205	760	644	308	1938	864	225	1801	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	33.7	0.0	38.5	32.6	30.9	38.6	11.5	9.0	40.6	13.5	11.5
Incr Delay (d2), s/veh	5.4	0.1	0.0	12.2	1.1	0.3	3.5	0.6	0.1	5.6	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.2	0.0	3.2	2.7	0.7	2.6	4.0	0.2	1.5	4.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	33.8	0.0	50.7	33.7	31.2	42.1	12.1	9.1	46.2	14.3	11.9
LnGrp LOS	D	C	A	D	C	C	D	B	A	D	B	B
Approach Vol, veh/h		72			307			942			993	
Approach Delay, s/veh		43.9			40.4			15.9			16.1	
Approach LOS		D			D			B			B	

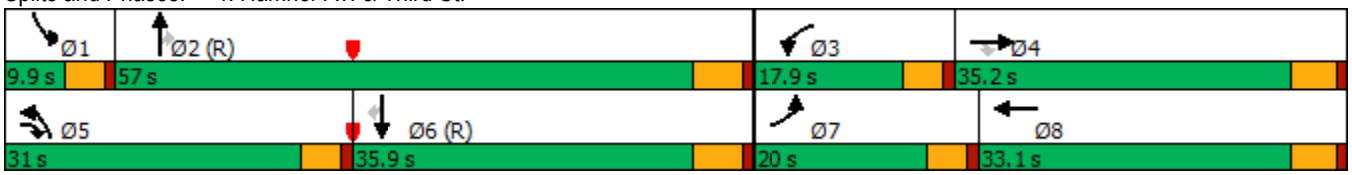
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	51.9	11.8	14.3	11.5	48.6	7.9	18.2
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	10.9	47.0	9.9	35.0	14.9	43.0	9.9	35.0
Max Q Clear Time (g_c+I1), s	5.2	13.3	8.0	2.5	7.8	14.2	4.8	7.8
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	0.1	6.2	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	128	19	214	91	175	534	899	42	14	568	327
Future Volume (vph)	128	19	214	91	175	534	899	42	14	568	327
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	12.9	20.3	43.3	19.5	20.9	23.9	66.9	66.9	5.4	42.6	42.6
Actuated g/C Ratio	0.11	0.17	0.36	0.16	0.17	0.20	0.56	0.56	0.04	0.36	0.36
v/c Ratio	0.74	0.07	0.36	0.35	0.76	0.86	0.50	0.05	0.19	0.50	0.46
Control Delay	74.2	37.5	10.6	51.8	59.9	56.4	29.7	3.6	60.7	34.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	37.5	10.6	51.8	59.9	56.4	29.7	3.6	60.7	34.3	5.7
LOS	E	D	B	D	E	E	C	A	E	C	A
Approach Delay		34.6			57.6		38.6			24.4	
Approach LOS		C			E		D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 35.9	Intersection LOS: D
Intersection Capacity Utilization 73.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	19	214	91	175	48	534	899	42	14	568	327
Future Volume (veh/h)	128	19	214	91	175	48	534	899	42	14	568	327
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	21	94	100	192	37	587	988	36	15	624	208
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	326	568	124	228	44	637	2045	912	29	1449	638
Arrive On Green	0.09	0.17	0.17	0.07	0.15	0.15	0.37	1.00	1.00	0.02	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	1781	1523	293	3456	3554	1585	1781	3554	1564
Grp Volume(v), veh/h	141	21	94	100	0	229	587	988	36	15	624	208
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1816	1728	1777	1585	1781	1777	1564
Q Serve(g_s), s	9.3	1.1	4.9	6.6	0.0	14.7	19.5	0.0	0.0	1.0	15.1	10.9
Cycle Q Clear(g_c), s	9.3	1.1	4.9	6.6	0.0	14.7	19.5	0.0	0.0	1.0	15.1	10.9
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	326	568	124	0	272	637	2045	912	29	1449	638
V/C Ratio(X)	0.84	0.06	0.17	0.80	0.00	0.84	0.92	0.48	0.04	0.51	0.43	0.33
Avail Cap(c_a), veh/h	229	469	690	197	0	424	760	2045	912	79	1449	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89
Uniform Delay (d), s/veh	53.5	41.4	26.3	55.0	0.0	49.6	37.0	0.0	0.0	58.5	25.5	24.3
Incr Delay (d2), s/veh	14.0	0.1	0.1	5.2	0.0	8.8	13.8	0.8	0.1	4.6	0.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.5	1.8	3.1	0.0	7.3	7.6	0.2	0.0	0.5	6.4	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	41.5	26.4	60.2	0.0	58.4	50.9	0.8	0.1	63.1	26.4	25.5
LnGrp LOS	E	D	C	E	A	E	D	A	A	E	C	C
Approach Vol, veh/h		256			329			1611			847	
Approach Delay, s/veh		50.2			59.0			19.0			26.8	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	74.5	13.0	26.0	26.7	54.3	15.9	23.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	3.0	2.0	8.6	6.9	21.5	17.1	11.3	16.7
Green Ext Time (p_c), s	0.0	8.4	0.0	0.3	0.6	3.9	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	0	0	1491	3	0	873	0
Future Vol, veh/h	0	0	0	1	0	0	0	1491	3	0	873	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	1	0	0	0	1621	3	0	949	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1764	2577	479	2098	2576	812	953	0	0	1624	0	0
Stage 1	953	953	-	1623	1623	-	-	-	-	-	-	-
Stage 2	811	1624	-	475	953	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*109	*96	*720	*109	*96	*465	*1078	-	-	*696	-	-
Stage 1	*679	*595	-	*439	*385	-	-	-	-	-	-	-
Stage 2	*439	*385	-	*679	*595	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*109	*95	*718	*109	*95	*465	*1074	-	-	*696	-	-
Mov Cap-2 Maneuver	*362	*317	-	*362	*317	-	-	-	-	-	-	-
Stage 1	*677	*594	-	*439	*385	-	-	-	-	-	-	-
Stage 2	*439	*385	-	*679	*594	-	-	-	-	-	-	-

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

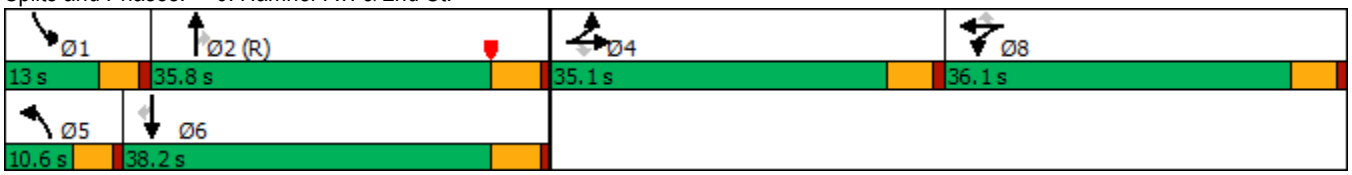
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1074	-	-	-	362	* 696	-	-
HCM Lane V/C Ratio	-	-	-	-	0.003	-	-	-
HCM Control Delay (s)	0	-	-	0	15	0	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	397	29	310	353	590	24	648	164	191	444	128
Future Volume (vph)	201	397	29	310	353	590	24	648	164	191	444	128
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	35.8	35.8	13.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	29.8%	29.8%	10.8%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	5.6	30.4	30.4	8.4	37.0	37.0
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.25	0.25	0.07	0.31	0.31
v/c Ratio	0.50	0.54	0.07	0.57	0.57	1.08	0.31	0.79	0.34	1.71	0.45	0.24
Control Delay	43.5	41.9	0.3	30.8	27.8	74.5	65.3	49.5	7.7	379.1	46.6	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	41.9	0.3	30.8	27.8	83.1	65.3	49.5	7.7	379.1	46.6	21.0
LOS	D	D	A	C	C	F	E	D	A	F	D	C
Approach Delay		40.4			54.3			41.8			125.5	
Approach LOS		D			D			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.71	
Intersection Signal Delay: 64.4	Intersection LOS: E
Intersection Capacity Utilization 99.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	397	29	310	353	590	24	648	164	191	444	128
Future Volume (veh/h)	201	397	29	310	353	590	24	648	164	191	444	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	439	12	243	525	306	26	712	73	210	488	86
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	397	834	353	43	1026	450	125	1189	530
Arrive On Green	0.25	0.25	0.25	0.37	0.37	0.37	0.02	0.29	0.29	0.02	0.11	0.11
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1584
Grp Volume(v), veh/h	219	439	12	243	525	306	26	712	73	210	488	86
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1584
Q Serve(g_s), s	12.6	12.0	0.7	13.3	13.8	21.5	1.7	21.4	4.2	8.4	15.4	5.9
Cycle Q Clear(g_c), s	12.6	12.0	0.7	13.3	13.8	21.5	1.7	21.4	4.2	8.4	15.4	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	397	834	353	43	1026	450	125	1189	530
V/C Ratio(X)	0.49	0.47	0.03	0.61	0.63	0.87	0.60	0.69	0.16	1.68	0.41	0.16
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	1026	450	125	1189	530
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	38.2	34.0	33.4	33.6	36.0	58.0	38.0	31.9	58.6	42.4	38.1
Incr Delay (d2), s/veh	3.8	1.7	0.1	1.6	0.9	13.9	5.0	3.9	0.8	340.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.7	0.3	5.2	5.5	8.5	0.8	9.6	1.7	15.7	7.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	39.9	34.2	35.0	34.5	49.9	63.0	41.8	32.6	398.7	42.6	38.3
LnGrp LOS	D	D	C	C	C	D	E	D	C	F	D	D
Approach Vol, veh/h		670			1074			811			784	
Approach Delay, s/veh		40.6			39.0			41.7			137.5	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	40.0		35.1	7.5	45.5		31.9				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	8.4	30.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	10.4	23.4		14.6	3.7	17.4		23.5				
Green Ext Time (p_c), s	0.0	2.7		3.1	0.0	2.9		3.2				

Intersection Summary			
HCM 6th Ctrl Delay		63.1	
HCM 6th LOS		E	

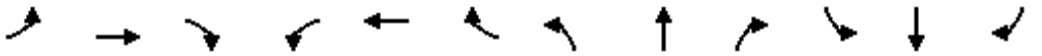
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	405	251	1034	2	312
Future Volume (vph)	405	251	1034	2	312
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	46.0	36.0	82.0	38.0	38.0
Total Split (%)	38.3%	30.0%	68.3%	31.7%	31.7%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	62.2	22.1	88.8	21.3	21.3
Actuated g/C Ratio	0.52	0.18	0.74	0.18	0.18
v/c Ratio	0.45	0.80	0.41	0.23	0.86
Control Delay	20.2	38.8	2.3	41.2	50.7
Queue Delay	0.6	0.0	0.1	0.0	0.0
Total Delay	20.8	38.8	2.4	41.2	50.7
LOS	C	D	A	D	D
Approach Delay	20.8		9.5	49.0	
Approach LOS	C		A	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 19.2	Intersection LOS: B
Intersection Capacity Utilization 59.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	405	379	251	1034	0	0	0	0	67	2	312
Future Volume (veh/h)	0	405	379	251	1034	0	0	0	0	67	2	312
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	422	315	261	1077	0				70	2	258
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1045	774	290	2620	0				313	9	286
Arrive On Green	0.00	1.00	1.00	0.16	0.74	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	2039	1442	1781	3647	0				1734	50	1585
Grp Volume(v), veh/h	0	385	352	261	1077	0				72	0	258
Grp Sat Flow(s),veh/h/ln	0	1777	1611	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	0.0	0.0	17.2	13.7	0.0				4.1	0.0	19.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	17.2	13.7	0.0				4.1	0.0	19.1
Prop In Lane	0.00		0.90	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	954	865	290	2620	0				322	0	286
V/C Ratio(X)	0.00	0.40	0.41	0.90	0.41	0.00				0.22	0.00	0.90
Avail Cap(c_a), veh/h	0	954	865	468	2620	0				486	0	432
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.52	0.52	0.80	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	49.3	5.9	0.0				42.0	0.0	48.1
Incr Delay (d2), s/veh	0.0	0.7	0.7	7.2	0.4	0.0				0.1	0.0	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	8.2	4.5	0.0				1.8	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.7	0.7	56.5	6.3	0.0				42.1	0.0	60.1
LnGrp LOS	A	A	A	E	A	A				D	A	E
Approach Vol, veh/h		737			1338						330	
Approach Delay, s/veh		0.7			16.1						56.1	
Approach LOS		A			B						E	

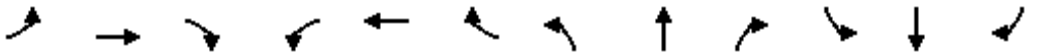
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.0	69.0		26.9		93.1						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	31.5	41.4		32.7		77.4						
Max Q Clear Time (g_c+I1), s	19.2	2.0		21.1		15.7						
Green Ext Time (p_c), s	0.3	3.2		0.5		6.0						

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	127	345	506	779	5	394
Future Volume (vph)	127	345	506	779	5	394
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	24.0	66.0	42.0	54.0	54.0	54.0
Total Split (%)	20.0%	55.0%	35.0%	45.0%	45.0%	45.0%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	14.1	71.7	53.0	38.4	38.4	38.4
Actuated g/C Ratio	0.12	0.60	0.44	0.32	0.32	0.32
v/c Ratio	0.66	0.18	0.43	0.79	0.79	0.54
Control Delay	46.1	16.8	25.8	47.1	47.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	16.8	25.8	47.1	47.8	5.1
LOS	D	B	C	D	D	A
Approach Delay		24.7	25.8		33.3	
Approach LOS		C	C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 29.5	Intersection LOS: C
Intersection Capacity Utilization 59.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	345	0	0	506	98	779	5	394	0	0	0
Future Volume (veh/h)	127	345	0	0	506	98	779	5	394	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	138	375	0	0	550	73	851	0	299			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	166	2296	0	0	1626	215	967	0	430			
Arrive On Green	0.09	0.65	0.00	0.00	0.52	0.52	0.27	0.00	0.27			
Sat Flow, veh/h	1781	3647	0	0	3248	417	3563	0	1585			
Grp Volume(v), veh/h	138	375	0	0	309	314	851	0	299			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1795	1781	0	1585			
Q Serve(g_s), s	9.1	5.0	0.0	0.0	12.2	12.3	27.4	0.0	20.3			
Cycle Q Clear(g_c), s	9.1	5.0	0.0	0.0	12.2	12.3	27.4	0.0	20.3			
Prop In Lane	1.00		0.00	0.00		0.23	1.00		1.00			
Lane Grp Cap(c), veh/h	166	2296	0	0	916	925	967	0	430			
V/C Ratio(X)	0.83	0.16	0.00	0.00	0.34	0.34	0.88	0.00	0.70			
Avail Cap(c_a), veh/h	289	2296	0	0	916	925	1446	0	643			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.89	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	53.5	8.4	0.0	0.0	17.0	17.1	41.9	0.0	39.3			
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.0	1.0	1.0	3.9	0.0	1.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.4	1.9	0.0	0.0	5.1	5.2	12.1	0.0	7.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	8.5	0.0	0.0	18.0	18.1	45.8	0.0	40.8			
LnGrp LOS	E	A	A	A	B	B	D	A	D			
Approach Vol, veh/h		513			623			1150				
Approach Delay, s/veh		22.5			18.1			44.5				
Approach LOS		C			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		82.1			15.7	66.5		37.9				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		61.4			19.5	37.4		48.7				
Max Q Clear Time (g_c+I1), s		7.0			11.1	14.3		29.4				
Green Ext Time (p_c), s		1.7			0.1	2.4		3.1				

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	194	0	11	235	4	0	0	0	53	0	0
Future Vol, veh/h	2	194	0	11	235	4	0	0	0	53	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	243	0	14	294	5	0	0	0	66	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	243	0	0	424	577	122	454	575	151
Stage 1	-	-	-	-	-	-	249	249	-	326	326	-
Stage 2	-	-	-	-	-	-	175	328	-	128	249	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1406	-	-	1320	-	-	*674	512	906	639	513	*1000
Stage 1	-	-	-	-	-	-	*733	699	-	823	747	-
Stage 2	-	-	-	-	-	-	*942	745	-	862	699	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1405	-	-	1320	-	-	*667	505	906	632	506	*999
Mov Cap-2 Maneuver	-	-	-	-	-	-	*656	556	-	668	554	-
Stage 1	-	-	-	-	-	-	*732	698	-	821	738	-
Stage 2	-	-	-	-	-	-	*932	736	-	860	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	0	11
HCM LOS			A	B

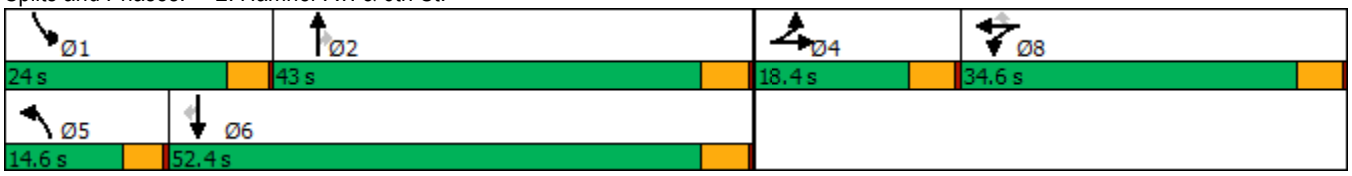
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1405	-	-	1320	-	-	668
HCM Lane V/C Ratio	-	0.002	-	-	0.01	-	-	0.099
HCM Control Delay (s)	0	7.6	-	-	7.8	-	-	11
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	47	169	312	83	300	88	696	527	291	522	34
Future Volume (vph)	47	169	312	83	300	88	696	527	291	522	34
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	11.7	11.7	20.2	20.2	20.2	9.1	38.3	38.3	20.0	49.2	49.2
Actuated g/C Ratio	0.11	0.11	0.19	0.19	0.19	0.08	0.35	0.35	0.18	0.45	0.45
v/c Ratio	0.26	0.56	0.67	0.66	0.58	0.64	0.59	0.62	0.95	0.35	0.05
Control Delay	50.2	49.7	51.7	51.0	8.6	69.6	32.3	5.8	84.7	21.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	49.7	51.7	51.0	8.6	69.6	32.3	5.8	84.7	21.6	0.1
LOS	D	D	D	D	A	E	C	A	F	C	A
Approach Delay		49.8		32.9			24.2			42.4	
Approach LOS		D		C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	169	33	312	83	300	88	696	527	291	522	34
Future Volume (veh/h)	47	169	33	312	83	300	88	696	527	291	522	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	180	23	210	259	104	94	740	352	310	555	18
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	304	38	310	325	275	119	1299	571	338	1737	773
Arrive On Green	0.10	0.10	0.10	0.17	0.17	0.17	0.07	0.37	0.37	0.19	0.49	0.49
Sat Flow, veh/h	1781	3174	400	1781	1870	1582	1781	3554	1562	1781	3554	1582
Grp Volume(v), veh/h	50	100	103	210	259	104	94	740	352	310	555	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1797	1781	1870	1582	1781	1777	1562	1781	1777	1582
Q Serve(g_s), s	2.7	5.6	5.7	11.5	13.8	6.1	5.4	17.4	19.2	17.8	9.9	0.6
Cycle Q Clear(g_c), s	2.7	5.6	5.7	11.5	13.8	6.1	5.4	17.4	19.2	17.8	9.9	0.6
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	170	172	310	325	275	119	1299	571	338	1737	773
V/C Ratio(X)	0.29	0.58	0.60	0.68	0.80	0.38	0.79	0.57	0.62	0.92	0.32	0.02
Avail Cap(c_a), veh/h	236	235	238	513	538	456	179	1299	571	340	1737	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	45.1	45.2	40.3	41.3	38.1	47.9	26.5	27.1	41.4	16.1	13.8
Incr Delay (d2), s/veh	0.9	3.2	3.3	2.6	4.5	0.9	6.6	1.8	4.9	28.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.6	2.7	5.2	6.7	2.4	2.6	7.3	7.6	10.2	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	48.3	48.5	42.9	45.7	38.9	54.5	28.3	32.0	69.4	16.6	13.8
LnGrp LOS	D	D	D	D	D	D	D	C	C	E	B	B
Approach Vol, veh/h		253			573			1186			883	
Approach Delay, s/veh		47.7			43.5			31.5			35.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.9	43.0		14.6	11.1	55.8		22.7				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	19.8	21.2		7.7	7.4	11.9		15.8				
Green Ext Time (p_c), s	0.0	5.7		0.6	0.0	3.9		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		36.4	
HCM 6th LOS		D	

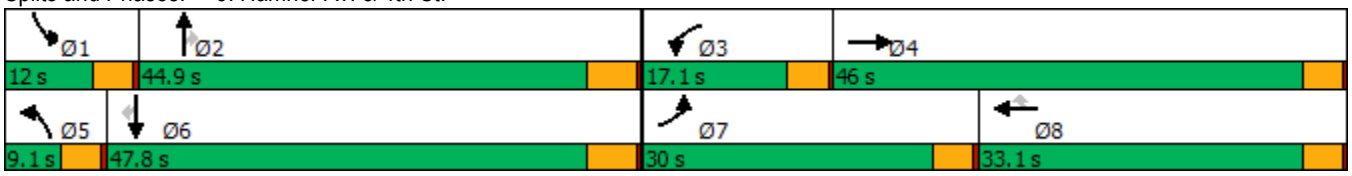
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	260	177	93	19	48	11	920	134	53	827	83
Future Volume (vph)	260	177	93	19	48	11	920	134	53	827	83
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	46.0	17.1	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	38.3%	14.3%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	18.0	21.4	9.3	14.0	14.0	5.2	42.6	42.6	6.9	49.8	49.8
Actuated g/C Ratio	0.19	0.23	0.10	0.15	0.15	0.06	0.46	0.46	0.07	0.54	0.54
v/c Ratio	0.77	0.67	0.54	0.07	0.14	0.11	0.58	0.18	0.41	0.44	0.10
Control Delay	53.5	37.8	56.1	37.1	0.9	52.5	24.9	6.6	56.6	18.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	37.8	56.1	37.1	0.9	52.5	24.9	6.6	56.6	18.0	2.0
LOS	D	D	E	D	A	D	C	A	E	B	A
Approach Delay		45.3		37.2			22.8			18.7	
Approach LOS		D		D			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	177	101	93	19	48	11	920	134	53	827	83
Future Volume (veh/h)	260	177	101	93	19	48	11	920	134	53	827	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	181	54	95	19	15	11	939	93	54	844	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	303	90	122	217	182	24	1671	744	75	1773	773
Arrive On Green	0.17	0.22	0.22	0.07	0.12	0.12	0.01	0.47	0.47	0.04	0.50	0.50
Sat Flow, veh/h	1781	1383	413	1781	1870	1563	1781	3554	1583	1781	3554	1549
Grp Volume(v), veh/h	265	0	235	95	19	15	11	939	93	54	844	57
Grp Sat Flow(s),veh/h/ln	1781	0	1796	1781	1870	1563	1781	1777	1583	1781	1777	1549
Q Serve(g_s), s	12.5	0.0	10.1	4.5	0.8	0.7	0.5	16.4	2.8	2.6	13.4	1.6
Cycle Q Clear(g_c), s	12.5	0.0	10.1	4.5	0.8	0.7	0.5	16.4	2.8	2.6	13.4	1.6
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	394	122	217	182	24	1671	744	75	1773	773
V/C Ratio(X)	0.87	0.00	0.60	0.78	0.09	0.08	0.46	0.56	0.12	0.72	0.48	0.07
Avail Cap(c_a), veh/h	536	0	875	269	631	527	104	1671	744	164	1773	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	30.2	39.4	33.9	33.9	42.1	16.4	12.8	40.7	14.2	11.2
Incr Delay (d2), s/veh	3.0	0.0	1.5	4.0	0.2	0.2	5.0	1.4	0.3	4.8	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	4.5	2.1	0.4	0.3	0.3	6.3	1.1	1.2	5.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	31.6	43.4	34.1	34.1	47.1	17.8	13.2	45.4	15.1	11.4
LnGrp LOS	D	A	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		500			129			1043			955	
Approach Delay, s/veh		34.8			41.0			17.7			16.6	
Approach LOS		C			D			B			B	

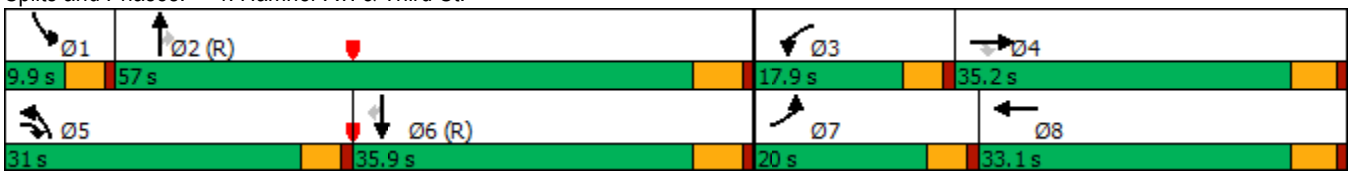
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	45.3	10.0	23.0	5.3	47.8	18.8	14.1
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	13.0	41.9	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	4.6	18.4	6.5	12.1	2.5	15.4	14.5	2.8
Green Ext Time (p_c), s	0.0	6.8	0.1	1.5	0.0	6.3	0.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	76	24	147	33	10	91	1068	61	61	1148	43
Future Volume (vph)	76	24	147	33	10	91	1068	61	61	1148	43
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.5	16.2	26.5	10.9	13.6	8.3	68.7	68.7	9.4	69.9	69.9
Actuated g/C Ratio	0.10	0.14	0.22	0.09	0.11	0.07	0.57	0.57	0.08	0.58	0.58
v/c Ratio	0.55	0.12	0.37	0.25	0.25	0.47	0.64	0.08	0.53	0.68	0.05
Control Delay	63.7	42.4	6.0	55.6	19.7	59.9	21.6	1.8	67.9	22.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	42.4	6.0	55.6	19.7	59.9	21.6	1.8	67.9	22.5	0.1
LOS	E	D	A	E	B	E	C	A	E	C	A
Approach Delay		27.3			34.6		23.5			23.9	
Approach LOS		C			C		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	24	147	33	10	36	91	1068	61	61	1148	43
Future Volume (veh/h)	76	24	147	33	10	36	91	1068	61	61	1148	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	29	66	40	12	16	111	1302	54	74	1400	37
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	248	286	55	70	93	167	2234	974	79	2219	988
Arrive On Green	0.07	0.13	0.13	0.03	0.10	0.10	0.05	0.63	0.63	0.04	0.62	0.62
Sat Flow, veh/h	1781	1870	1585	1781	719	958	3456	3554	1550	1781	3554	1582
Grp Volume(v), veh/h	93	29	66	40	0	28	111	1302	54	74	1400	37
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1677	1728	1777	1550	1781	1777	1582
Q Serve(g_s), s	6.2	1.6	4.3	2.7	0.0	1.8	3.8	25.8	1.6	5.0	29.3	1.1
Cycle Q Clear(g_c), s	6.2	1.6	4.3	2.7	0.0	1.8	3.8	25.8	1.6	5.0	29.3	1.1
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	248	286	55	0	164	167	2234	974	79	2219	988
V/C Ratio(X)	0.80	0.12	0.23	0.73	0.00	0.17	0.66	0.58	0.06	0.94	0.63	0.04
Avail Cap(c_a), veh/h	229	469	474	197	0	391	760	2234	974	79	2219	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89
Uniform Delay (d), s/veh	55.3	45.9	42.0	57.7	0.0	49.7	56.1	13.1	8.6	57.2	14.0	8.7
Incr Delay (d2), s/veh	4.6	0.2	0.4	6.8	0.0	0.5	1.7	1.1	0.1	75.3	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.8	1.7	1.3	0.0	0.8	1.7	9.6	0.5	3.8	11.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	46.1	42.4	64.5	0.0	50.2	57.8	14.2	8.7	132.5	15.2	8.7
LnGrp LOS	E	D	D	E	A	D	E	B	A	F	B	A
Approach Vol, veh/h		188			68			1467			1511	
Approach Delay, s/veh		51.6			58.6			17.3			20.8	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	80.8	8.3	21.0	10.4	80.3	12.5	16.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	7.0	27.8	4.7	6.3	5.8	31.3	8.2	3.8
Green Ext Time (p_c), s	0.0	10.3	0.0	0.3	0.2	0.0	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	0	0	0	3	1	0	0	1169	5	1	1327	0
Future Vol, veh/h	0	0	0	3	1	0	0	1169	5	1	1327	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	1	0	0	1193	5	1	1354	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1953	2554	677	1875	2552	599	1354	0	0	1198	0	0
Stage 1	1356	1356	-	1196	1196	-	-	-	-	-	-	-
Stage 2	597	1198	-	679	1356	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	5.5	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*115	*26	*542	*187	*26	445	*811	-	-	578	-	-
Stage 1	*511	*448	-	*305	*258	-	-	-	-	-	-	-
Stage 2	*456	*257	-	*600	*448	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	*115	*25	*542	*187	*25	445	*811	-	-	578	-	-
Mov Cap-2 Maneuver	*339	*207	-	*283	*209	-	-	-	-	-	-	-
Stage 1	*511	*447	-	*305	*258	-	-	-	-	-	-	-
Stage 2	*454	*257	-	*599	*447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	19.1	0	0
HCM LOS	A	C		

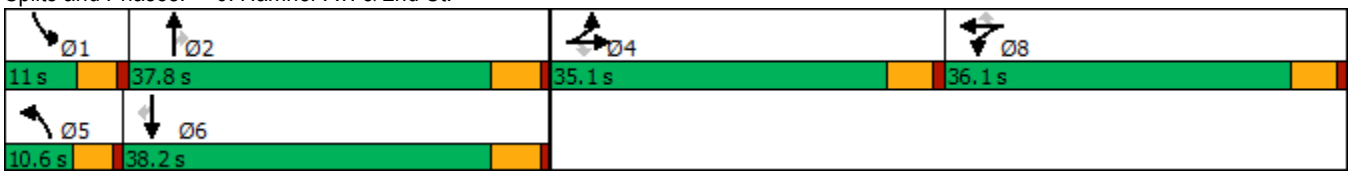
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 811	-	-	-	260	578	-	-
HCM Lane V/C Ratio	-	-	-	-	0.016	0.002	-	-
HCM Control Delay (s)	0	-	-	0	19.1	11.2	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	414	66	206	237	313	79	679	409	447	760	144
Future Volume (vph)	146	414	66	206	237	313	79	679	409	447	760	144
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	30.4	30.4	30.4	17.8	17.8	17.8	6.1	27.6	27.6	6.5	28.0	28.0
Actuated g/C Ratio	0.30	0.30	0.30	0.17	0.17	0.17	0.06	0.27	0.27	0.06	0.27	0.27
v/c Ratio	0.28	0.44	0.13	0.53	0.52	0.59	0.78	0.73	0.58	4.11	0.81	0.28
Control Delay	32.9	33.0	2.0	46.0	41.9	9.0	94.4	39.8	6.7	1433.6	42.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	33.0	2.0	46.0	41.9	9.0	94.4	39.8	6.7	1433.6	42.7	8.4
LOS	C	C	A	D	D	A	F	D	A	F	D	A
Approach Delay		29.7			29.1			32.0			499.0	
Approach LOS		C			C			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.11	
Intersection Signal Delay: 192.9	Intersection LOS: F
Intersection Capacity Utilization 94.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	414	66	206	237	313	79	679	409	447	760	144
Future Volume (veh/h)	146	414	66	206	237	313	79	679	409	447	760	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	422	21	151	325	110	81	693	256	456	776	86
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	573	1203	506	238	500	212	104	923	405	122	960	427
Arrive On Green	0.32	0.32	0.32	0.13	0.13	0.13	0.06	0.26	0.26	0.07	0.27	0.27
Sat Flow, veh/h	1781	3741	1573	1781	3741	1585	1781	3554	1561	1781	3554	1582
Grp Volume(v), veh/h	149	422	21	151	325	110	81	693	256	456	776	86
Grp Sat Flow(s),veh/h/ln	1781	1870	1573	1781	1870	1585	1781	1777	1561	1781	1777	1582
Q Serve(g_s), s	5.8	8.0	0.9	7.5	7.7	6.0	4.2	16.7	13.5	6.4	19.0	3.9
Cycle Q Clear(g_c), s	5.8	8.0	0.9	7.5	7.7	6.0	4.2	16.7	13.5	6.4	19.0	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	573	1203	506	238	500	212	104	923	405	122	960	427
V/C Ratio(X)	0.26	0.35	0.04	0.63	0.65	0.52	0.78	0.75	0.63	3.73	0.81	0.20
Avail Cap(c_a), veh/h	573	1203	506	592	1243	527	115	1234	542	122	1249	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	24.2	21.8	38.3	38.3	37.6	43.4	31.8	30.6	43.4	31.8	26.3
Incr Delay (d2), s/veh	1.1	0.8	0.2	2.8	1.4	2.0	23.2	1.8	1.6	1249.1	3.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	3.6	0.3	3.4	3.5	2.4	2.5	7.1	5.0	45.1	8.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	25.0	21.9	41.0	39.8	39.6	66.5	33.6	32.2	1292.6	34.9	26.5
LnGrp LOS	C	C	C	D	D	D	E	C	C	F	C	C
Approach Vol, veh/h		592			586			1030			1318	
Approach Delay, s/veh		24.8			40.1			35.8			469.5	
Approach LOS		C			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	29.6		35.1	10.0	30.6		17.6				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	18.7		10.0	6.2	21.0		9.7				
Green Ext Time (p_c), s	0.0	4.5		3.1	0.0	4.1		2.8				

Intersection Summary			
HCM 6th Ctrl Delay		196.8	
HCM 6th LOS		F	

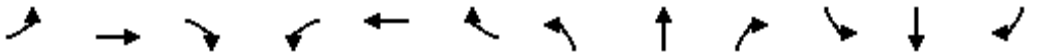
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	663	172	684	5	177
Future Volume (vph)	663	172	684	5	177
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	79.0	16.2	99.7	10.4	10.4
Actuated g/C Ratio	0.66	0.14	0.83	0.09	0.09
v/c Ratio	0.60	0.74	0.24	0.58	0.60
Control Delay	10.9	40.1	1.3	66.9	15.8
Queue Delay	1.2	0.0	0.0	0.0	0.0
Total Delay	12.1	40.1	1.3	66.9	15.8
LOS	B	D	A	E	B
Approach Delay	12.1		9.1	32.6	
Approach LOS	B		A	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 13.3	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	663	664	172	684	0	0	0	0	82	5	177
Future Volume (veh/h)	0	663	664	172	684	0	0	0	0	82	5	177
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	677	523	176	698	0				84	5	89
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1326	1017	201	2997	0				125	7	118
Arrive On Green	0.00	0.69	0.69	0.23	1.00	0.00				0.07	0.07	0.07
Sat Flow, veh/h	0	2008	1468	1781	3647	0				1686	100	1585
Grp Volume(v), veh/h	0	628	572	176	698	0				89	0	89
Grp Sat Flow(s),veh/h/ln	0	1777	1606	1781	1777	0				1786	0	1585
Q Serve(g_s), s	0.0	20.1	20.4	11.4	0.0	0.0				5.8	0.0	6.6
Cycle Q Clear(g_c), s	0.0	20.1	20.4	11.4	0.0	0.0				5.8	0.0	6.6
Prop In Lane	0.00		0.91	1.00		0.00				0.94		1.00
Lane Grp Cap(c), veh/h	0	1231	1113	201	2997	0				133	0	118
V/C Ratio(X)	0.00	0.51	0.51	0.87	0.23	0.00				0.67	0.00	0.76
Avail Cap(c_a), veh/h	0	1231	1113	334	2997	0				353	0	313
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.88	0.88	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.8	8.8	45.6	0.0	0.0				54.1	0.0	54.5
Incr Delay (d2), s/veh	0.0	0.1	0.2	6.4	0.2	0.0				2.2	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.0	6.4	4.8	0.1	0.0				2.6	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	8.9	52.0	0.2	0.0				56.3	0.0	58.2
LnGrp LOS	A	A	A	D	A	A				E	A	E
Approach Vol, veh/h		1200			874						178	
Approach Delay, s/veh		8.9			10.6						57.2	
Approach LOS		A			B						E	

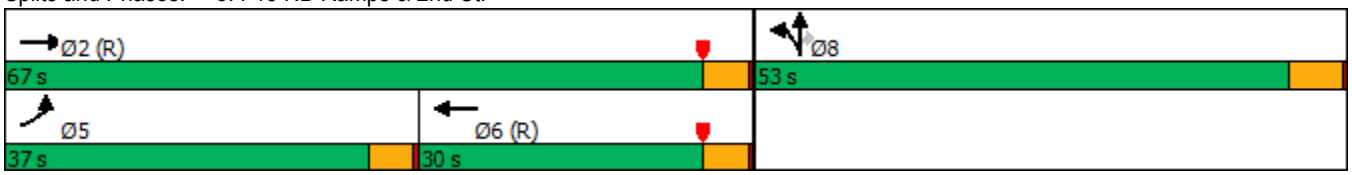
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.1	87.7		14.2		105.8						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	13.4	22.4		8.6		2.0						
Green Ext Time (p_c), s	0.2	6.3		0.3		3.4						

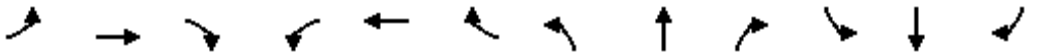
Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	422	323	383	473	36	376
Future Volume (vph)	422	323	383	473	36	376
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	37.0	67.0	30.0	53.0	53.0	53.0
Total Split (%)	30.8%	55.8%	25.0%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	31.4	84.3	48.4	25.8	25.8	25.8
Actuated g/C Ratio	0.26	0.70	0.40	0.22	0.22	0.22
v/c Ratio	0.94	0.13	0.32	0.73	0.72	0.60
Control Delay	59.7	7.6	26.5	55.1	54.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	7.6	26.5	55.1	54.0	7.6
LOS	E	A	C	E	D	A
Approach Delay		37.1	26.5		34.6	
Approach LOS		D	C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 33.8	Intersection LOS: C
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	323	0	0	383	48	473	36	376	0	0	0
Future Volume (veh/h)	422	323	0	0	383	48	473	36	376	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	435	333	0	0	395	37	514	0	209			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	455	2650	0	0	1484	138	612	0	272			
Arrive On Green	0.43	1.00	0.00	0.00	0.45	0.45	0.17	0.00	0.17			
Sat Flow, veh/h	1781	3647	0	0	3372	305	3563	0	1585			
Grp Volume(v), veh/h	435	333	0	0	213	219	514	0	209			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1807	1781	0	1585			
Q Serve(g_s), s	28.4	0.0	0.0	0.0	8.9	9.1	16.8	0.0	15.1			
Cycle Q Clear(g_c), s	28.4	0.0	0.0	0.0	8.9	9.1	16.8	0.0	15.1			
Prop In Lane	1.00		0.00	0.00		0.17	1.00		1.00			
Lane Grp Cap(c), veh/h	455	2650	0	0	804	818	612	0	272			
V/C Ratio(X)	0.96	0.13	0.00	0.00	0.26	0.27	0.84	0.00	0.77			
Avail Cap(c_a), veh/h	482	2650	0	0	804	818	1416	0	630			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	33.8	0.0	0.0	0.0	20.4	20.4	48.1	0.0	47.4			
Incr Delay (d2), s/veh	24.7	0.1	0.0	0.0	0.8	0.8	2.4	0.0	3.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	13.3	0.0	0.0	0.0	3.8	4.0	7.4	0.0	6.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	0.1	0.0	0.0	21.2	21.2	50.5	0.0	50.8			
LnGrp LOS	E	A	A	A	C	C	D	A	D			
Approach Vol, veh/h		768			432			723				
Approach Delay, s/veh		33.1			21.2			50.6				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		94.1			35.1	58.9		25.9				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			32.5	25.4		47.7				
Max Q Clear Time (g_c+I1), s		2.0			30.4	11.1		18.8				
Green Ext Time (p_c), s		1.5			0.3	1.4		1.9				
Intersection Summary												
HCM 6th Ctrl Delay			37.0									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 3.3:

EXISTING (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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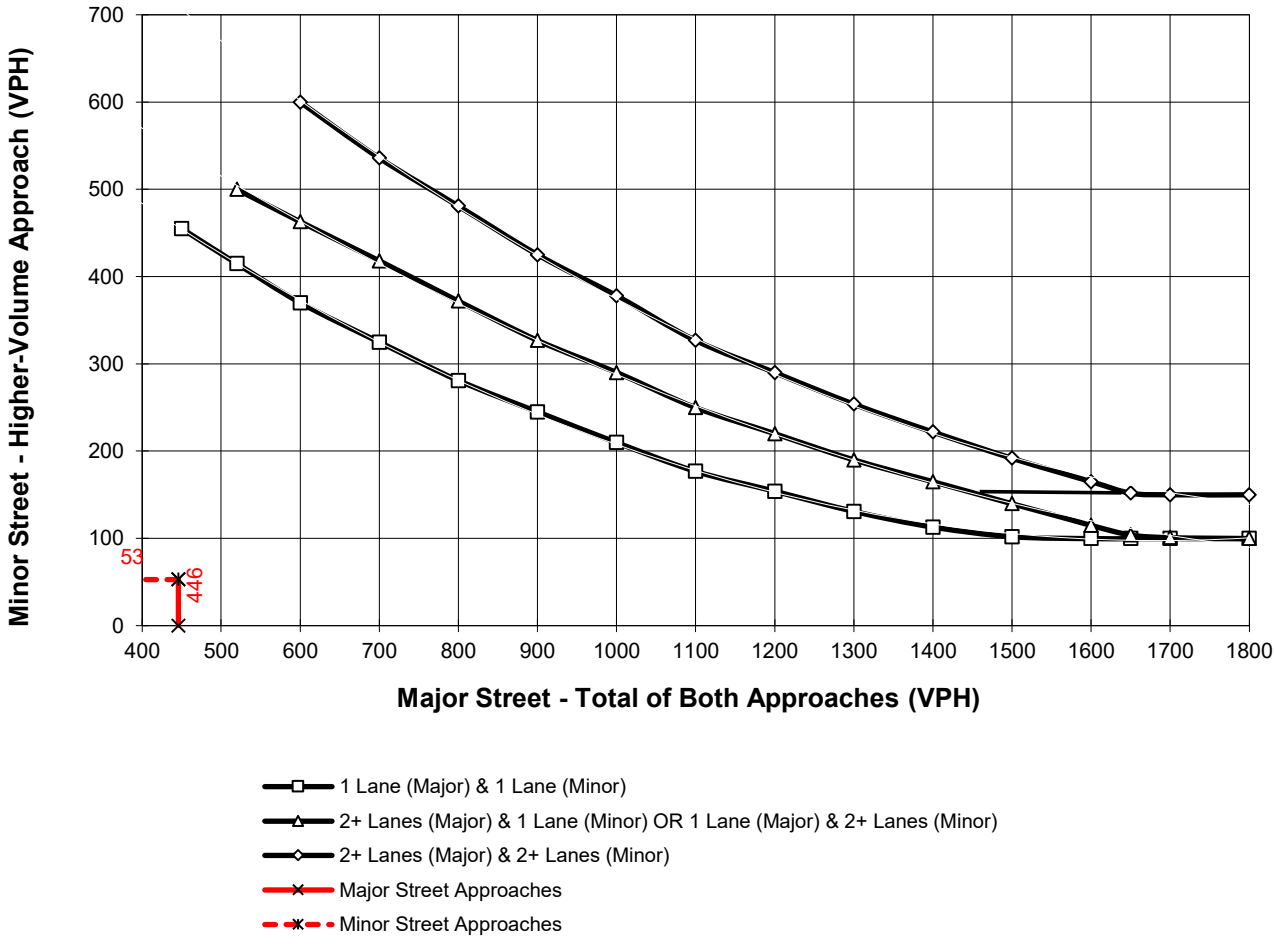
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **446**
Number of Approach Lanes on Major Street = **3**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **53**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

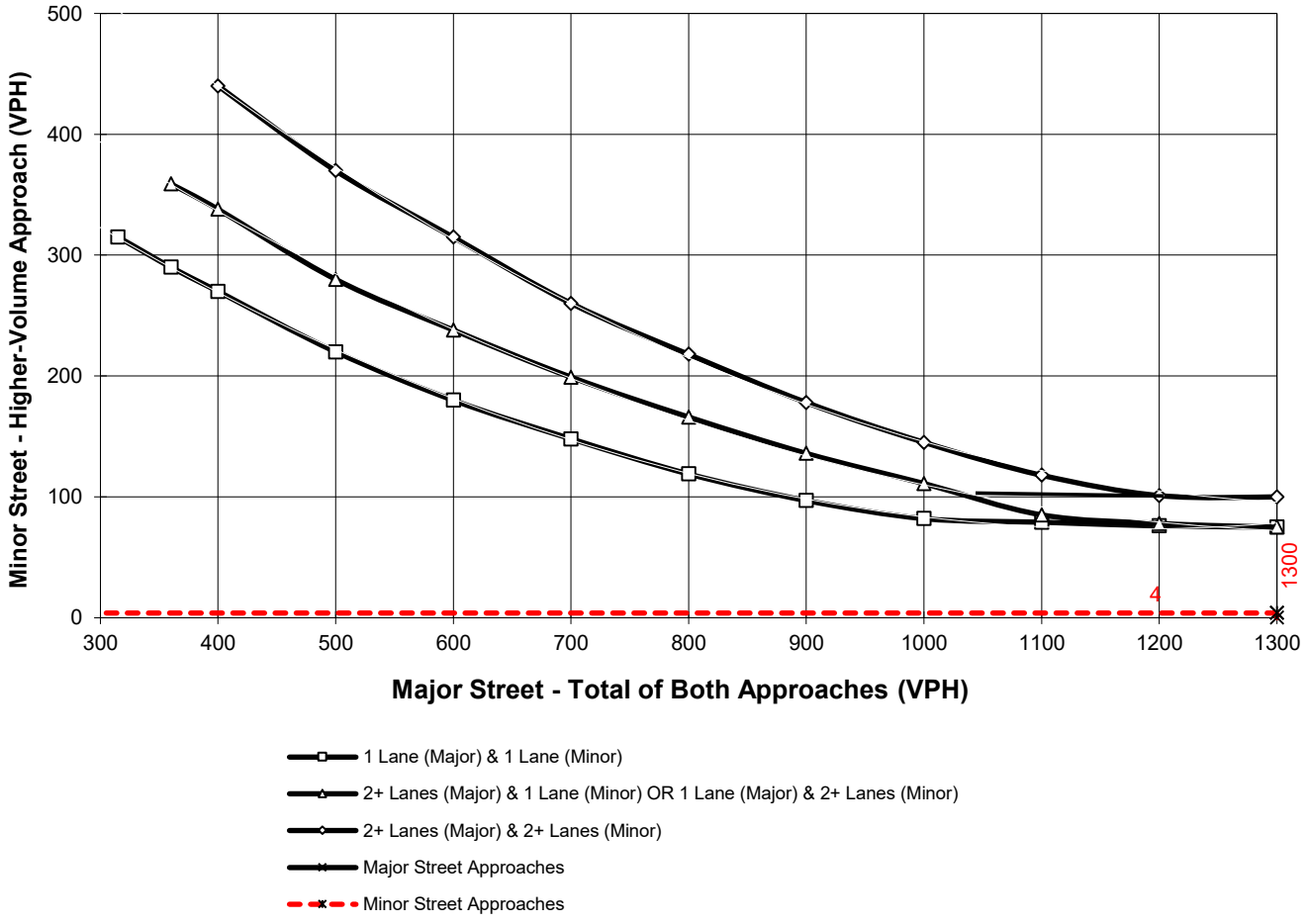
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Hamner Avenue**
Total of Both Approaches (VPH) = **2502**
Number of Approach Lanes Major Street = **3**

Minor Street Name = **Driveway 2**
High Volume Approach (VPH) = **4**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*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 (2020) CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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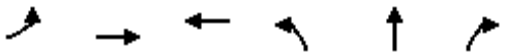
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	817	261	1077	72	325
v/c Ratio	0.45	0.80	0.41	0.23	0.86
Control Delay	20.2	38.8	2.3	41.2	50.7
Queue Delay	0.6	0.0	0.1	0.0	0.0
Total Delay	20.8	38.8	2.4	41.2	50.7
Queue Length 50th (ft)	92	194	83	48	161
Queue Length 95th (ft)	m304	279	46	82	246
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1805	464	2619	484	517
Starvation Cap Reductn	574	0	411	0	0
Spillback Cap Reductn	0	0	39	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.56	0.49	0.15	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

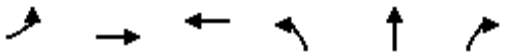


Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	138	375	657	423	429	428
v/c Ratio	0.66	0.18	0.43	0.79	0.79	0.54
Control Delay	46.1	16.8	25.8	47.1	47.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	16.8	25.8	47.1	47.8	5.1
Queue Length 50th (ft)	107	108	176	309	315	2
Queue Length 95th (ft)	163	146	283	387	393	64
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	287	2113	1531	682	684	894
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.18	0.43	0.62	0.63	0.48

Intersection Summary

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1355	176	698	89	181
v/c Ratio	0.60	0.74	0.24	0.58	0.60
Control Delay	10.9	40.1	1.3	66.9	15.8
Queue Delay	1.2	0.0	0.0	0.0	0.0
Total Delay	12.1	40.1	1.3	66.9	15.8
Queue Length 50th (ft)	220	133	46	67	0
Queue Length 95th (ft)	367	61	0	119	67
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	2256	331	2940	351	457
Starvation Cap Reductn	619	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.83	0.53	0.24	0.25	0.40

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	435	333	444	264	261	388
v/c Ratio	0.94	0.13	0.32	0.73	0.72	0.60
Control Delay	59.7	7.6	26.5	55.1	54.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	7.6	26.5	55.1	54.0	7.6
Queue Length 50th (ft)	323	56	121	202	198	0
Queue Length 95th (ft)	#504	76	187	270	267	74
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	479	2487	1405	668	674	863
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	0.91	0.13	0.32	0.40	0.39	0.45

Intersection Summary

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

APPENDIX 3.5:

EXISTING (2020) CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/10/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2020) Conditions
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5928	7161	0.83	62.3	31.7	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	5928	426	7200	2100	0.82	0.20	64.4	60.6	30.7	32.1	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5545	7161	0.77	64.4	28.7	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6273	728	9600	2100	0.58	0.35	69.6	-	19.9	-	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6274	11935	0.53	68.7	18.3	C

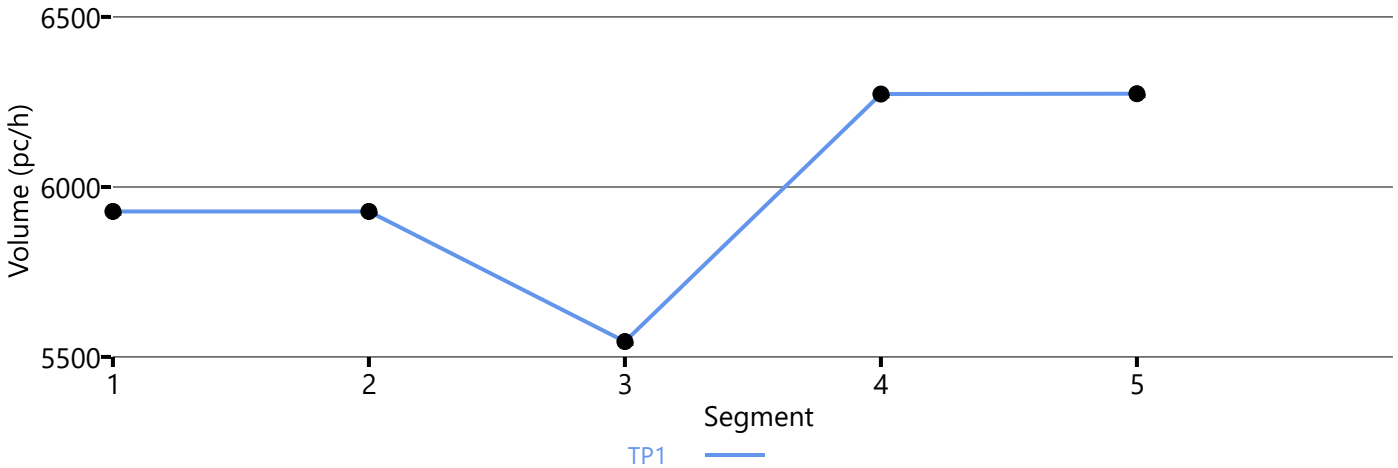
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.3	27.5	26.1	2.4	D

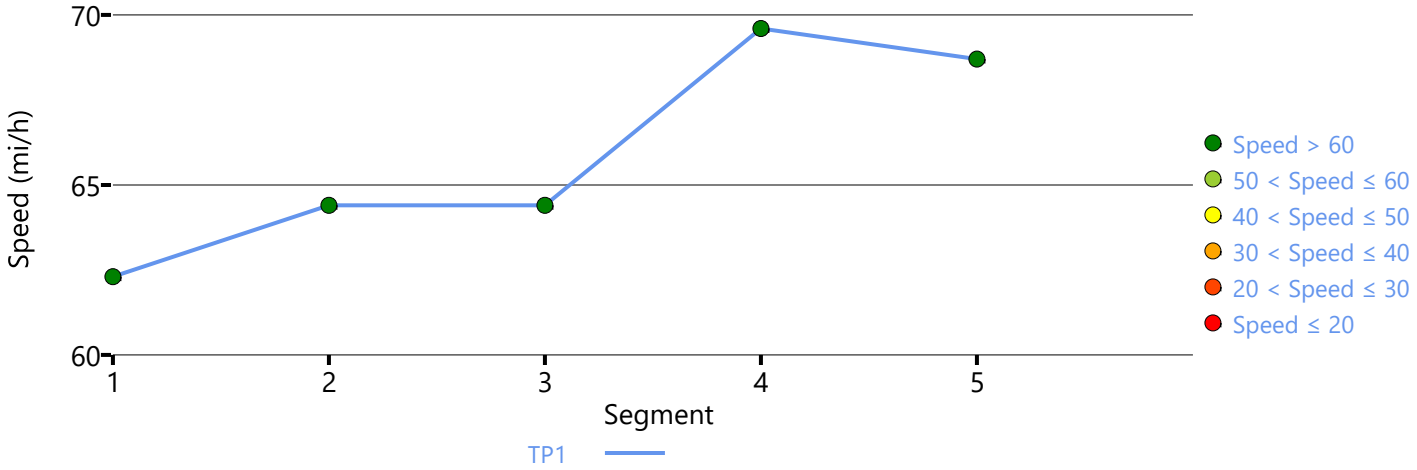
Facility Overall Results

Space Mean Speed, mi/h	64.3	Density, veh/mi/ln	26.1
Average Travel Time, min	2.4	Density, pc/mi/ln	27.5

Volume Distribution



Speed Distribution



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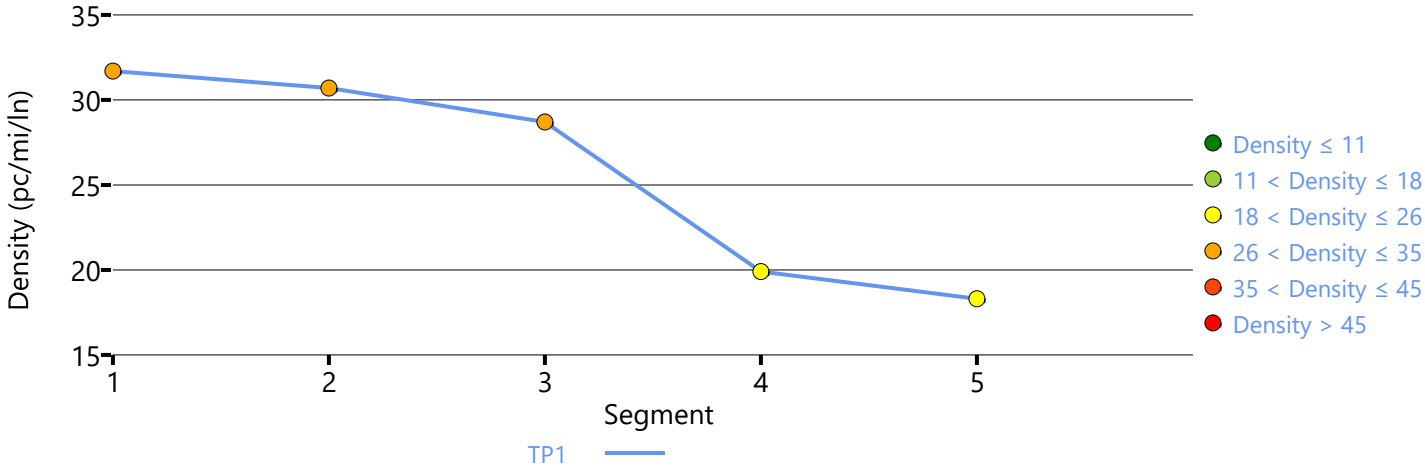

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/10/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2020) Conditions
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	8608	11935	0.72	66.0	26.1	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8217	1307	12000	4200	0.72	0.31	66.3	-	24.8	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6438	9548	0.76	21.9	73.5	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.935	6668	267	7200	2100	1.05	0.13	40.1	48.7	55.4	39.3	F

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.05	57.9	38.4	F

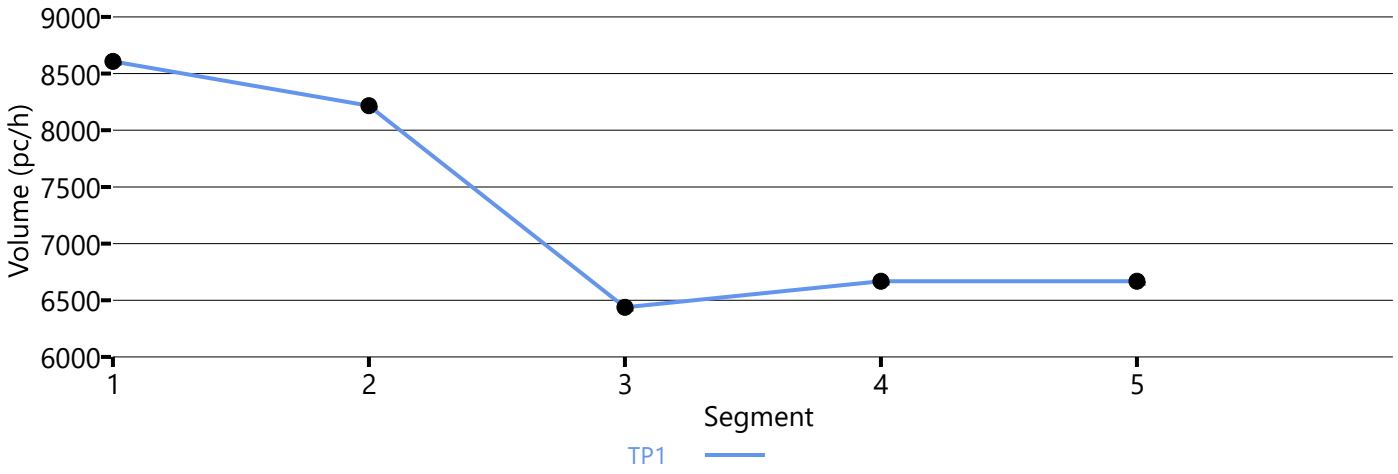
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	46.0	42.1	40.5	3.5	F

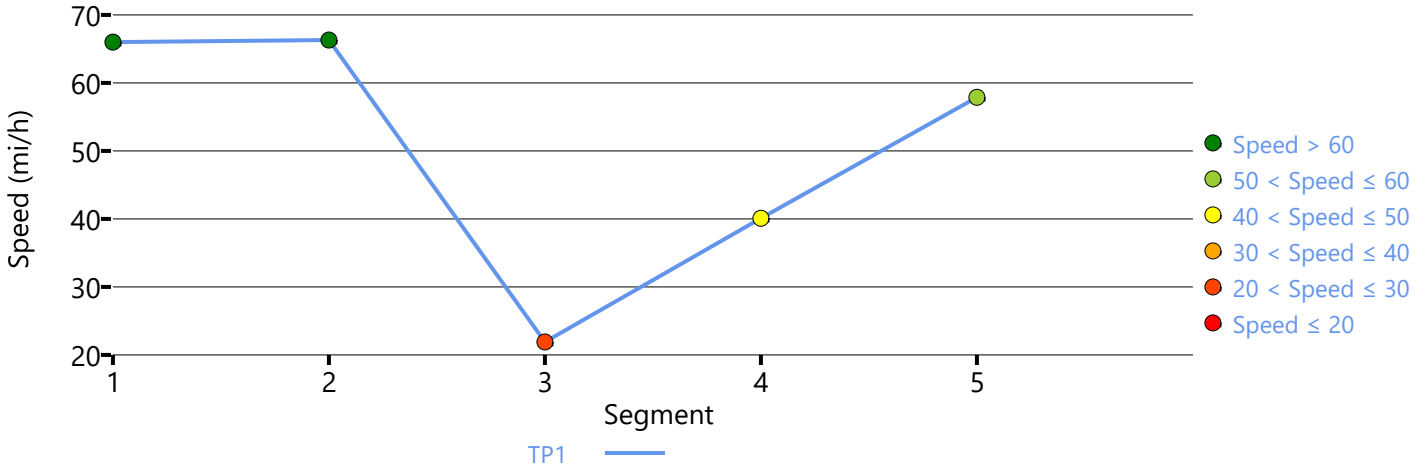
Facility Overall Results

Space Mean Speed, mi/h	46.0	Density, veh/mi/ln	40.5
Average Travel Time, min	3.5	Density, pc/mi/ln	42.1

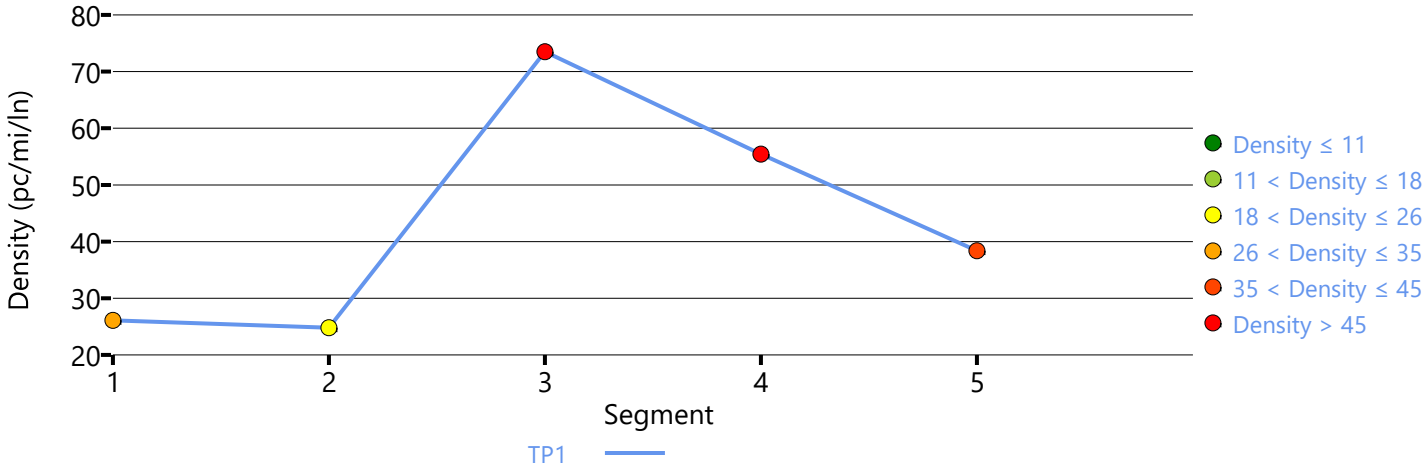
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/10/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2020) Conditions
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5991	7161	0.84	62.0	32.2	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.952	5991	301	7200	2100	0.83	0.14	64.6	60.9	30.9	32.2	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5689	7161	0.79	63.7	29.8	D

Segment 4: Merge

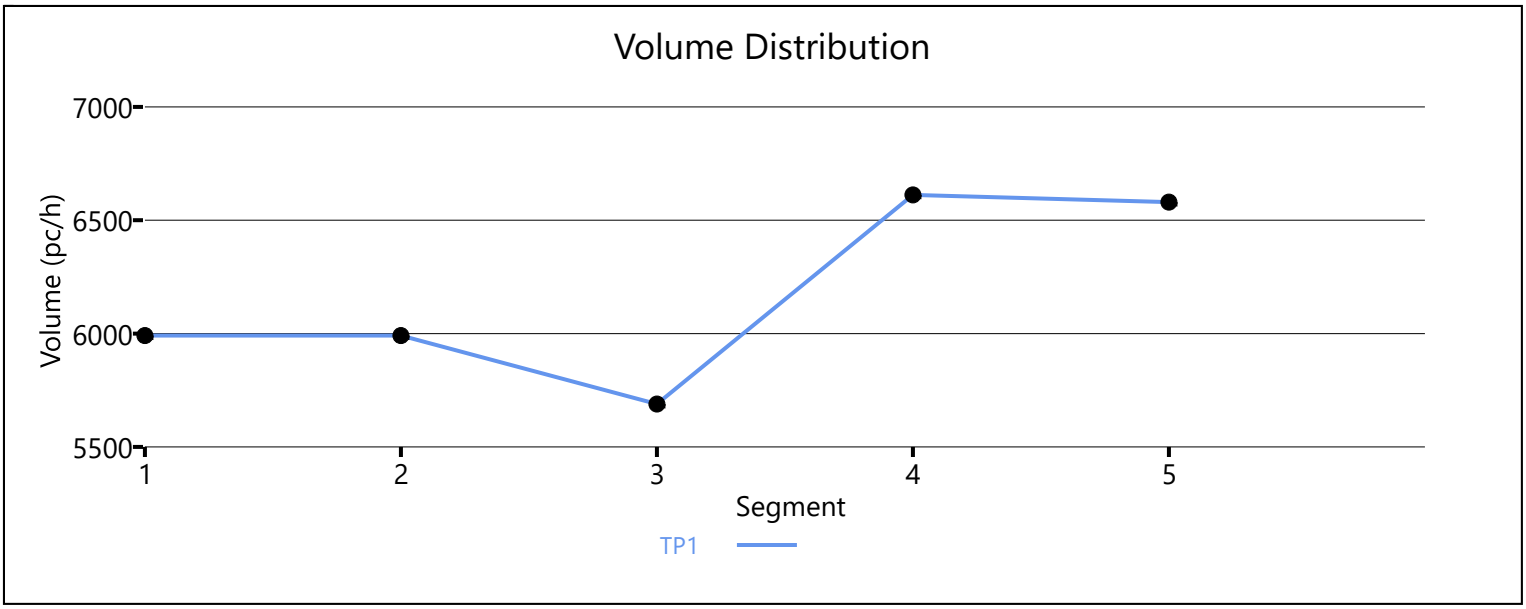
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.990	6612	923	9600	2100	0.59	0.44	69.4	-	20.5	-	C

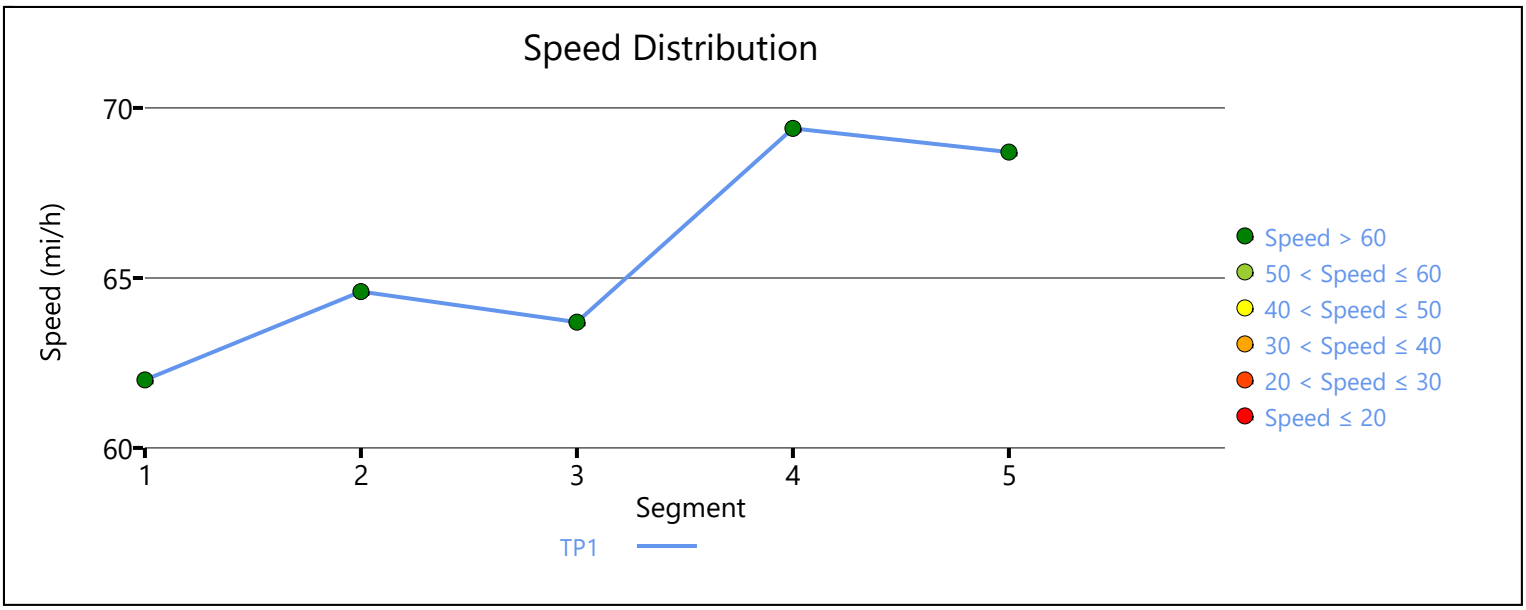
Segment 5: Basic

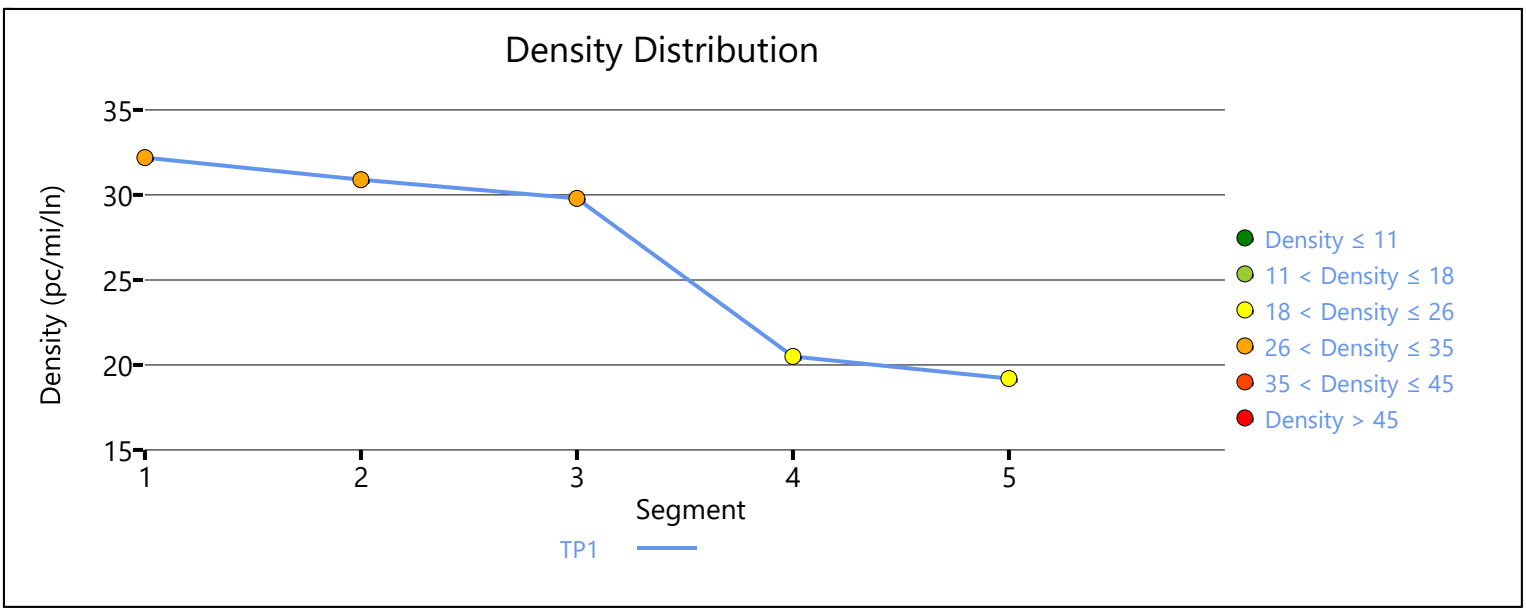
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6580	11935	0.55	68.7	19.2	C

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	64.1	28.1	26.8	2.4	D

Facility Overall Results			
Space Mean Speed, mi/h	64.1	Density, veh/mi/ln	26.8
Average Travel Time, min	2.4	Density, pc/mi/ln	28.1







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/10/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2020) Conditions
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6142	11935	0.51	68.7	17.9	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.971	6142	991	12000	4200	0.51	0.24	70.0	-	17.5	-	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5196	9548	0.54	68.7	18.9	C

Segment 4: Merge

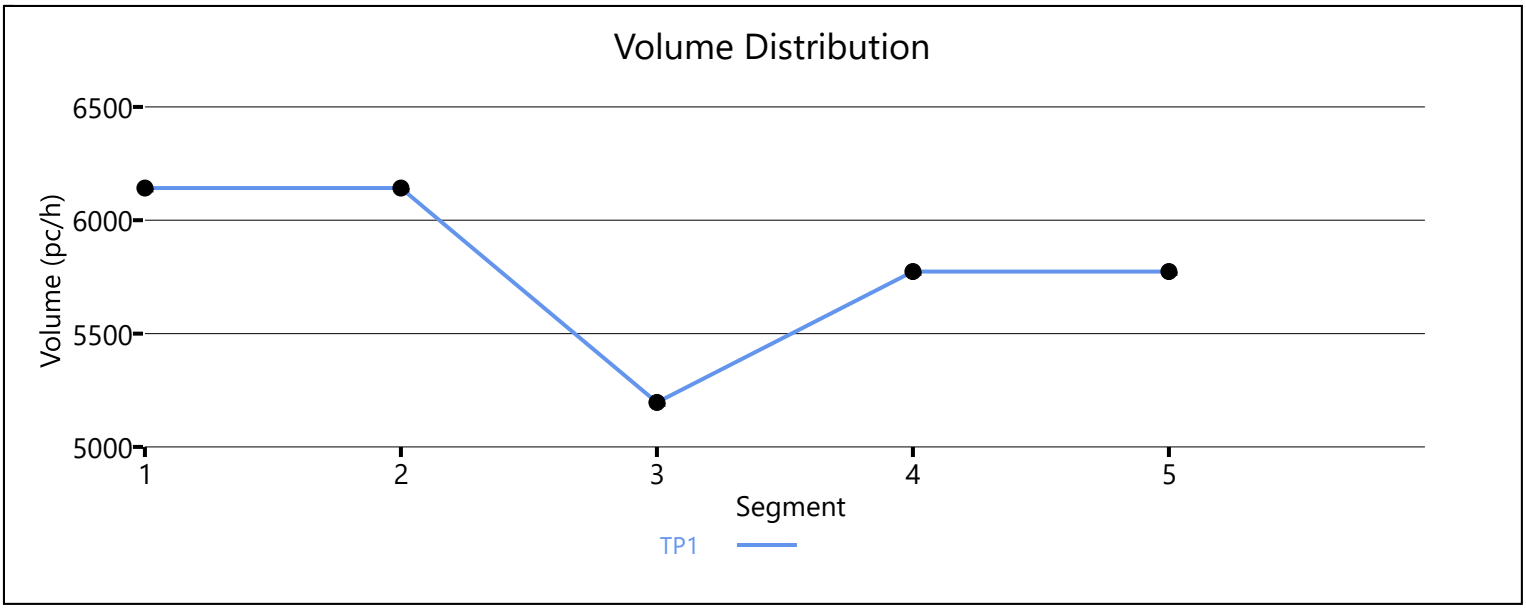
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.952	5774	578	7200	2100	0.80	0.28	60.3	58.3	31.9	30.0	D

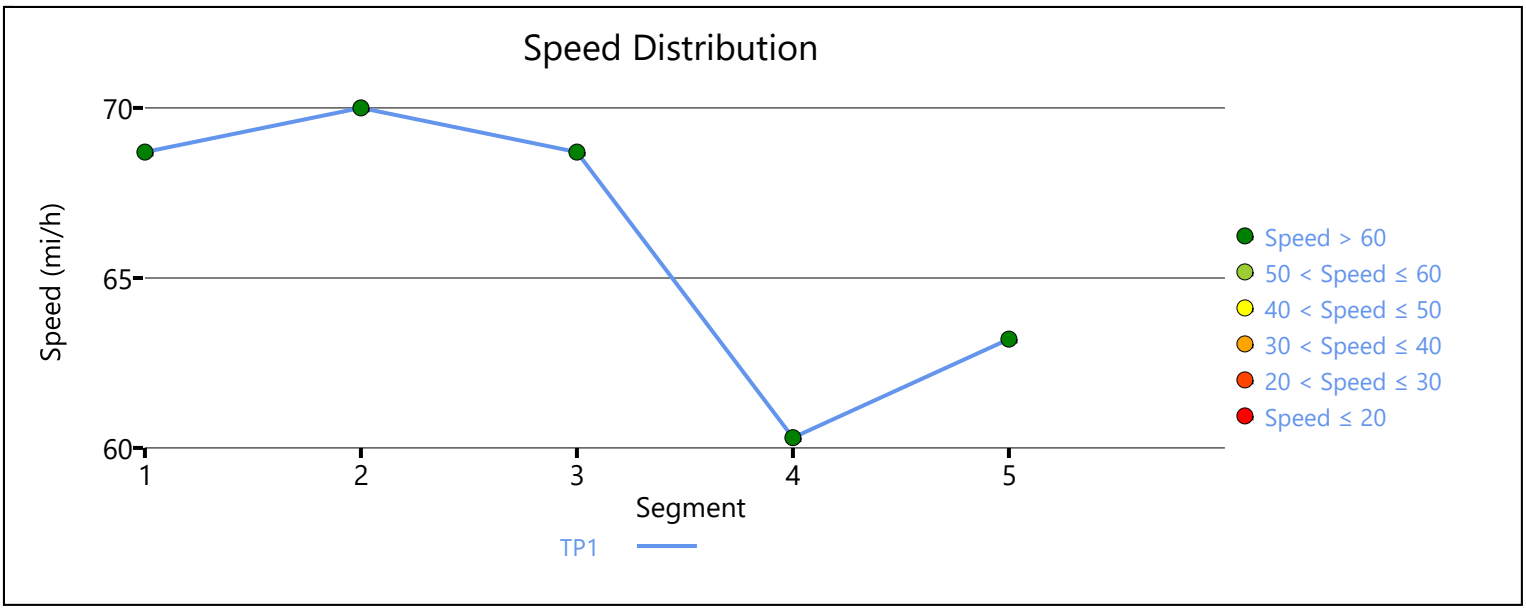
Segment 5: Basic

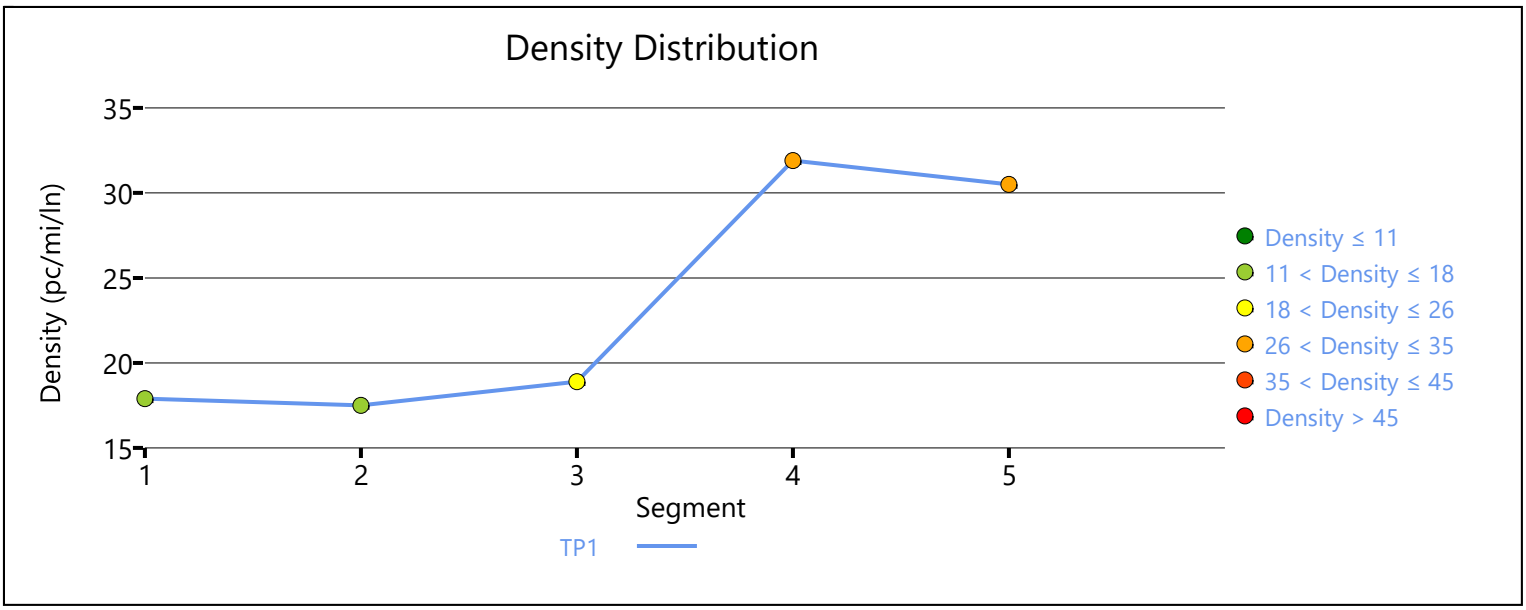
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5774	7161	0.81	63.2	30.5	D

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	65.1	24.3	23.2	2.5	C

Facility Overall Results			
Space Mean Speed, mi/h	65.1	Density, veh/mi/ln	23.2
Average Travel Time, min	2.5	Density, pc/mi/ln	24.3







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APPENDIX 3.6:

EXISTING (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	204	486	80	282	69	393	240	424	720
Future Volume (vph)	36	204	486	80	282	69	393	240	424	720
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	15.9	32.4	32.4	38.0	54.5
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.3%	27.0%	27.0%	31.7%	45.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.4	10.4	24.8	24.8	24.8	8.7	37.8	37.8	18.9	50.2
Actuated g/C Ratio	0.09	0.09	0.22	0.22	0.22	0.08	0.34	0.34	0.17	0.46
v/c Ratio	0.23	0.77	0.79	0.78	0.51	0.53	0.34	0.36	0.76	0.50
Control Delay	53.7	62.9	56.3	55.5	7.5	64.8	29.6	5.4	53.1	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	62.9	56.3	55.5	7.5	64.8	29.6	5.4	53.1	24.2
LOS	D	E	E	E	A	E	C	A	D	C
Approach Delay		61.7		39.8			24.8			34.5
Approach LOS		E		D			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 36.3	Intersection LOS: D
Intersection Capacity Utilization 73.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	204	44	486	80	282	69	393	240	424	720	45
Future Volume (veh/h)	36	204	44	486	80	282	69	393	240	424	720	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	215	35	572	0	84	73	414	132	446	758	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	296	48	696	0	309	94	1349	601	527	1670	66
Arrive On Green	0.10	0.10	0.10	0.20	0.00	0.20	0.05	0.38	0.38	0.15	0.48	0.48
Sat Flow, veh/h	1781	3067	492	3563	0	1580	1781	3554	1584	3456	3484	138
Grp Volume(v), veh/h	38	123	127	572	0	84	73	414	132	446	386	402
Grp Sat Flow(s),veh/h/ln	1781	1777	1782	1781	0	1580	1781	1777	1584	1728	1777	1845
Q Serve(g_s), s	2.0	7.0	7.2	15.9	0.0	4.7	4.2	8.5	5.8	13.0	15.0	15.0
Cycle Q Clear(g_c), s	2.0	7.0	7.2	15.9	0.0	4.7	4.2	8.5	5.8	13.0	15.0	15.0
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	172	172	172	696	0	309	94	1349	601	527	852	885
V/C Ratio(X)	0.22	0.72	0.74	0.82	0.00	0.27	0.78	0.31	0.22	0.85	0.45	0.45
Avail Cap(c_a), veh/h	179	179	179	1033	0	458	203	1349	601	1132	852	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	45.4	45.4	39.9	0.0	35.4	48.4	22.5	21.7	42.7	17.9	17.9
Incr Delay (d2), s/veh	0.6	12.4	14.2	3.4	0.0	0.5	5.1	0.6	0.8	1.5	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.6	3.8	7.1	0.0	1.8	2.0	3.5	2.2	5.5	6.1	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	57.8	59.6	43.3	0.0	35.8	53.5	23.1	22.6	44.1	19.7	19.6
LnGrp LOS	D	E	E	D	A	D	D	C	C	D	B	B
Approach Vol, veh/h		288			656			619			1234	
Approach Delay, s/veh		56.7			42.4			26.6			28.5	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	44.2		14.6	9.6	54.5		24.8				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	11.8	49.6		30.0				
Max Q Clear Time (g_c+I1), s	15.0	10.5		9.2	6.2	17.0		17.9				
Green Ext Time (p_c), s	0.8	2.7		0.2	0.0	5.1		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		34.2	
HCM 6th LOS		C	

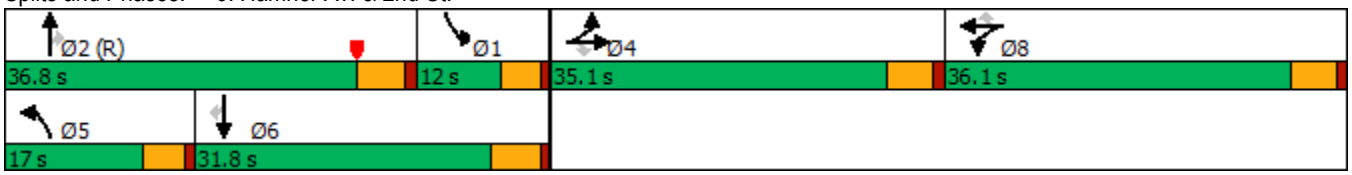
Notes

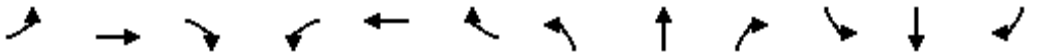
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	397	29	310	353	590	24	648	164	191	444	128
Future Volume (vph)	201	397	29	310	353	590	24	648	164	191	444	128
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	17.0	36.8	36.8	12.0	31.8	31.8
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	14.2%	30.7%	30.7%	10.0%	26.5%	26.5%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.4	31.4	31.4	7.4	36.2	36.2
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.26	0.26	0.06	0.30	0.30
v/c Ratio	0.50	0.54	0.06	0.57	0.57	1.05	0.28	0.77	0.34	1.00	0.46	0.25
Control Delay	43.5	41.9	0.2	40.2	37.3	71.4	61.2	47.5	7.3	128.9	52.1	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	41.9	0.2	40.2	37.3	78.9	61.2	47.5	7.3	128.9	52.1	25.5
LOS	D	D	A	D	D	E	E	D	A	F	D	C
Approach Delay		40.4			57.4			40.0			66.8	
Approach LOS		D			E			D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 52.2	Intersection LOS: D
Intersection Capacity Utilization 99.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	397	29	310	353	590	24	648	164	191	444	128
Future Volume (veh/h)	201	397	29	310	353	590	24	648	164	191	444	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	219	439	12	243	525	306	26	712	73	210	488	86
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	405	850	360	43	930	408	298	1174	523
Arrive On Green	0.25	0.25	0.25	0.23	0.23	0.23	0.02	0.26	0.26	0.17	0.66	0.66
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1559	3456	3554	1584
Grp Volume(v), veh/h	219	439	12	243	525	306	26	712	73	210	488	86
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1559	1728	1777	1584
Q Serve(g_s), s	12.6	12.0	0.7	14.6	15.1	22.2	1.7	22.2	4.4	6.9	7.7	2.5
Cycle Q Clear(g_c), s	12.6	12.0	0.7	14.6	15.1	22.2	1.7	22.2	4.4	6.9	7.7	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	405	850	360	43	930	408	298	1174	523
V/C Ratio(X)	0.49	0.47	0.03	0.60	0.62	0.85	0.60	0.77	0.18	0.71	0.42	0.16
Avail Cap(c_a), veh/h	445	935	395	460	966	409	184	930	408	298	1174	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	38.2	34.0	41.5	41.7	44.4	58.0	40.9	34.3	48.2	14.9	14.1
Incr Delay (d2), s/veh	3.8	1.7	0.1	1.5	0.8	12.4	5.0	6.0	1.0	6.3	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.7	0.3	6.5	7.0	9.8	0.8	10.2	1.7	3.0	2.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	39.9	34.2	43.0	42.5	56.8	63.0	46.9	35.3	54.6	15.2	14.2
LnGrp LOS	D	D	C	D	D	E	E	D	D	D	B	B
Approach Vol, veh/h		670			1074			811			784	
Approach Delay, s/veh		40.6			46.7			46.4			25.6	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	36.8		35.1	7.5	45.0		32.4				
Change Period (Y+Rc), s	5.4	* 5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	7.4	* 31		30.0	12.4	26.4		31.0				
Max Q Clear Time (g_c+I1), s	8.9	24.2		14.6	3.7	9.7		24.2				
Green Ext Time (p_c), s	0.0	2.8		3.1	0.0	3.0		3.0				

Intersection Summary		
HCM 6th Ctrl Delay		40.4
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	47	169	312	83	300	88	696	527	291	522
Future Volume (vph)	47	169	312	83	300	88	696	527	291	522
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	15.9	32.4	32.4	38.0	54.5
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.3%	27.0%	27.0%	31.7%	45.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.4	10.4	20.1	20.1	20.1	9.4	43.0	43.0	14.2	50.3
Actuated g/C Ratio	0.10	0.10	0.19	0.19	0.19	0.09	0.40	0.40	0.13	0.47
v/c Ratio	0.29	0.61	0.66	0.65	0.58	0.60	0.52	0.60	0.67	0.36
Control Delay	53.5	53.2	50.7	50.1	8.6	65.5	26.8	7.0	52.6	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	53.2	50.7	50.1	8.6	65.5	26.8	7.0	52.6	20.2
LOS	D	D	D	D	A	E	C	A	D	C
Approach Delay		53.2		32.3			21.5			31.4
Approach LOS		D		C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	169	33	312	83	300	88	696	527	291	522	34
Future Volume (veh/h)	47	169	33	312	83	300	88	696	527	291	522	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	180	23	210	259	104	94	740	352	310	555	18
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	309	39	311	326	276	119	1558	685	388	1699	55
Arrive On Green	0.10	0.10	0.10	0.17	0.17	0.17	0.07	0.44	0.44	0.11	0.48	0.48
Sat Flow, veh/h	1781	3174	400	1781	1870	1582	1781	3554	1562	3456	3513	114
Grp Volume(v), veh/h	50	100	103	210	259	104	94	740	352	310	280	293
Grp Sat Flow(s),veh/h/ln	1781	1777	1797	1781	1870	1582	1781	1777	1562	1728	1777	1850
Q Serve(g_s), s	2.7	5.5	5.6	11.3	13.6	6.0	5.3	15.1	16.8	9.0	9.9	9.9
Cycle Q Clear(g_c), s	2.7	5.5	5.6	11.3	13.6	6.0	5.3	15.1	16.8	9.0	9.9	9.9
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	174	173	175	311	326	276	119	1558	685	388	859	895
V/C Ratio(X)	0.29	0.58	0.59	0.68	0.79	0.38	0.79	0.48	0.51	0.80	0.33	0.33
Avail Cap(c_a), veh/h	181	180	182	521	547	463	205	1558	685	1142	859	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	44.3	44.3	39.6	40.6	37.4	47.1	20.4	20.9	44.4	16.2	16.2
Incr Delay (d2), s/veh	0.9	4.1	4.6	2.6	4.4	0.8	4.3	1.0	2.7	1.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.6	2.7	5.1	6.5	2.3	2.4	6.1	6.3	3.8	4.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	48.4	49.0	42.2	44.9	38.2	51.5	21.5	23.6	45.9	17.2	17.2
LnGrp LOS	D	D	D	D	D	D	D	C	C	D	B	B
Approach Vol, veh/h		253			573			1186			883	
Approach Delay, s/veh		47.7			42.7			24.5			27.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.6	49.9		14.6	11.0	54.5		22.5				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	11.8	49.6		30.0				
Max Q Clear Time (g_c+I1), s	11.0	18.8		7.6	7.3	11.9		15.6				
Green Ext Time (p_c), s	0.5	3.9		0.3	0.0	3.5		2.1				

Intersection Summary		
HCM 6th Ctrl Delay		31.0
HCM 6th LOS		C

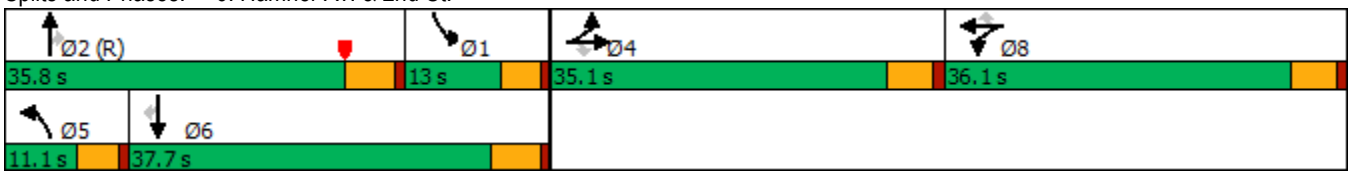
Notes

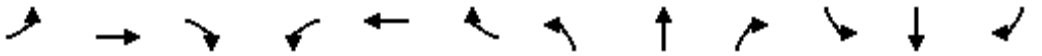
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	414	66	206	237	313	79	679	409	447	760	144
Future Volume (vph)	146	414	66	206	237	313	79	679	409	447	760	144
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	11.1	35.8	35.8	13.0	37.7	37.7
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	9.3%	29.8%	29.8%	10.8%	31.4%	31.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	19.6	19.6	19.6	9.4	41.8	41.8	8.4	40.8	40.8
Actuated g/C Ratio	0.25	0.25	0.25	0.16	0.16	0.16	0.08	0.35	0.35	0.07	0.34	0.34
v/c Ratio	0.33	0.52	0.13	0.56	0.56	0.61	0.59	0.56	0.51	1.90	0.65	0.24
Control Delay	39.6	41.3	0.5	46.3	42.0	16.6	70.8	35.3	5.9	448.6	44.8	19.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	41.6	0.5	46.3	42.0	16.6	70.8	35.3	5.9	448.6	44.8	19.8
LOS	D	D	A	D	D	B	E	D	A	F	D	B
Approach Delay		36.9			32.3			27.4			175.6	
Approach LOS		D			C			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.90	
Intersection Signal Delay: 81.3	Intersection LOS: F
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	414	66	206	237	313	79	679	409	447	760	144
Future Volume (veh/h)	146	414	66	206	237	313	79	679	409	447	760	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	422	21	151	325	110	81	693	256	456	776	86
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	222	467	198	96	900	395	680	1431	637
Arrive On Green	0.25	0.25	0.25	0.04	0.04	0.04	0.05	0.25	0.25	0.26	0.54	0.54
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1561	3456	3554	1583
Grp Volume(v), veh/h	149	422	21	151	325	110	81	693	256	456	776	86
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1561	1728	1777	1583
Q Serve(g_s), s	8.2	11.4	1.2	10.0	10.3	8.2	5.4	21.7	17.6	14.2	17.1	3.3
Cycle Q Clear(g_c), s	8.2	11.4	1.2	10.0	10.3	8.2	5.4	21.7	17.6	14.2	17.1	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	222	467	198	96	900	395	680	1431	637
V/C Ratio(X)	0.33	0.45	0.05	0.68	0.70	0.56	0.84	0.77	0.65	0.67	0.54	0.13
Avail Cap(c_a), veh/h	445	935	392	460	966	409	96	900	395	680	1431	637
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	38.0	34.2	55.2	55.3	54.3	56.2	41.6	40.0	40.8	20.6	17.4
Incr Delay (d2), s/veh	2.0	1.6	0.3	3.5	1.8	2.3	43.1	6.3	8.0	2.1	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	5.4	0.5	5.0	5.2	3.5	3.5	10.1	7.5	5.8	6.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	39.6	34.5	58.6	57.1	56.6	99.3	47.9	48.0	42.9	21.0	17.5
LnGrp LOS	D	D	C	E	E	E	F	D	D	D	C	B
Approach Vol, veh/h		592			586			1030			1318	
Approach Delay, s/veh		39.2			57.4			51.9			28.4	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	35.8		35.1	11.1	53.7		20.1				
Change Period (Y+Rc), s	5.4	* 5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	8.4	* 30		30.0	6.5	32.3		31.0				
Max Q Clear Time (g_c+I1), s	16.2	23.7		13.4	7.4	19.1		12.3				
Green Ext Time (p_c), s	0.0	2.9		2.9	0.0	4.4		2.7				

Intersection Summary		
HCM 6th Ctrl Delay		41.9
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 4.1:

POST-PROCESSING WORKSHEETS

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Project:	Norco Valley Square	Job #:	13043
Scenario:	Horizon Year (2040)	Analyst:	CM
		Date:	2/10/20

LOCATION: Hamner Avenue & 6th Street
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	69	110	41	59%	88	109	21	24%
	Through	393	424	31	8%	696	1,453	757	109%
	Right	240	167	-73	-30%	527	444	-83	-16%
	NB Total	702	701	-1	0%	1,311	2,006	695	53%
SOUTH BOUND	Left	424	598	174	41%	291	274	-17	-6%
	Through	720	1,306	586	81%	522	584	62	12%
	Right	45	145	100	222%	34	47	13	38%
	SB Total	1,189	2,049	860	72%	847	905	58	7%
EAST BOUND	Left	36	49	13	36%	47	188	141	300%
	Through	204	181	-23	-11%	169	272	103	61%
	Right	44	50	6	14%	33	63	30	91%
	EB Total	284	280	-4	-1%	249	523	274	110%
WEST BOUND	Left	486	426	-60	-12%	312	223	-89	-29%
	Through	80	125	45	56%	83	74	-9	-11%
	Right	282	299	17	6%	300	449	149	50%
	WB Total	848	850	2	0%	695	746	51	7%
TOTAL ENTERING VOLUME		3,023	3,880	857	28%	3,102	4,180	1078	35%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,049	905			
North Leg	Outbound	772	2,090			
North Leg	**TOTAL**	**2,821**	**2,995**	**41%**	**43%**	**6,962**
South Leg	Inbound	701	2,006			
South Leg	Outbound	1,782	870			
South Leg	**TOTAL**	**2,483**	**2,876**	**48%**	**55%**	**5,193**
East Leg	Inbound	850	746			
East Leg	Outbound	946	990			
East Leg	**TOTAL**	**1,796**	**1,736**	**25%**	**24%**	**7,236**
West Leg	Inbound	280	523			
West Leg	Outbound	380	230			
West Leg	**TOTAL**	**660**	**753**	**16%**	**18%**	**4,107**
OVERALL TOTAL		***7,760***	***8,360***	**33%**	***36%***	***23,498***

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Project:	Norco Valley Square	Job #:	13043
Scenario:	Horizon Year (2040)	Analyst:	CM
		Date:	2/10/20

LOCATION: Hamner Avenue & Fourth Street
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	112	215	103	92%	11	21	10	91%
	Through	731	459	-272	-37%	920	570	-350	-38%
	Right	38	251	213	561%	134	483	349	260%
	NB Total	881	925	44	5%	1,065	1,074	9	1%
SOUTH BOUND	Left	61	246	185	303%	53	302	249	470%
	Through	730	636	-94	-13%	827	410	-417	-50%
	Right	167	195	28	17%	83	244	161	194%
	SB Total	958	1,077	119	12%	963	956	-7	-1%
EAST BOUND	Left	54	108	54	100%	260	380	120	46%
	Through	12	253	241	2008%	177	1,505	1,328	750%
	Right	9	41	32	356%	101	75	-26	-26%
	EB Total	75	402	327	436%	538	1,960	1,422	264%
WEST BOUND	Left	117	783	666	569%	93	591	498	535%
	Through	129	1,159	1,030	798%	19	717	698	3674%
	Right	113	332	219	194%	48	602	554	1154%
	WB Total	359	2,274	1,915	533%	160	1,910	1,750	1094%
TOTAL ENTERING VOLUME		2,273	4,678	2405	106%	2,726	5,900	3174	116%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,077	956			
North Leg	Outbound	899	1,552			
North Leg	**TOTAL**	**1,976**	**2,508**	**83%**	**105%**	**2,387**
South Leg	Inbound	925	1,074			
South Leg	Outbound	1,460	1,076			
South Leg	**TOTAL**	**2,385**	**2,150**	**92%**	**83%**	**2,582**
East Leg	Inbound	2,274	1,910			
East Leg	Outbound	750	2,290			
East Leg	**TOTAL**	**3,024**	**4,200**	**57%**	**79%**	**5,288**
West Leg	Inbound	402	1,960			
West Leg	Outbound	1,569	982			
West Leg	**TOTAL**	**1,971**	**2,942**	**67%**	**99%**	**2,958**
OVERALL TOTAL		***9,356***	***11,800***	**71%**	***89%***	***13,215***

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Project:	Norco Valley Square	Job #:	13043
Scenario:	Horizon Year (2040)	Analyst:	CM
		Date:	2/10/20

LOCATION: Hamner Avenue & Third Street
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	534	425	-109	-20%	91	108	17	19%
	Through	899	956	57	6%	1,068	1,012	-56	-5%
	Right	42	100	58	138%	61	550	489	802%
	NB Total	1,475	1,481	6	0%	1,220	1,670	450	37%
SOUTH BOUND	Left	14	54	40	286%	61	284	223	366%
	Through	568	935	367	65%	1,148	994	-154	-13%
	Right	327	421	94	29%	43	26	-17	-40%
	SB Total	909	1,410	501	55%	1,252	1,304	52	4%
EAST BOUND	Left	128	164	36	28%	76	35	-41	-54%
	Through	19	54	35	184%	24	105	81	338%
	Right	214	262	48	22%	147	120	-27	-18%
	EB Total	361	480	119	33%	247	260	13	5%
WEST BOUND	Left	91	239	148	163%	33	216	183	555%
	Through	175	359	184	105%	10	46	36	360%
	Right	48	132	84	175%	36	133	97	269%
	WB Total	314	730	416	132%	79	395	316	400%
TOTAL ENTERING VOLUME		3,059	4,101	1042	34%	2,798	3,629	831	30%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,410	1,304			
North Leg	Outbound	1,252	1,180			
North Leg	**TOTAL**	**2,662**	**2,484**	**65%**	**61%**	**4,085**
South Leg	Inbound	1,481	1,670			
South Leg	Outbound	1,436	1,330			
South Leg	**TOTAL**	**2,917**	**3,000**	**50%**	**51%**	**5,880**
East Leg	Inbound	730	395			
East Leg	Outbound	208	939			
East Leg	**TOTAL**	**938**	**1,334**	**68%**	**97%**	**1,377**
West Leg	Inbound	480	260			
West Leg	Outbound	1,205	180			
West Leg	**TOTAL**	**1,685**	**440**	**33%**	**9%**	**5,127**
OVERALL TOTAL		***8,202***	***7,258***	**50%**	***44%***	***16,469***

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Project: Norco Valley Square
Scenario: Horizon Year (2040)

Job #: 13043
Analyst: CM
Date: 2/10/20

LOCATION: Hamner Avenue & Second Street
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	24	54	30	125%	79	206	127	161%
	Through	648	814	166	26%	679	1,360	681	100%
	Right	164	410	246	150%	409	992	583	143%
	NB Total	836	1,278	442	53%	1,167	2,558	1,391	119%
SOUTH BOUND	Left	191	253	62	32%	447	347	-100	-22%
	Through	444	1,030	586	132%	760	884	124	16%
	Right	128	151	23	18%	144	120	-24	-17%
	SB Total	763	1,434	671	88%	1,351	1,351	0	0%
EAST BOUND	Left	201	170	-31	-15%	146	160	14	10%
	Through	397	668	271	68%	414	549	135	33%
	Right	29	85	56	193%	66	131	65	98%
	EB Total	627	923	296	47%	626	840	214	34%
WEST BOUND	Left	310	835	525	169%	206	286	80	39%
	Through	353	485	132	37%	237	236	-1	0%
	Right	590	456	-134	-23%	313	239	-74	-24%
	WB Total	1,253	1,776	523	42%	756	761	5	1%
TOTAL ENTERING VOLUME		3,479	5,411	1932	56%	3,900	5,510	1610	41%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,434	1,351			
North Leg	Outbound	1,440	1,759			
North Leg	**TOTAL**	**2,874**	**3,110**	**49%**	**53%**	**5,880**
South Leg	Inbound	1,278	2,558			
South Leg	Outbound	1,950	1,301			
South Leg	**TOTAL**	**3,228**	**3,859**	**49%**	**58%**	**6,619**
East Leg	Inbound	1,776	761			
East Leg	Outbound	1,331	1,888			
East Leg	**TOTAL**	**3,107**	**2,649**	**36%**	**31%**	**8,588**
West Leg	Inbound	923	840			
West Leg	Outbound	690	562			
West Leg	**TOTAL**	**1,613**	**1,402**	**40%**	**35%**	**4,039**
OVERALL TOTAL		***10,822***	***11,020***	**43%**	***44%***	***25,126***

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Project: Norco Valley Square
Scenario: Horizon Year (2040)

Job #: 13043
Analyst: CM
Date: 2/10/20

LOCATION: I-15 SB Ramps & Second St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
SOUTH BOUND	Left	67	68	1	1%	82	190	108	132%
	Through	2	2	0	0%	5	5	0	0%
	Right	312	361	49	16%	177	112	-65	-37%
	SB Total	381	431	50	13%	264	307	43	16%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	405	747	342	84%	663	1,260	597	90%
	Right	379	608	229	60%	664	546	-118	-18%
	EB Total	784	1,355	571	73%	1,327	1,806	479	36%
WEST BOUND	Left	251	215	-36	-14%	172	299	127	74%
	Through	1,034	1,159	125	12%	684	748	64	9%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	WB Total	1,285	1,374	89	7%	856	1,047	191	22%
TOTAL ENTERING VOLUME		2,450	3,160	710	29%	2,447	3,160	713	29%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	431	307			
North Leg	Outbound	0	0			
North Leg	**TOTAL**	**431**	**307**	**18%**	**13%**	**2,444**
South Leg	Inbound	0	0			
South Leg	Outbound	825	850			
South Leg	**TOTAL**	**825**	**850**	**29%**	**30%**	**2,824**
East Leg	Inbound	1,374	1,047			
East Leg	Outbound	815	1,450			
East Leg	**TOTAL**	**2,189**	**2,497**	**36%**	**41%**	**6,032**
West Leg	Inbound	1,355	1,806			
West Leg	Outbound	1,520	860			
West Leg	**TOTAL**	**2,875**	**2,666**	**33%**	**31%**	**8,588**
OVERALL TOTAL		***6,320***	***6,320***	**32%**	***32%***	***19,888***

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Project: Norco Valley Square
Scenario: Horizon Year (2040)

Job #: 13043
Analyst: CM
Date: 2/10/20

LOCATION: I-15 NB Ramps & Second St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	779	893	114	15%	473	498	25	5%
	Through	5	5	0	0%	36	31	-5	-14%
	Right	394	284	-110	-28%	376	362	-14	-4%
	NB Total	1,178	1,182	4	0%	885	891	6	1%
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
EAST BOUND	Left	127	263	136	107%	422	775	353	84%
	Through	345	545	200	58%	323	673	350	108%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	472	808	336	71%	745	1,448	703	94%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	506	527	21	4%	383	537	154	40%
	Right	98	84	-14	-14%	48	54	6	13%
	WB Total	604	611	7	1%	431	591	160	37%
TOTAL ENTERING VOLUME		2,254	2,601	347	15%	2,061	2,930	869	42%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	0	0			
North Leg	Outbound	352	860			
North Leg	**TOTAL**	**352**	**860**	**14%**	**34%**	**2,546**
South Leg	Inbound	1,182	891			
South Leg	Outbound	0	0			
South Leg	**TOTAL**	**1,182**	**891**	**61%**	**46%**	**1,948**
East Leg	Inbound	611	591			
East Leg	Outbound	829	1,035			
East Leg	**TOTAL**	**1,440**	**1,626**	**47%**	**53%**	**3,071**
West Leg	Inbound	808	1,448			
West Leg	Outbound	1,420	1,035			
West Leg	**TOTAL**	**2,228**	**2,483**	**37%**	**41%**	**6,032**
OVERALL TOTAL		***5,202***	***5,860***	**38%**	***43%***	***13,597***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	342	4	37	1035	28	0	0	81	15	0	0
Future Vol, veh/h	0	342	4	37	1035	28	0	0	81	15	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	422	5	46	1278	35	0	0	100	19	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1314	0	0	427	0	0	1156	1831	214	1600	1816	658
Stage 1	-	-	-	-	-	-	425	425	-	1389	1389	-
Stage 2	-	-	-	-	-	-	731	1406	-	211	427	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	801	-	-	1129	-	-	*626	130	791	193	134	*666
Stage 1	-	-	-	-	-	-	*578	585	-	377	376	-
Stage 2	-	-	-	-	-	-	*628	365	-	771	584	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	800	-	-	1129	-	-	*607	124	791	163	128	*666
Mov Cap-2 Maneuver	-	-	-	-	-	-	*551	252	-	283	252	-
Stage 1	-	-	-	-	-	-	*578	585	-	377	360	-
Stage 2	-	-	-	-	-	-	*603	350	-	674	584	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	10.2	18.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	791	800	-	-	1129	-	-	283
HCM Lane V/C Ratio	0.126	-	-	-	0.04	-	-	0.065
HCM Control Delay (s)	10.2	0	-	-	8.3	-	-	18.6
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	36	204	493	80	282	75	417	244	424	742	45
Future Volume (vph)	36	204	493	80	282	75	417	244	424	742	45
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	17.4	17.4	34.6	34.6	34.6	12.0	44.0	44.0	24.0	56.0	56.0
Total Split (%)	14.5%	14.5%	28.8%	28.8%	28.8%	10.0%	36.7%	36.7%	20.0%	46.7%	46.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.0	12.0	25.7	25.7	25.7	7.5	39.2	39.2	20.0	53.9	53.9
Actuated g/C Ratio	0.10	0.10	0.22	0.22	0.22	0.07	0.34	0.34	0.17	0.47	0.47
v/c Ratio	0.21	0.71	0.80	0.79	0.51	0.69	0.36	0.37	1.46	0.47	0.06
Control Delay	51.6	58.0	59.1	58.0	7.5	83.8	30.5	5.1	258.1	23.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	58.0	59.1	58.0	7.5	83.8	30.5	5.1	258.1	23.8	0.2
LOS	D	E	E	E	A	F	C	A	F	C	A
Approach Delay		57.2		41.7			27.5			105.0	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.46	
Intersection Signal Delay: 64.5	Intersection LOS: E
Intersection Capacity Utilization 85.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	204	50	493	80	282	75	417	244	424	742	45
Future Volume (veh/h)	36	204	50	493	80	282	75	417	244	424	742	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	215	42	579	0	84	79	439	136	446	781	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	280	54	695	0	308	101	1279	570	326	1730	769
Arrive On Green	0.09	0.09	0.09	0.20	0.00	0.20	0.06	0.36	0.36	0.18	0.49	0.49
Sat Flow, veh/h	1781	2974	571	3563	0	1580	1781	3554	1584	1781	3554	1580
Grp Volume(v), veh/h	38	127	130	579	0	84	79	439	136	446	781	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1768	1781	0	1580	1781	1777	1584	1781	1777	1580
Q Serve(g_s), s	2.1	7.6	7.8	17.0	0.0	4.9	4.8	9.8	6.5	19.9	15.7	1.1
Cycle Q Clear(g_c), s	2.1	7.6	7.8	17.0	0.0	4.9	4.8	9.8	6.5	19.9	15.7	1.1
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	167	166	695	0	308	101	1279	570	326	1730	769
V/C Ratio(X)	0.23	0.76	0.78	0.83	0.00	0.27	0.78	0.34	0.24	1.37	0.45	0.04
Avail Cap(c_a), veh/h	210	209	208	984	0	436	130	1279	570	326	1730	769
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	48.0	48.1	42.0	0.0	37.2	50.6	25.4	24.3	44.4	18.3	14.6
Incr Delay (d2), s/veh	0.7	11.6	13.9	4.3	0.0	0.5	15.8	0.7	1.0	183.4	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.9	4.0	7.7	0.0	1.9	2.5	4.1	2.5	25.1	6.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	59.6	62.0	46.4	0.0	37.6	66.4	26.1	25.3	227.8	19.2	14.7
LnGrp LOS	D	E	E	D	A	D	E	C	C	F	B	B
Approach Vol, veh/h		295			663			654			1257	
Approach Delay, s/veh		59.0			45.3			30.8			93.1	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	44.0		14.8	10.2	57.8		25.8				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	39.1		12.8	7.9	51.1		30.0				
Max Q Clear Time (g_c+I1), s	21.9	11.8		9.8	6.8	17.7		19.0				
Green Ext Time (p_c), s	0.0	3.3		0.4	0.0	5.9		1.9				

Intersection Summary			
HCM 6th Ctrl Delay		64.3	
HCM 6th LOS		E	

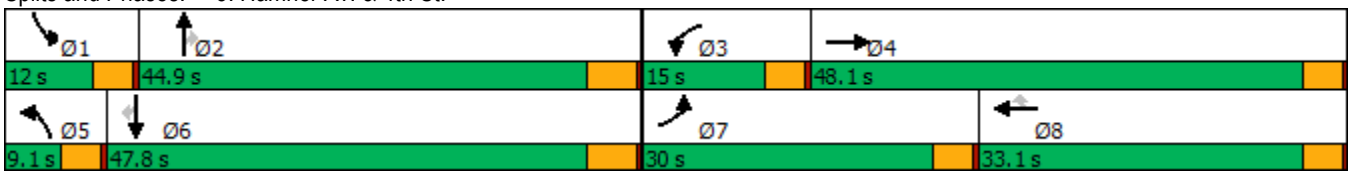
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	54	12	121	129	113	112	765	40	61	765	167
Future Volume (vph)	54	12	121	129	113	112	765	40	61	765	167
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	48.1	15.0	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	40.1%	12.5%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	7.4	13.4	15.3	14.3	14.3	5.1	43.9	43.9	7.0	43.6	43.6
Actuated g/C Ratio	0.09	0.16	0.18	0.17	0.17	0.06	0.51	0.51	0.08	0.51	0.51
v/c Ratio	0.39	0.08	0.42	0.45	0.33	1.17	0.46	0.05	0.46	0.46	0.21
Control Delay	47.2	22.6	40.1	37.3	7.8	181.0	17.6	0.1	51.4	16.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	22.6	40.1	37.3	7.8	181.0	17.6	0.1	51.4	16.5	6.6
LOS	D	C	D	D	A	F	B	A	D	B	A
Approach Delay		40.3		29.1			36.9			17.0	
Approach LOS		D		C			D			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	12	9	121	129	113	112	765	40	61	765	167
Future Volume (veh/h)	54	12	9	121	129	113	112	765	40	61	765	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	13	0	132	140	40	122	832	27	66	832	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	230	0	165	319	270	107	1883	840	85	1838	820
Arrive On Green	0.04	0.12	0.00	0.09	0.17	0.17	0.06	0.53	0.53	0.05	0.52	0.52
Sat Flow, veh/h	1781	1870	0	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	59	13	0	132	140	40	122	832	27	66	832	134
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.7	0.5	0.0	6.0	5.6	1.8	5.0	11.9	0.7	3.0	12.2	3.7
Cycle Q Clear(g_c), s	2.7	0.5	0.0	6.0	5.6	1.8	5.0	11.9	0.7	3.0	12.2	3.7
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	80	230	0	165	319	270	107	1883	840	85	1838	820
V/C Ratio(X)	0.74	0.06	0.00	0.80	0.44	0.15	1.14	0.44	0.03	0.78	0.45	0.16
Avail Cap(c_a), veh/h	556	992	0	234	654	554	107	1883	840	170	1838	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	32.2	0.0	36.9	30.8	29.3	39.0	12.0	9.3	39.1	12.6	10.6
Incr Delay (d2), s/veh	4.9	0.1	0.0	7.9	1.0	0.2	128.3	0.8	0.1	5.7	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.2	0.0	3.0	2.6	0.7	5.9	4.3	0.2	1.4	4.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	32.3	0.0	44.8	31.8	29.5	167.2	12.7	9.4	44.7	13.4	11.0
LnGrp LOS	D	C	A	D	C	C	F	B	A	D	B	B
Approach Vol, veh/h		72			312			981			1032	
Approach Delay, s/veh		41.9			37.0			31.9			15.1	
Approach LOS		D			D			C			B	

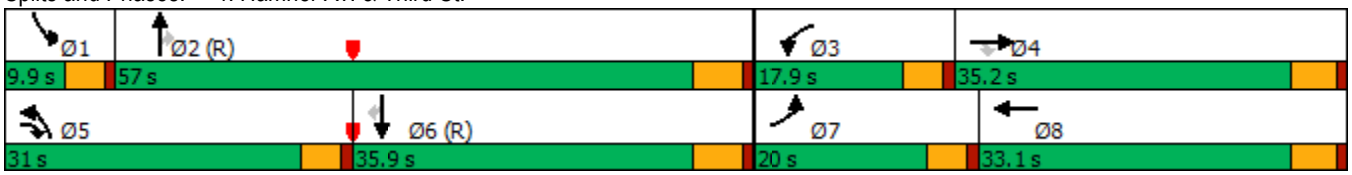
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	48.9	11.8	14.3	9.1	47.8	7.8	18.2
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	10.9	44.0	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	5.0	13.9	8.0	2.5	7.0	14.2	4.7	7.6
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	0.0	6.6	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	187	25	226	91	186	542	877	42	14	588	345
Future Volume (vph)	187	25	226	91	186	542	877	42	14	588	345
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.1	20.6	43.9	22.0	21.5	24.2	64.1	64.1	5.4	39.5	39.5
Actuated g/C Ratio	0.13	0.17	0.37	0.18	0.18	0.20	0.53	0.53	0.04	0.33	0.33
v/c Ratio	0.92	0.08	0.38	0.31	0.78	0.86	0.51	0.05	0.19	0.55	0.49
Control Delay	94.9	37.7	11.8	49.9	60.8	56.4	28.0	2.5	60.7	37.0	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.9	37.7	11.8	49.9	60.8	56.4	28.0	2.5	60.7	37.0	6.0
LOS	F	D	B	D	E	E	C	A	E	D	A
Approach Delay		48.7			57.8		37.8			26.1	
Approach LOS		D			E		D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 37.9	Intersection LOS: D
Intersection Capacity Utilization 77.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	25	226	91	186	48	542	877	42	14	588	345
Future Volume (veh/h)	187	25	226	91	186	48	542	877	42	14	588	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	205	27	107	100	204	37	596	964	36	15	646	228
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	401	636	124	240	44	645	1902	848	29	1297	571
Arrive On Green	0.13	0.21	0.21	0.07	0.16	0.16	0.37	1.00	1.00	0.02	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1540	279	3456	3554	1585	1781	3554	1564
Grp Volume(v), veh/h	205	27	107	100	0	241	596	964	36	15	646	228
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1819	1728	1777	1585	1781	1777	1564
Q Serve(g_s), s	13.6	1.4	5.2	6.6	0.0	15.5	19.8	0.0	0.0	1.0	16.9	13.0
Cycle Q Clear(g_c), s	13.6	1.4	5.2	6.6	0.0	15.5	19.8	0.0	0.0	1.0	16.9	13.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	401	636	124	0	284	645	1902	848	29	1297	571
V/C Ratio(X)	0.90	0.07	0.17	0.80	0.00	0.85	0.92	0.51	0.04	0.51	0.50	0.40
Avail Cap(c_a), veh/h	229	469	694	197	0	424	760	1902	848	79	1297	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89
Uniform Delay (d), s/veh	51.5	37.6	23.1	55.0	0.0	49.3	36.8	0.0	0.0	58.5	29.6	28.3
Incr Delay (d2), s/veh	32.6	0.1	0.1	5.2	0.0	10.1	14.3	1.0	0.1	4.6	1.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	0.6	2.0	3.1	0.0	7.7	7.7	0.3	0.0	0.5	7.3	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.1	37.6	23.2	60.2	0.0	59.4	51.1	1.0	0.1	63.1	30.8	30.2
LnGrp LOS	F	D	C	E	A	E	D	A	A	E	C	C
Approach Vol, veh/h		339			341			1596			889	
Approach Delay, s/veh		61.2			59.6			19.7			31.2	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	69.6	13.0	30.8	27.0	49.2	20.0	23.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	3.0	2.0	8.6	7.2	21.8	18.9	15.6	17.5
Green Ext Time (p_c), s	0.0	8.2	0.0	0.4	0.6	3.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	94	1	0	0	98	1477	3	0	870	35
Future Vol, veh/h	0	0	94	1	0	0	98	1477	3	0	870	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	102	1	0	0	107	1605	3	0	946	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	496	2294	2809	804	988	0	0	1608	0	0
Stage 1	-	-	-	1821	1821	-	-	-	-	-	-	-
Stage 2	-	-	-	473	988	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*720	*109	*19	*465	*1078	-	-	*696	-	-
Stage 1	0	0	-	*312	*298	-	-	-	-	-	-	-
Stage 2	0	0	-	*679	*595	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*718	*86	*17	*465	*1074	-	-	*696	-	-
Mov Cap-2 Maneuver	-	-	-	*240	*217	-	-	-	-	-	-	-
Stage 1	-	-	-	*280	*268	-	-	-	-	-	-	-
Stage 2	-	-	-	*583	*594	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	20.1	0.5	0
HCM LOS	B	C		

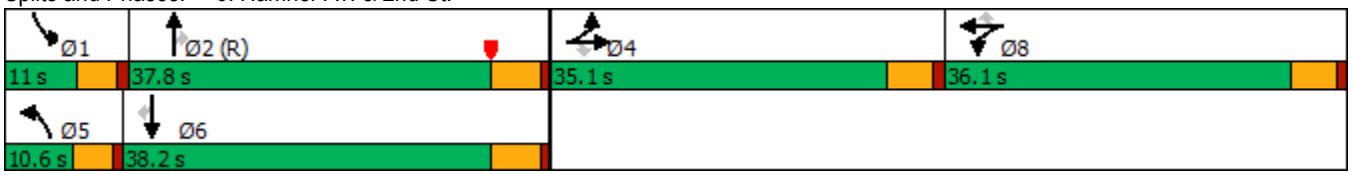
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1074	-	-	718	240	* 696	-	-
HCM Lane V/C Ratio	0.099	-	-	0.142	0.005	-	-	-
HCM Control Delay (s)	8.7	-	-	10.8	20.1	0	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	397	29	310	353	645	24	663	164	252	461	141
Future Volume (vph)	214	397	29	310	353	645	24	663	164	252	461	141
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	5.6	32.4	32.4	6.4	37.0	37.0
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.31	0.31
v/c Ratio	0.52	0.54	0.07	0.57	0.57	1.20	0.31	0.76	0.33	2.95	0.46	0.26
Control Delay	44.4	41.9	0.3	31.7	29.2	127.1	65.3	46.4	7.4	921.0	44.4	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	41.9	0.3	31.7	29.2	127.2	65.3	46.4	7.4	921.0	44.4	18.8
LOS	D	D	A	C	C	F	E	D	A	F	D	B
Approach Delay		40.8			77.9			39.5			298.8	
Approach LOS		D			E			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.95	
Intersection Signal Delay: 114.1	Intersection LOS: F
Intersection Capacity Utilization 103.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	397	29	310	353	645	24	663	164	252	461	141
Future Volume (veh/h)	214	397	29	310	353	645	24	663	164	252	461	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	452	12	243	525	367	26	729	73	277	507	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	452	949	401	43	976	429	95	1080	481
Arrive On Green	0.25	0.25	0.25	0.08	0.08	0.08	0.02	0.27	0.27	0.02	0.10	0.10
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1583
Grp Volume(v), veh/h	224	452	12	243	525	367	26	729	73	277	507	100
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1583
Q Serve(g_s), s	12.9	12.4	0.7	15.7	16.2	27.6	1.7	22.5	4.3	6.4	16.2	7.0
Cycle Q Clear(g_c), s	12.9	12.4	0.7	15.7	16.2	27.6	1.7	22.5	4.3	6.4	16.2	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	452	949	401	43	976	429	95	1080	481
V/C Ratio(X)	0.50	0.48	0.03	0.54	0.55	0.91	0.60	0.75	0.17	2.92	0.47	0.21
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	976	429	95	1080	481
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	38.4	34.0	48.2	48.5	53.7	58.0	39.7	33.1	58.9	44.8	40.7
Incr Delay (d2), s/veh	4.0	1.8	0.1	1.0	0.6	21.4	5.0	5.2	0.9	890.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	5.9	0.3	7.6	8.2	14.1	0.8	10.3	1.7	26.4	7.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	40.2	34.2	49.2	49.0	75.1	63.0	44.9	34.0	948.9	45.2	40.9
LnGrp LOS	D	D	C	D	D	E	E	D	C	F	D	D
Approach Vol, veh/h		688			1135			828			884	
Approach Delay, s/veh		40.9			57.5			44.5			327.9	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	38.4		35.1	7.5	41.9		35.5				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	24.5		14.9	3.7	18.2		29.6				
Green Ext Time (p_c), s	0.0	3.0		3.2	0.0	3.0		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		118.8	
HCM 6th LOS		F	

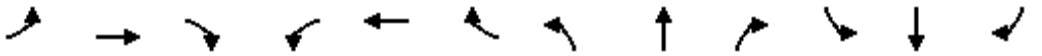
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	443	251	1070	2	331
Future Volume (vph)	443	251	1070	2	331
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	65.0	26.0	91.0	29.0	29.0
Total Split (%)	54.2%	21.7%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	65.8	20.0	90.3	19.8	19.8
Actuated g/C Ratio	0.55	0.17	0.75	0.16	0.16
v/c Ratio	0.46	0.89	0.42	0.25	0.91
Control Delay	18.6	51.0	3.0	44.1	57.1
Queue Delay	1.0	0.0	0.2	0.0	1.2
Total Delay	19.6	51.0	3.2	44.1	58.2
LOS	B	D	A	D	E
Approach Delay	19.6		12.2	55.8	
Approach LOS	B		B	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	443	402	251	1070	0	0	0	0	67	2	331
Future Volume (veh/h)	0	443	402	251	1070	0	0	0	0	67	2	331
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	461	339	261	1115	0				70	2	278
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1035	758	288	2586	0				329	9	301
Arrive On Green	0.00	1.00	1.00	0.16	0.73	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	2050	1433	1781	3647	0				1734	50	1585
Grp Volume(v), veh/h	0	419	381	261	1115	0				72	0	278
Grp Sat Flow(s),veh/h/ln	0	1777	1612	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	0.0	0.0	17.3	14.9	0.0				4.1	0.0	20.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	17.3	14.9	0.0				4.1	0.0	20.7
Prop In Lane	0.00		0.89	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	940	853	288	2586	0				338	0	301
V/C Ratio(X)	0.00	0.45	0.45	0.91	0.43	0.00				0.21	0.00	0.92
Avail Cap(c_a), veh/h	0	940	853	319	2586	0				352	0	313
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	49.4	6.5	0.0				41.0	0.0	47.8
Incr Delay (d2), s/veh	0.0	0.1	0.2	21.2	0.4	0.0				0.1	0.0	30.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	9.3	5.0	0.0				1.8	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.1	0.2	70.6	6.9	0.0				41.2	0.0	78.3
LnGrp LOS	A	A	A	E	A	A				D	A	E
Approach Vol, veh/h		800			1376						350	
Approach Delay, s/veh		0.1			19.0						70.7	
Approach LOS		A			B						E	

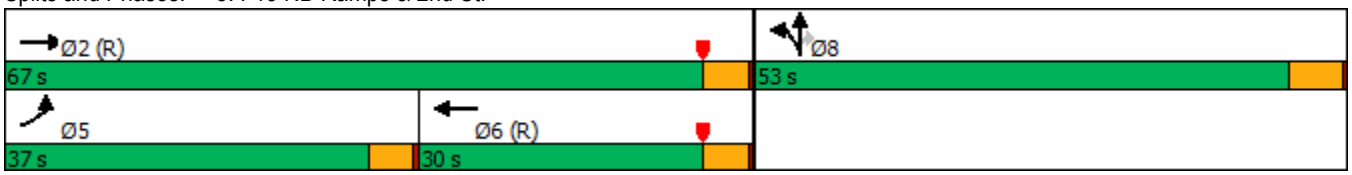
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.9	68.1		28.1		91.9						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	21.5	60.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	19.3	2.0		22.7		16.9						
Green Ext Time (p_c), s	0.1	3.6		0.1		6.3						

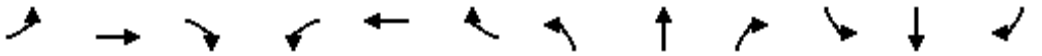
Intersection Summary			
HCM 6th Ctrl Delay		20.2	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	150	360	523	798	5	394
Future Volume (vph)	150	360	523	798	5	394
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	37.0	67.0	30.0	53.0	53.0	53.0
Total Split (%)	30.8%	55.8%	25.0%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	15.9	71.3	50.9	38.8	38.8	38.8
Actuated g/C Ratio	0.13	0.59	0.42	0.32	0.32	0.32
v/c Ratio	0.70	0.19	0.46	0.80	0.81	0.54
Control Delay	44.8	16.0	27.8	47.8	48.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	16.0	27.8	47.8	48.4	5.6
LOS	D	B	C	D	D	A
Approach Delay		24.5	27.8		34.1	
Approach LOS		C	C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 30.3	Intersection LOS: C
Intersection Capacity Utilization 61.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	360	0	0	523	98	798	5	394	0	0	0
Future Volume (veh/h)	150	360	0	0	523	98	798	5	394	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	163	391	0	0	568	73	871	0	299			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	194	2277	0	0	1565	201	986	0	439			
Arrive On Green	0.07	0.43	0.00	0.00	0.49	0.49	0.28	0.00	0.28			
Sat Flow, veh/h	1781	3647	0	0	3261	406	3563	0	1585			
Grp Volume(v), veh/h	163	391	0	0	318	323	871	0	299			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1797	1781	0	1585			
Q Serve(g_s), s	10.8	8.1	0.0	0.0	13.2	13.3	28.1	0.0	20.2			
Cycle Q Clear(g_c), s	10.8	8.1	0.0	0.0	13.2	13.3	28.1	0.0	20.2			
Prop In Lane	1.00		0.00	0.00		0.23	1.00		1.00			
Lane Grp Cap(c), veh/h	194	2277	0	0	878	888	986	0	439			
V/C Ratio(X)	0.84	0.17	0.00	0.00	0.36	0.36	0.88	0.00	0.68			
Avail Cap(c_a), veh/h	482	2277	0	0	878	888	1416	0	630			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.89	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.6	14.6	0.0	0.0	18.7	18.7	41.5	0.0	38.7			
Incr Delay (d2), s/veh	6.4	0.1	0.0	0.0	1.2	1.2	4.5	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.3	3.4	0.0	0.0	5.6	5.7	12.5	0.0	7.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	14.8	0.0	0.0	19.9	19.9	46.0	0.0	40.1			
LnGrp LOS	E	B	A	A	B	B	D	A	D			
Approach Vol, veh/h		554			641			1170				
Approach Delay, s/veh		28.4			19.9			44.5				
Approach LOS		C			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.5			17.6	63.9		38.5				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			32.5	25.4		47.7				
Max Q Clear Time (g_c+I1), s		10.1			12.8	15.3		30.1				
Green Ext Time (p_c), s		1.7			0.3	1.9		3.1				

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	190	4	55	235	4	0	0	77	53	0	0
Future Vol, veh/h	2	190	4	55	235	4	0	0	77	53	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	238	5	69	294	5	0	0	96	66	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	243	0	0	532	685	122	561	685	151
Stage 1	-	-	-	-	-	-	247	247	-	436	436	-
Stage 2	-	-	-	-	-	-	285	438	-	125	249	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1406	-	-	1320	-	-	557	439	906	529	439	*1000
Stage 1	-	-	-	-	-	-	735	701	-	701	663	-
Stage 2	-	-	-	-	-	-	873	662	-	866	699	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1405	-	-	1320	-	-	534	415	906	453	415	*999
Mov Cap-2 Maneuver	-	-	-	-	-	-	596	489	-	527	476	-
Stage 1	-	-	-	-	-	-	734	700	-	699	628	-
Stage 2	-	-	-	-	-	-	828	627	-	772	698	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.5	9.4	12.8
HCM LOS			A	B

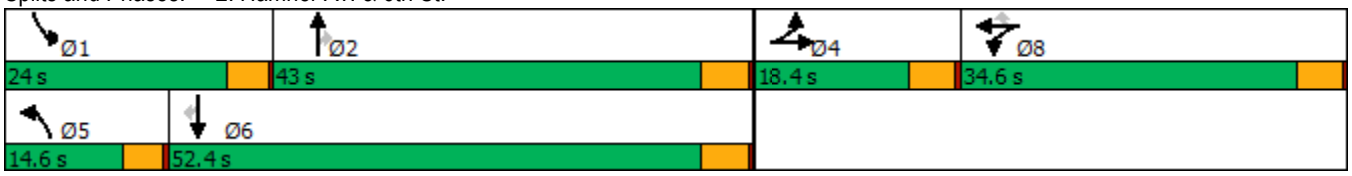
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	906	1405	-	-	1320	-	-	527
HCM Lane V/C Ratio	0.106	0.002	-	-	0.052	-	-	0.126
HCM Control Delay (s)	9.4	7.6	-	-	7.9	-	-	12.8
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	47	169	318	83	300	93	718	532	291	550	34
Future Volume (vph)	47	169	318	83	300	93	718	532	291	550	34
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	11.8	11.8	20.4	20.4	20.4	9.2	38.3	38.3	20.0	49.1	49.1
Actuated g/C Ratio	0.11	0.11	0.19	0.19	0.19	0.08	0.35	0.35	0.18	0.45	0.45
v/c Ratio	0.26	0.57	0.67	0.67	0.58	0.66	0.61	0.62	0.95	0.37	0.05
Control Delay	50.2	49.1	51.8	51.7	8.6	71.0	32.9	6.2	85.4	22.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	49.1	51.8	51.7	8.6	71.0	32.9	6.2	85.4	22.0	0.1
LOS	D	D	D	D	A	E	C	A	F	C	A
Approach Delay		49.3		33.3			24.9			42.3	
Approach LOS		D		C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	169	40	318	83	300	93	718	532	291	550	34
Future Volume (veh/h)	47	169	40	318	83	300	93	718	532	291	550	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	180	31	213	263	104	99	764	357	310	585	18
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	291	49	313	329	278	125	1295	569	338	1721	766
Arrive On Green	0.10	0.10	0.10	0.18	0.18	0.18	0.07	0.36	0.36	0.19	0.48	0.48
Sat Flow, veh/h	1781	3039	514	1781	1870	1582	1781	3554	1562	1781	3554	1582
Grp Volume(v), veh/h	50	104	107	213	263	104	99	764	357	310	585	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1870	1582	1781	1777	1562	1781	1777	1582
Q Serve(g_s), s	2.7	5.9	6.1	11.7	14.1	6.1	5.7	18.2	19.7	17.8	10.6	0.6
Cycle Q Clear(g_c), s	2.7	5.9	6.1	11.7	14.1	6.1	5.7	18.2	19.7	17.8	10.6	0.6
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	170	170	170	313	329	278	125	1295	569	338	1721	766
V/C Ratio(X)	0.29	0.61	0.63	0.68	0.80	0.37	0.79	0.59	0.63	0.92	0.34	0.02
Avail Cap(c_a), veh/h	235	235	234	511	537	454	179	1295	569	339	1721	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	45.4	45.5	40.3	41.3	38.0	47.9	26.9	27.4	41.5	16.6	14.1
Incr Delay (d2), s/veh	0.9	3.5	3.8	2.6	4.5	0.8	9.1	2.0	5.2	28.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.7	2.8	5.3	6.8	2.4	2.8	7.7	7.8	10.2	4.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	48.9	49.3	42.9	45.8	38.8	57.0	28.9	32.5	69.7	17.2	14.1
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	B	B
Approach Vol, veh/h		261			580			1220			913	
Approach Delay, s/veh		48.3			43.5			32.2			34.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.9	43.0		14.6	11.4	55.5		23.0				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	19.8	21.7		8.1	7.7	12.6		16.1				
Green Ext Time (p_c), s	0.0	5.8		0.6	0.0	4.1		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		36.7	
HCM 6th LOS		D	

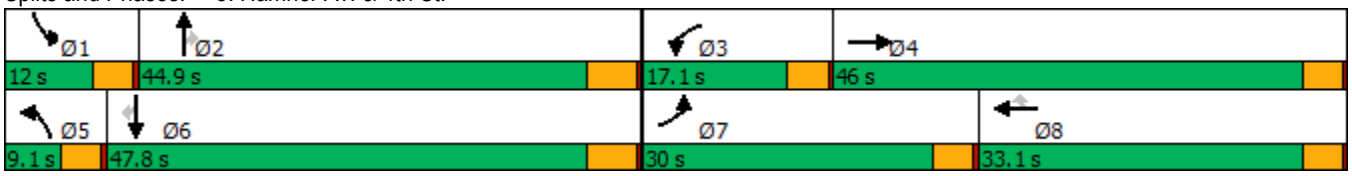
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	260	177	96	19	48	11	952	137	53	867	83
Future Volume (vph)	260	177	96	19	48	11	952	137	53	867	83
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	46.0	17.1	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	38.3%	14.3%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	18.0	21.4	9.4	14.1	14.1	5.2	42.7	42.7	6.9	49.8	49.8
Actuated g/C Ratio	0.19	0.23	0.10	0.15	0.15	0.06	0.46	0.46	0.07	0.54	0.54
v/c Ratio	0.77	0.67	0.55	0.07	0.14	0.11	0.60	0.18	0.41	0.47	0.10
Control Delay	53.6	37.9	56.3	36.9	0.9	52.5	25.4	6.8	56.7	18.4	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	37.9	56.3	36.9	0.9	52.5	25.4	6.8	56.7	18.4	2.0
LOS	D	D	E	D	A	D	C	A	E	B	A
Approach Delay		45.4		37.7			23.3			19.0	
Approach LOS		D		D			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 67.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	177	101	96	19	48	11	952	137	53	867	83
Future Volume (veh/h)	260	177	101	96	19	48	11	952	137	53	867	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	181	54	98	19	15	11	971	96	54	885	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	300	90	126	217	182	24	1671	744	75	1773	773
Arrive On Green	0.17	0.22	0.22	0.07	0.12	0.12	0.01	0.47	0.47	0.04	0.50	0.50
Sat Flow, veh/h	1781	1383	413	1781	1870	1563	1781	3554	1583	1781	3554	1549
Grp Volume(v), veh/h	265	0	235	98	19	15	11	971	96	54	885	57
Grp Sat Flow(s),veh/h/ln	1781	0	1796	1781	1870	1563	1781	1777	1583	1781	1777	1549
Q Serve(g_s), s	12.5	0.0	10.1	4.7	0.8	0.7	0.5	17.1	2.9	2.6	14.3	1.6
Cycle Q Clear(g_c), s	12.5	0.0	10.1	4.7	0.8	0.7	0.5	17.1	2.9	2.6	14.3	1.6
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	390	126	217	182	24	1671	744	75	1773	773
V/C Ratio(X)	0.87	0.00	0.60	0.78	0.09	0.08	0.46	0.58	0.13	0.72	0.50	0.07
Avail Cap(c_a), veh/h	536	0	875	269	631	527	104	1671	744	164	1773	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	30.3	39.3	33.9	33.9	42.1	16.6	12.8	40.7	14.4	11.2
Incr Delay (d2), s/veh	3.0	0.0	1.5	3.9	0.2	0.2	5.0	1.5	0.4	4.8	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	4.5	2.2	0.4	0.3	0.3	6.6	1.1	1.2	5.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	31.8	43.2	34.1	34.1	47.1	18.1	13.2	45.4	15.4	11.4
LnGrp LOS	D	A	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		500			132			1078			996	
Approach Delay, s/veh		34.9			40.9			18.0			16.8	
Approach LOS		C			D			B			B	

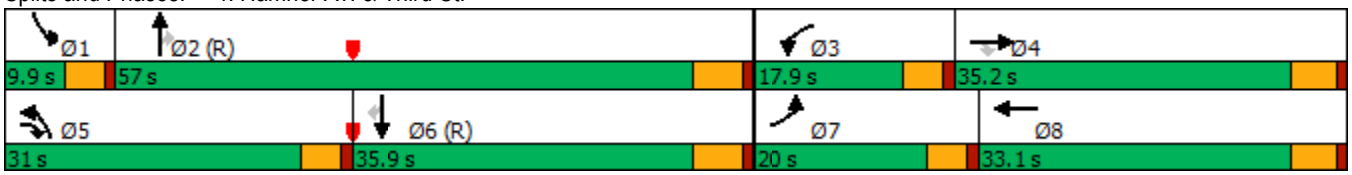
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	45.3	10.2	22.8	5.3	47.8	18.8	14.1
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	13.0	41.9	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	4.6	19.1	6.7	12.1	2.5	16.3	14.5	2.8
Green Ext Time (p_c), s	0.0	7.0	0.1	1.5	0.0	6.6	0.3	0.1

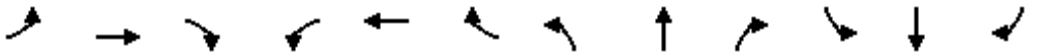
Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	133	32	156	33	18	105	1045	61	61	1169	65
Future Volume (vph)	133	32	156	33	18	105	1045	61	61	1169	65
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	14.0	17.7	28.7	11.8	13.6	8.9	66.3	66.3	9.4	66.9	66.9
Actuated g/C Ratio	0.12	0.15	0.24	0.10	0.11	0.07	0.55	0.55	0.08	0.56	0.56
v/c Ratio	0.79	0.14	0.36	0.23	0.29	0.51	0.65	0.08	0.54	0.72	0.08
Control Delay	77.2	41.6	5.6	54.6	22.6	54.3	34.4	8.7	68.1	25.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	41.6	5.6	54.6	22.6	54.3	34.4	8.7	68.1	25.3	0.2
LOS	E	D	A	D	C	D	C	A	E	C	A
Approach Delay		38.8			34.7		34.9			26.1	
Approach LOS		D			C		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	32	156	33	18	36	105	1045	61	61	1169	65
Future Volume (veh/h)	133	32	156	33	18	36	105	1045	61	61	1169	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	162	39	77	40	22	16	128	1274	54	74	1426	64
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	324	360	55	98	71	186	2089	911	79	2055	915
Arrive On Green	0.11	0.17	0.17	0.03	0.10	0.10	0.05	0.59	0.00	0.04	0.58	0.58
Sat Flow, veh/h	1781	1870	1585	1781	998	726	3456	3554	1550	1781	3554	1582
Grp Volume(v), veh/h	162	39	77	40	0	38	128	1274	54	74	1426	64
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1724	1728	1777	1550	1781	1777	1582
Q Serve(g_s), s	10.7	2.1	4.7	2.7	0.0	2.4	4.4	27.6	4.2	5.0	33.9	2.1
Cycle Q Clear(g_c), s	10.7	2.1	4.7	2.7	0.0	2.4	4.4	27.6	4.2	5.0	33.9	2.1
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	189	324	360	55	0	169	186	2089	911	79	2055	915
V/C Ratio(X)	0.86	0.12	0.21	0.73	0.00	0.23	0.69	0.61	0.06	0.94	0.69	0.07
Avail Cap(c_a), veh/h	229	469	483	197	0	402	760	2089	911	79	2055	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	52.7	41.9	37.7	57.7	0.0	49.9	55.8	15.9	26.8	57.2	17.8	11.1
Incr Delay (d2), s/veh	20.2	0.2	0.3	6.8	0.0	0.7	1.7	1.3	0.1	74.8	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	1.0	1.9	1.3	0.0	1.1	1.9	10.7	1.5	3.8	13.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	42.1	38.0	64.5	0.0	50.6	57.5	17.2	26.9	132.0	19.6	11.3
LnGrp LOS	E	D	D	E	A	D	E	B	C	F	B	B
Approach Vol, veh/h		278			78			1456			1564	
Approach Delay, s/veh		58.9			57.7			21.1			24.5	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	75.9	8.3	25.9	11.1	74.8	17.3	16.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	7.0	29.6	4.7	6.7	6.4	35.9	12.7	4.4
Green Ext Time (p_c), s	0.0	9.7	0.0	0.4	0.2	0.0	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	96	3	1	0	113	1160	5	1	1313	44
Future Vol, veh/h	0	0	96	3	1	0	113	1160	5	1	1313	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	3	1	0	115	1184	5	1	1340	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	693	2089	2804	595	1385	0	0	1189	0	0
Stage 1	-	-	-	1417	1417	-	-	-	-	-	-	-
Stage 2	-	-	-	672	1387	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.3	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*542	*132	*16	*618	*811	-	-	*925	-	-
Stage 1	0	0	-	*431	*384	-	-	-	-	-	-	-
Stage 2	0	0	-	*511	*418	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*542	*96	*13	*618	*811	-	-	*925	-	-
Mov Cap-2 Maneuver	-	-	-	*239	*204	-	-	-	-	-	-	-
Stage 1	-	-	-	*369	*330	-	-	-	-	-	-	-
Stage 2	-	-	-	*418	*418	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	21	0.9	0
HCM LOS	B	C		

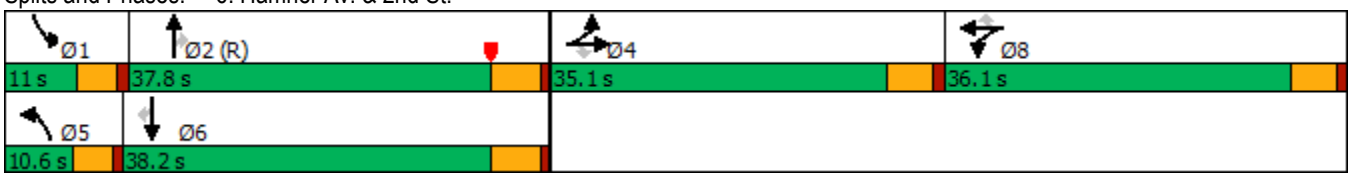
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 811	-	-	542	229	* 925	-	-
HCM Lane V/C Ratio	0.142	-	-	0.181	0.018	0.001	-	-
HCM Control Delay (s)	10.2	-	-	13.1	21	8.9	-	-
HCM Lane LOS	B	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.7	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	414	66	206	237	382	79	698	409	503	774	156
Future Volume (vph)	161	414	66	206	237	382	79	698	409	503	774	156
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	20.1	20.1	20.1	9.7	32.4	32.4	17.3	40.0	40.0
Actuated g/C Ratio	0.25	0.25	0.25	0.17	0.17	0.17	0.08	0.27	0.27	0.14	0.33	0.33
v/c Ratio	0.37	0.52	0.14	0.55	0.54	0.74	0.57	0.75	0.58	2.01	0.67	0.26
Control Delay	40.4	41.4	2.1	35.0	30.9	18.4	69.3	45.7	7.2	495.5	54.7	24.6
Queue Delay	0.0	5.4	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	40.4	46.7	2.1	35.0	30.9	18.6	69.3	45.7	7.4	495.5	54.7	24.6
LOS	D	D	A	C	C	B	E	D	A	F	D	C
Approach Delay		40.7			25.9			34.1			206.1	
Approach LOS		D			C			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.01	
Intersection Signal Delay: 93.8	Intersection LOS: F
Intersection Capacity Utilization 103.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	414	66	206	237	382	79	698	409	503	774	156
Future Volume (veh/h)	161	414	66	206	237	382	79	698	409	503	774	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	422	21	151	325	181	81	712	256	513	790	98
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	271	570	242	89	1336	587	95	1348	600
Arrive On Green	0.25	0.25	0.25	0.05	0.05	0.05	0.05	0.38	0.38	0.02	0.13	0.13
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1563	1781	3554	1583
Grp Volume(v), veh/h	164	422	21	151	325	181	81	712	256	513	790	98
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1563	1781	1777	1583
Q Serve(g_s), s	9.1	11.4	1.2	9.9	10.2	13.5	5.4	18.8	14.7	6.4	25.2	6.6
Cycle Q Clear(g_c), s	9.1	11.4	1.2	9.9	10.2	13.5	5.4	18.8	14.7	6.4	25.2	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	271	570	242	89	1336	587	95	1348	600
V/C Ratio(X)	0.37	0.45	0.05	0.56	0.57	0.75	0.91	0.53	0.44	5.40	0.59	0.16
Avail Cap(c_a), veh/h	445	935	392	460	966	409	89	1336	587	95	1348	600
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	38.0	34.2	53.0	53.1	54.7	56.7	29.2	27.9	58.9	43.6	35.5
Incr Delay (d2), s/veh	2.3	1.6	0.3	1.7	0.9	4.4	65.1	1.5	2.3	2002.9	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.4	0.5	4.8	5.1	6.1	4.0	8.1	5.7	55.8	12.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	39.6	34.5	54.7	54.0	59.1	121.8	30.7	30.3	2061.9	44.3	35.6
LnGrp LOS	D	D	C	D	D	E	F	C	C	F	D	D
Approach Vol, veh/h		607			657			1049			1401	
Approach Delay, s/veh		39.4			55.6			37.7			782.4	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	50.5		35.1	10.6	50.9		23.4				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	20.8		13.4	7.4	27.2		15.5				
Green Ext Time (p_c), s	0.0	4.3		2.9	0.0	2.6		2.8				

Intersection Summary												
HCM 6th Ctrl Delay			322.1									
HCM 6th LOS			F									

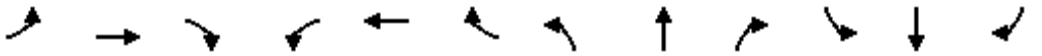
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	698	172	728	5	203
Future Volume (vph)	698	172	728	5	203
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	79.0	16.2	99.7	10.4	10.4
Actuated g/C Ratio	0.66	0.14	0.83	0.09	0.09
v/c Ratio	0.63	0.74	0.25	0.58	0.63
Control Delay	20.4	38.9	1.5	66.9	16.0
Queue Delay	3.3	0.0	0.0	0.0	0.0
Total Delay	23.7	38.9	1.5	66.9	16.0
LOS	C	D	A	E	B
Approach Delay	23.7		8.6	31.3	
Approach LOS	C		A	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	698	685	172	728	0	0	0	0	82	5	203
Future Volume (veh/h)	0	698	685	172	728	0	0	0	0	82	5	203
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	712	544	176	743	0				84	5	115
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1301	983	204	2939	0				153	9	144
Arrive On Green	0.00	0.67	0.67	0.11	0.83	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	2022	1457	1781	3647	0				1686	100	1585
Grp Volume(v), veh/h	0	656	600	176	743	0				89	0	115
Grp Sat Flow(s),veh/h/ln	0	1777	1608	1781	1777	0				1786	0	1585
Q Serve(g_s), s	0.0	22.8	23.3	11.6	5.5	0.0				5.7	0.0	8.5
Cycle Q Clear(g_c), s	0.0	22.8	23.3	11.6	5.5	0.0				5.7	0.0	8.5
Prop In Lane	0.00		0.91	1.00		0.00				0.94		1.00
Lane Grp Cap(c), veh/h	0	1199	1085	204	2939	0				162	0	144
V/C Ratio(X)	0.00	0.55	0.55	0.86	0.25	0.00				0.55	0.00	0.80
Avail Cap(c_a), veh/h	0	1199	1085	334	2939	0				353	0	313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.87	0.87	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.1	10.1	52.2	2.3	0.0				52.2	0.0	53.5
Incr Delay (d2), s/veh	0.0	0.2	0.2	5.7	0.2	0.0				1.1	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.1	7.5	5.5	1.3	0.0				2.6	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.2	10.3	57.9	2.5	0.0				53.3	0.0	57.4
LnGrp LOS	A	B	B	E	A	A				D	A	E
Approach Vol, veh/h		1256			919						204	
Approach Delay, s/veh		10.3			13.1						55.6	
Approach LOS		B			B						E	

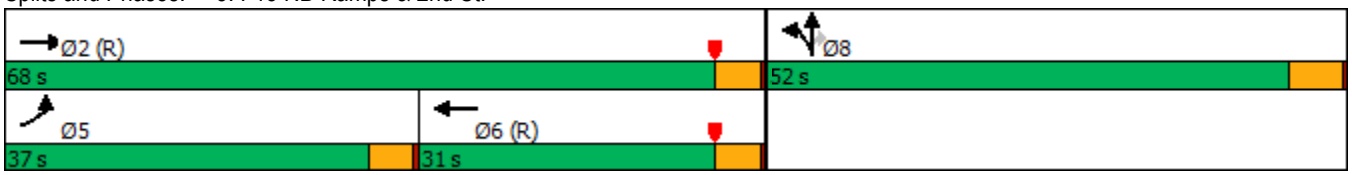
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.3	85.6		16.2		103.8						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	13.6	25.3		10.5		7.5						
Green Ext Time (p_c), s	0.1	6.7		0.3		3.6						

Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	443	337	401	499	36	376
Future Volume (vph)	443	337	401	499	36	376
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	37.0	68.0	31.0	52.0	52.0	52.0
Total Split (%)	30.8%	56.7%	25.8%	43.3%	43.3%	43.3%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	32.1	83.4	46.9	26.7	26.7	26.7
Actuated g/C Ratio	0.27	0.70	0.39	0.22	0.22	0.22
v/c Ratio	0.97	0.14	0.34	0.73	0.74	0.61
Control Delay	62.3	8.1	27.6	54.0	54.7	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	8.1	27.6	54.0	54.7	7.8
LOS	E	A	C	D	D	A
Approach Delay		38.9	27.6		35.1	
Approach LOS		D	C		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 34.9	Intersection LOS: C
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	337	0	0	401	48	499	36	376	0	0	0
Future Volume (veh/h)	443	337	0	0	401	48	499	36	376	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	457	347	0	0	413	37	540	0	209			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	475	2623	0	0	1429	127	639	0	284			
Arrive On Green	0.45	1.00	0.00	0.00	0.43	0.43	0.18	0.00	0.18			
Sat Flow, veh/h	1781	3647	0	0	3387	294	3563	0	1585			
Grp Volume(v), veh/h	457	347	0	0	222	228	540	0	209			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1810	1781	0	1585			
Q Serve(g_s), s	29.9	0.0	0.0	0.0	9.7	9.8	17.6	0.0	15.0			
Cycle Q Clear(g_c), s	29.9	0.0	0.0	0.0	9.7	9.8	17.6	0.0	15.0			
Prop In Lane	1.00		0.00	0.00		0.16	1.00		1.00			
Lane Grp Cap(c), veh/h	475	2623	0	0	771	786	639	0	284			
V/C Ratio(X)	0.96	0.13	0.00	0.00	0.29	0.29	0.84	0.00	0.73			
Avail Cap(c_a), veh/h	482	2623	0	0	771	786	1386	0	617			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.74	0.74	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	32.7	0.0	0.0	0.0	22.0	22.0	47.6	0.0	46.5			
Incr Delay (d2), s/veh	25.9	0.1	0.0	0.0	0.9	0.9	2.4	0.0	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.1	0.0	0.0	0.0	4.2	4.3	7.8	0.0	5.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.1	0.0	0.0	22.9	22.9	50.0	0.0	49.3			
LnGrp LOS	E	A	A	A	C	C	D	A	D			
Approach Vol, veh/h		804			450			749				
Approach Delay, s/veh		33.4			22.9			49.8				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.2			36.5	56.7		26.8				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		63.4			32.5	26.4		46.7				
Max Q Clear Time (g_c+I1), s		2.0			31.9	11.8		19.6				
Green Ext Time (p_c), s		1.5			0.1	1.4		1.9				

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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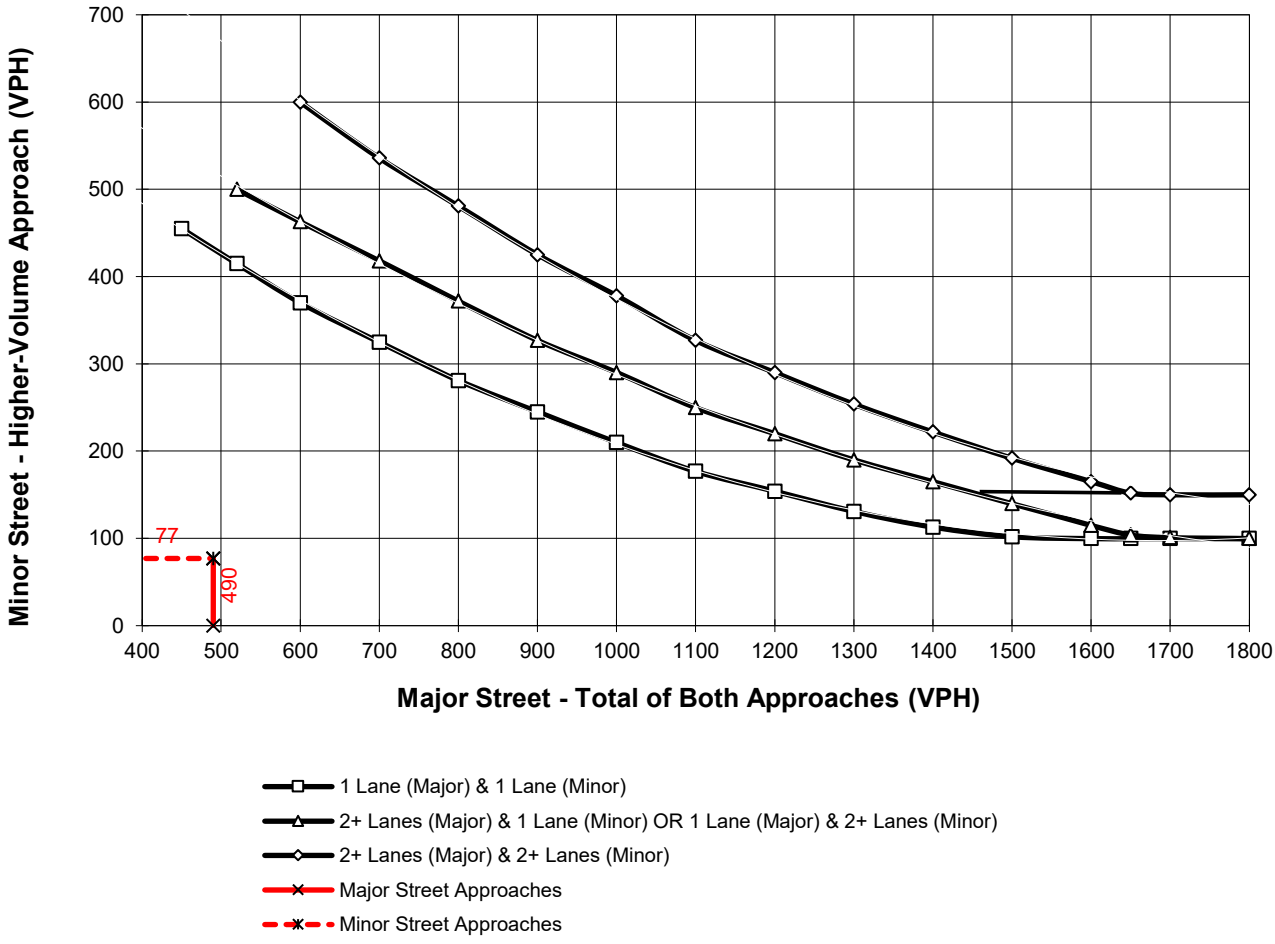
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **490**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **77**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.3:

E+P CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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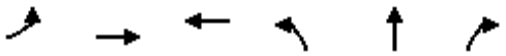
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	880	261	1115	72	345
v/c Ratio	0.46	0.89	0.42	0.25	0.91
Control Delay	18.6	51.0	3.0	44.1	57.1
Queue Delay	1.0	0.0	0.2	0.0	1.2
Total Delay	19.6	51.0	3.2	44.1	58.2
Queue Length 50th (ft)	120	195	101	48	159
Queue Length 95th (ft)	m215	#327	46	90	#307
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1927	317	2662	350	425
Starvation Cap Reductn	727	0	591	0	0
Spillback Cap Reductn	0	0	361	0	14
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.82	0.54	0.21	0.84

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.



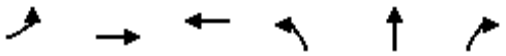
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	163	391	675	433	439	428
v/c Ratio	0.70	0.19	0.46	0.80	0.81	0.54
Control Delay	44.8	16.0	27.8	47.8	48.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	16.0	27.8	47.8	48.4	5.6
Queue Length 50th (ft)	127	114	191	316	323	8
Queue Length 95th (ft)	186	153	300	405	411	73
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	479	2102	1467	668	670	878
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	0.34	0.19	0.46	0.65	0.66	0.49

Intersection Summary

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1411	176	743	89	207
v/c Ratio	0.63	0.74	0.25	0.58	0.63
Control Delay	20.4	38.9	1.5	66.9	16.0
Queue Delay	3.3	0.0	0.0	0.0	0.0
Total Delay	23.7	38.9	1.5	66.9	16.0
Queue Length 50th (ft)	442	133	38	67	0
Queue Length 95th (ft)	m445	22	0	119	71
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	2256	331	2940	351	478
Starvation Cap Reductn	722	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.53	0.25	0.25	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	457	347	462	272	279	388
v/c Ratio	0.97	0.14	0.34	0.73	0.74	0.61
Control Delay	62.3	8.1	27.6	54.0	54.7	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	8.1	27.6	54.0	54.7	7.8
Queue Length 50th (ft)	366	70	128	207	212	0
Queue Length 95th (ft)	#548	81	197	277	283	74
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	479	2460	1363	654	659	816
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	0.95	0.14	0.34	0.42	0.42	0.48

Intersection Summary

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

APPENDIX 5.4:

E+P CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P Conditions
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5950	7161	0.83	62.2	31.9	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	5950	448	7200	2100	0.83	0.21	64.4	60.5	30.8	32.2	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5545	7161	0.77	64.4	28.7	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6300	755	9600	2100	0.58	0.36	69.6	-	19.9	-	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6300	11935	0.53	68.7	18.3	C

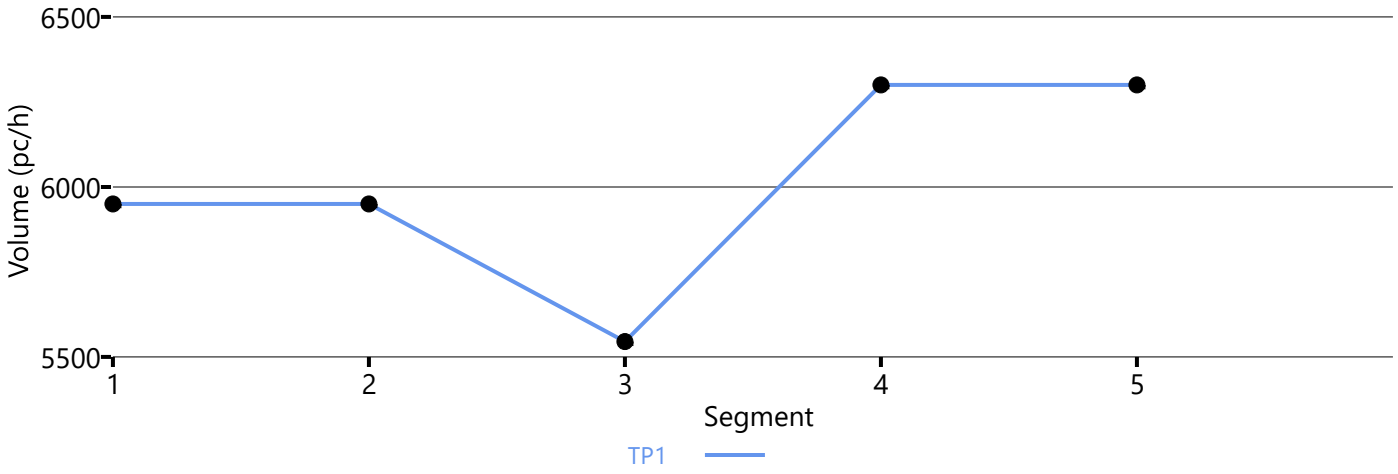
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.2	27.6	26.2	2.4	D

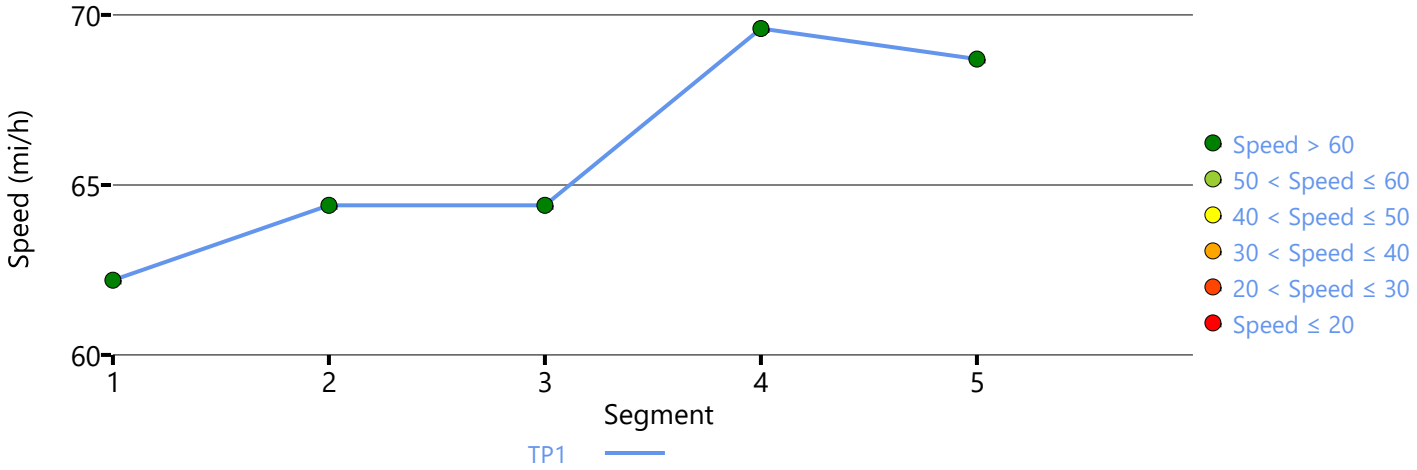
Facility Overall Results

Space Mean Speed, mi/h	64.2	Density, veh/mi/ln	26.2
Average Travel Time, min	2.4	Density, pc/mi/ln	27.6

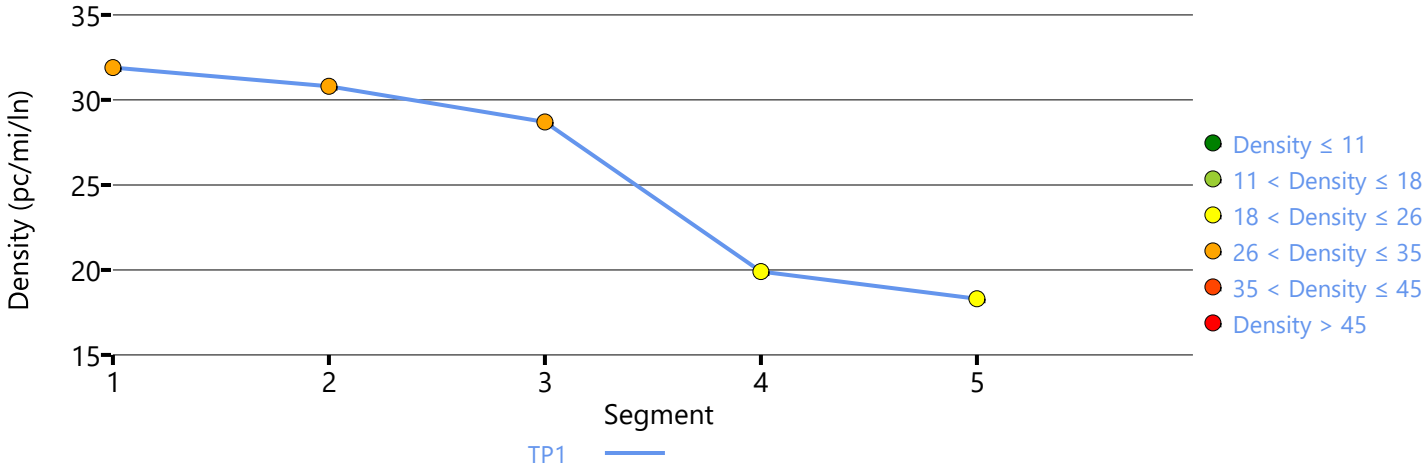
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	8629	11935	0.72	66.0	26.2	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8214	1328	12000	4200	0.72	0.32	66.2	-	24.8	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6411	9548	0.76	21.6	74.3	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.935	6668	294	7200	2100	1.05	0.14	40.1	48.4	55.4	39.5	F

Segment 5: Basic

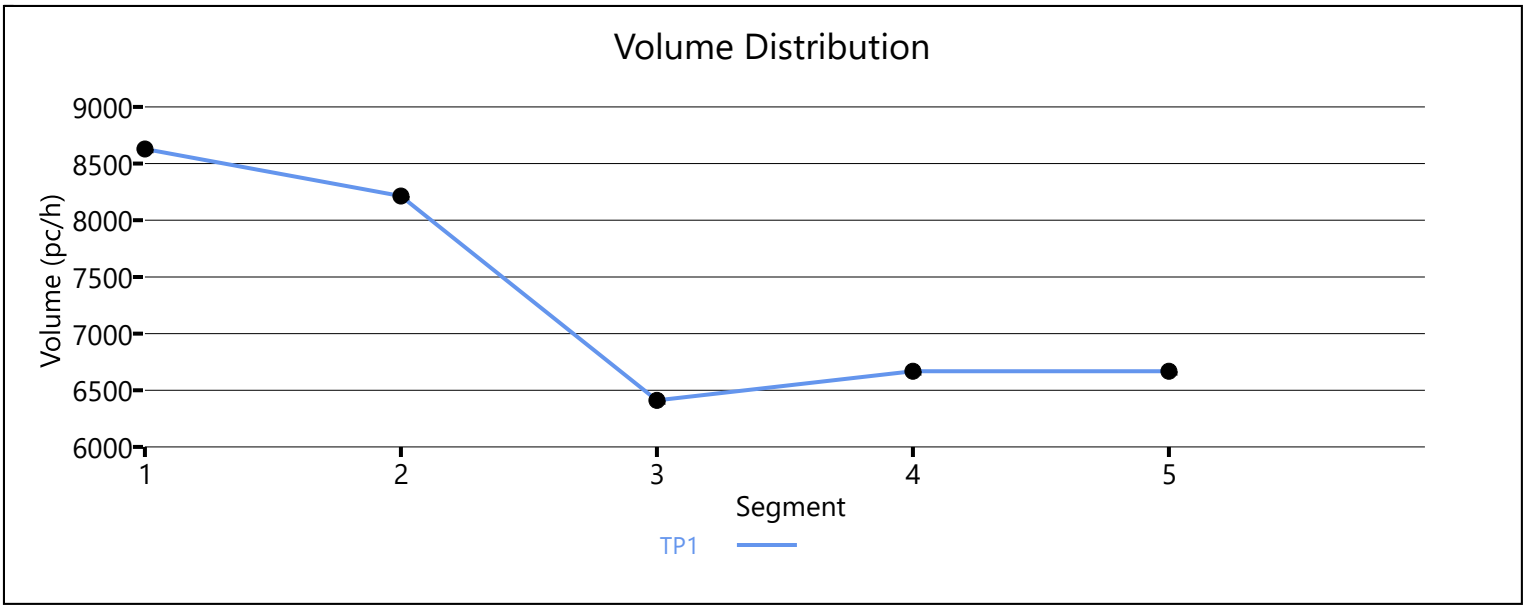
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.06	57.9	38.4	F

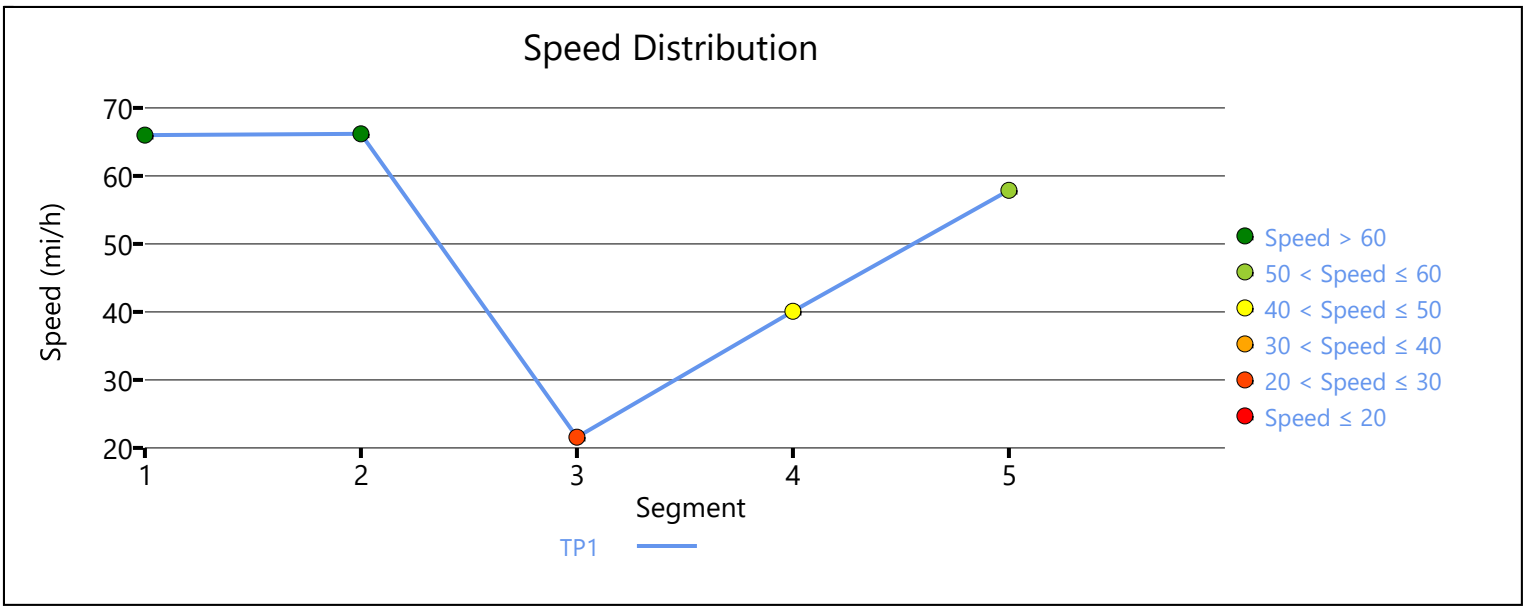
Facility Time Period Results

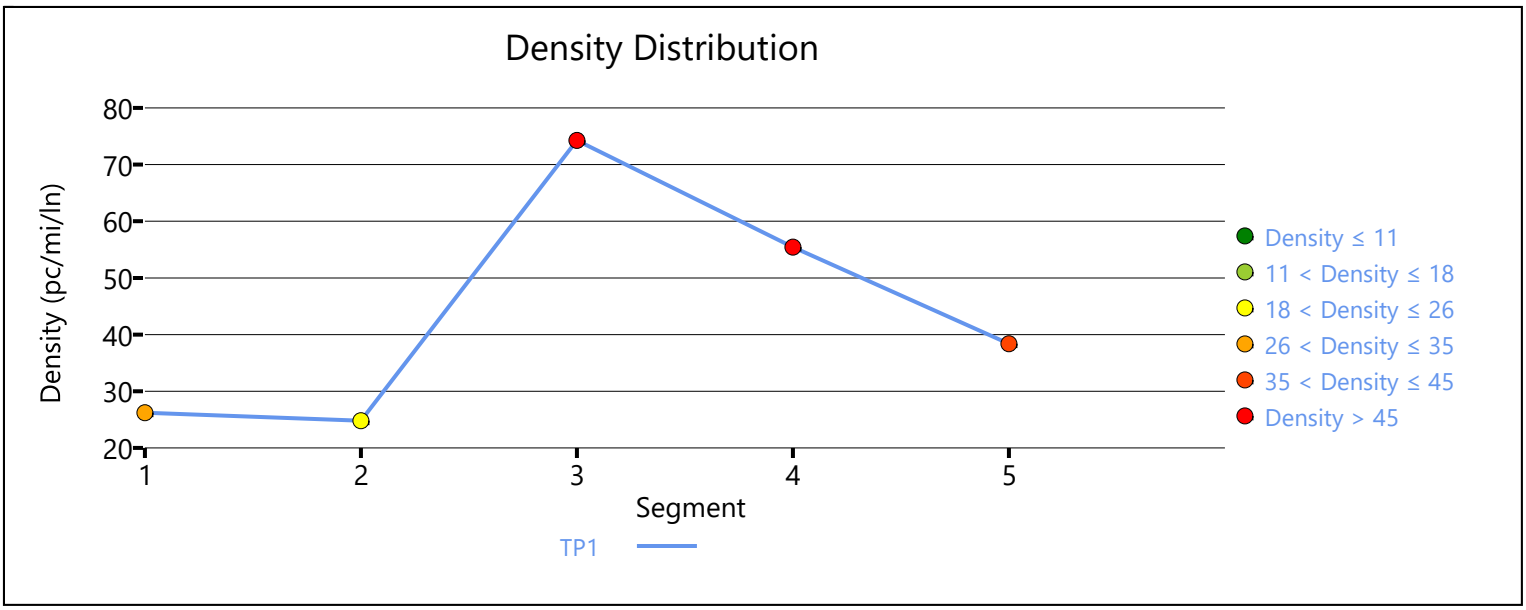
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	45.8	42.2	40.6	3.5	F

Facility Overall Results

Space Mean Speed, mi/h	45.8	Density, veh/mi/ln	40.6
Average Travel Time, min	3.5	Density, pc/mi/ln	42.2







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6021	7161	0.84	61.8	32.5	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.962	6021	328	7200	2100	0.84	0.16	64.6	60.8	31.1	32.3	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5689	7161	0.79	63.7	29.8	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.990	6635	946	9600	2100	0.59	0.45	69.4	-	20.5	-	C

Segment 5: Basic

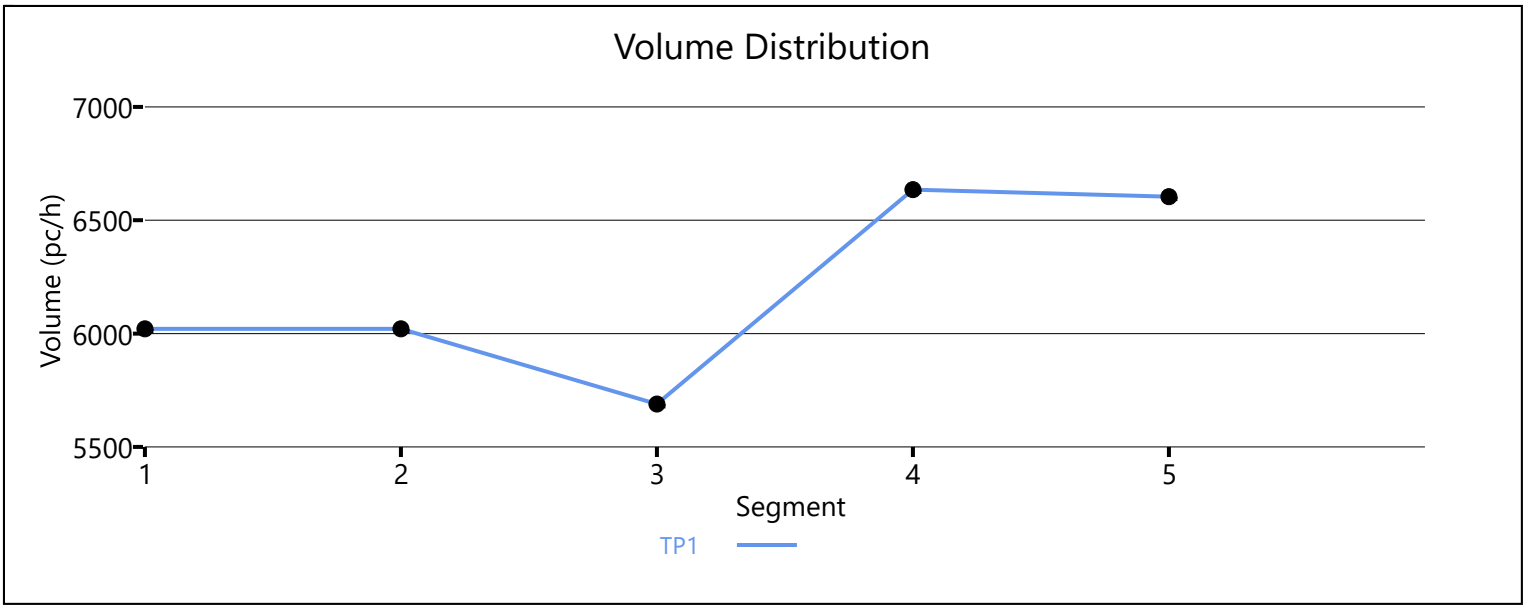
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6604	11935	0.55	68.6	19.3	C

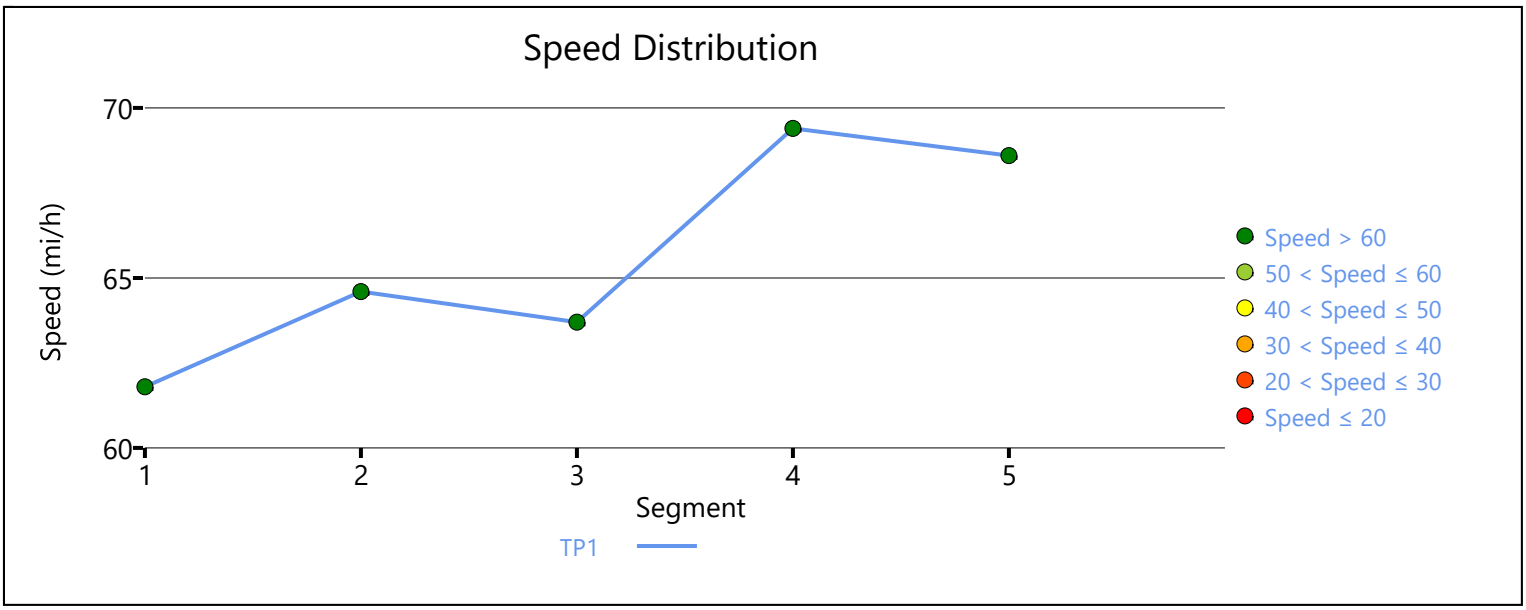
Facility Time Period Results

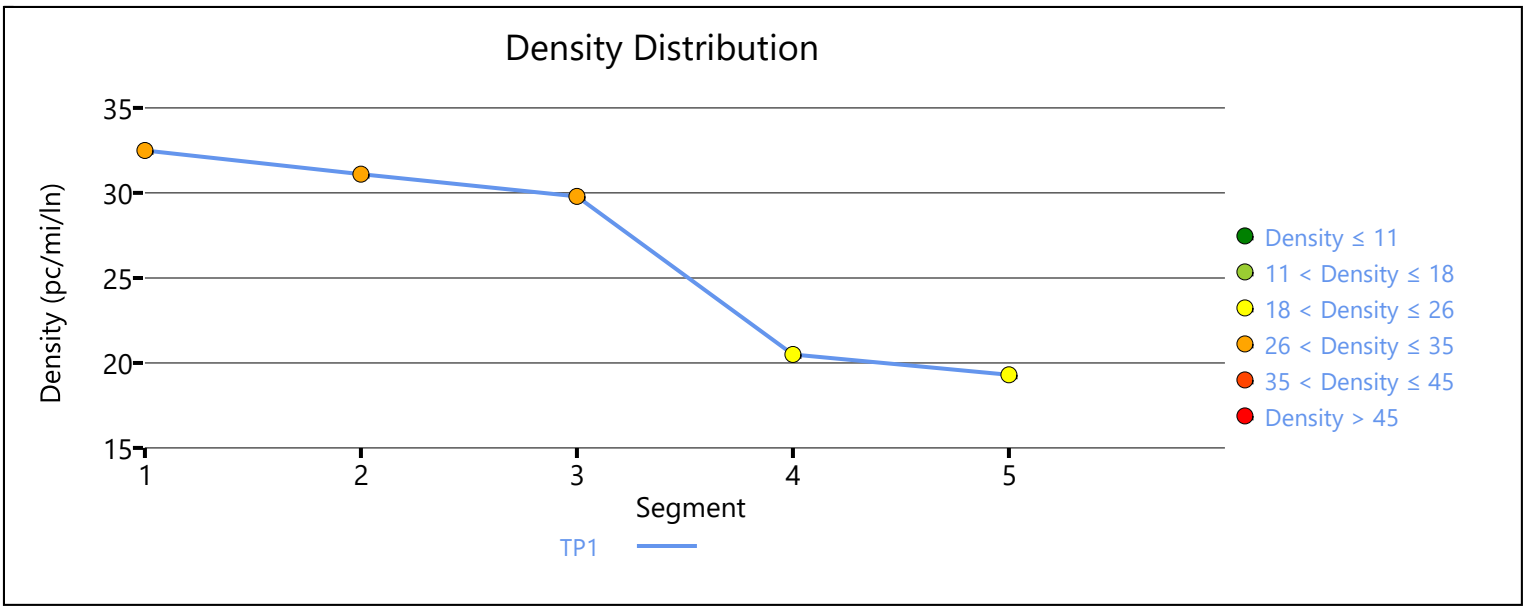
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.0	28.3	26.9	2.4	D

Facility Overall Results

Space Mean Speed, mi/h	64.0	Density, veh/mi/ln	26.9
Average Travel Time, min	2.4	Density, pc/mi/ln	28.3







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6171	11935	0.52	68.7	18.0	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.971	6171	1020	12000	4200	0.51	0.24	70.0	-	17.6	-	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5196	9548	0.54	68.7	18.9	C

Segment 4: Merge

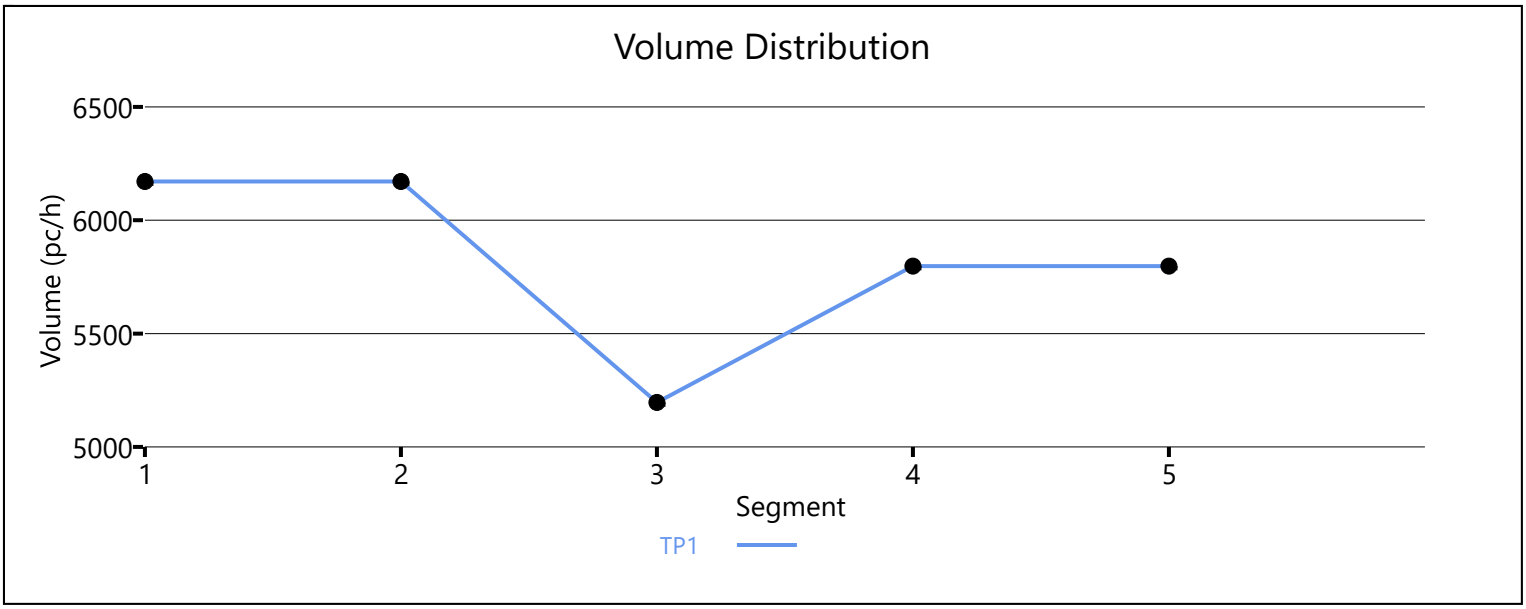
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.952	5798	602	7200	2100	0.81	0.29	60.2	58.2	32.1	30.1	D

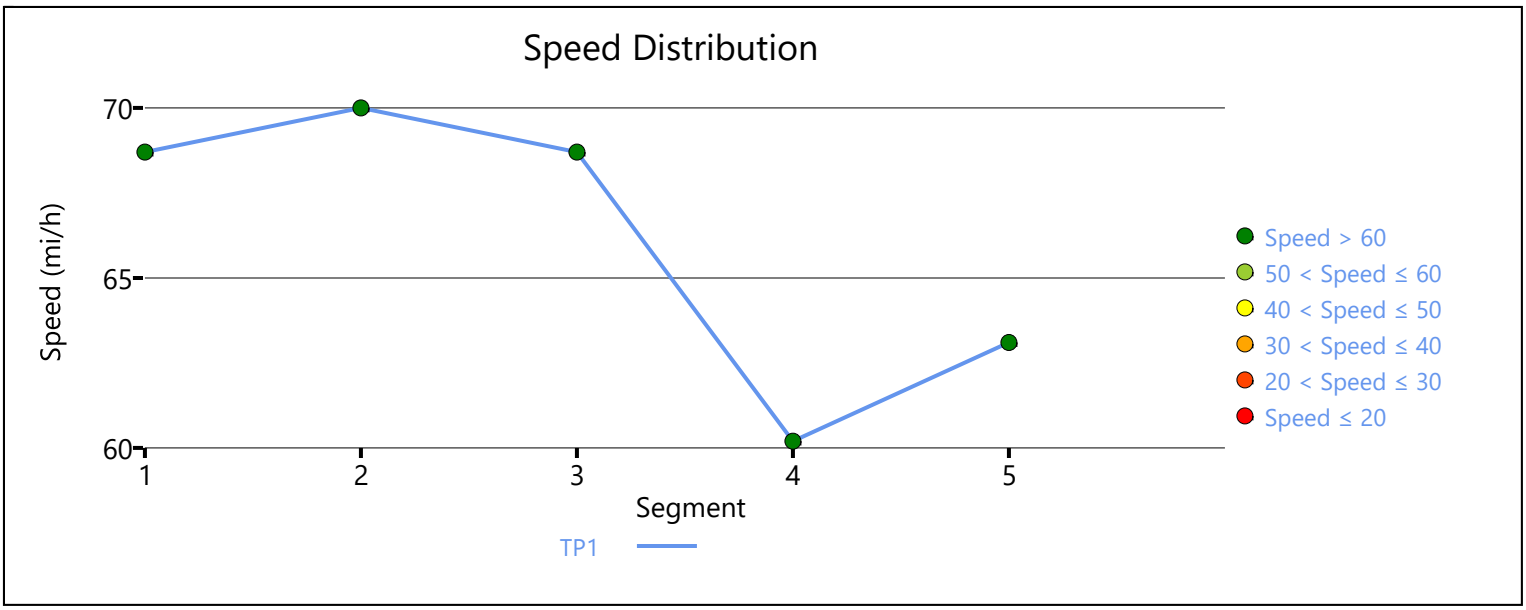
Segment 5: Basic

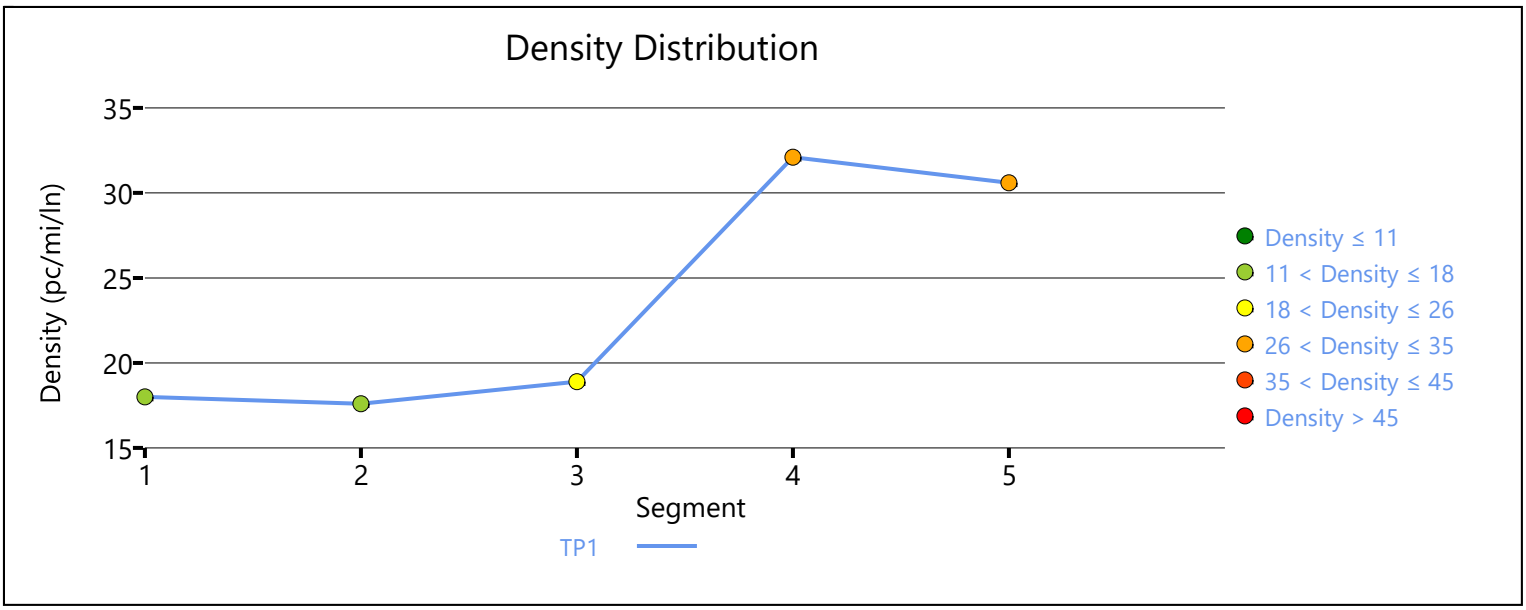
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5798	7161	0.81	63.1	30.6	D

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	65.1	24.4	23.3	2.5	C

Facility Overall Results			
Space Mean Speed, mi/h	65.1	Density, veh/mi/ln	23.3
Average Travel Time, min	2.5	Density, pc/mi/ln	24.4







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APPENDIX 5.5:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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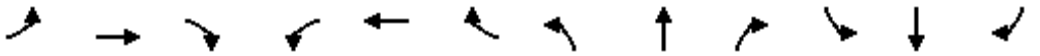
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	204	493	80	282	75	417	244	424	742
Future Volume (vph)	36	204	493	80	282	75	417	244	424	742
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	15.9	32.4	32.4	38.0	54.5
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.3%	27.0%	27.0%	31.7%	45.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.4	10.4	25.1	25.1	25.1	9.0	37.9	37.9	19.0	50.2
Actuated g/C Ratio	0.09	0.09	0.23	0.23	0.23	0.08	0.34	0.34	0.17	0.45
v/c Ratio	0.23	0.79	0.79	0.78	0.51	0.55	0.36	0.37	0.76	0.52
Control Delay	53.9	64.2	56.9	55.9	7.4	65.8	30.0	5.4	53.3	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	64.2	56.9	55.9	7.4	65.8	30.0	5.4	53.3	24.8
LOS	D	E	E	E	A	E	C	A	D	C
Approach Delay		62.9		40.2			25.5			34.7
Approach LOS		E		D			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 36.7	Intersection LOS: D
Intersection Capacity Utilization 73.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	204	50	493	80	282	75	417	244	424	742	45
Future Volume (veh/h)	36	204	50	493	80	282	75	417	244	424	742	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	215	42	579	0	84	79	439	136	446	781	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	285	55	701	0	311	101	1352	602	526	1660	64
Arrive On Green	0.10	0.10	0.10	0.20	0.00	0.20	0.06	0.38	0.38	0.15	0.48	0.48
Sat Flow, veh/h	1781	2974	571	3563	0	1580	1781	3554	1584	3456	3489	134
Grp Volume(v), veh/h	38	127	130	579	0	84	79	439	136	446	398	413
Grp Sat Flow(s),veh/h/ln	1781	1777	1768	1781	0	1580	1781	1777	1584	1728	1777	1846
Q Serve(g_s), s	2.1	7.2	7.5	16.2	0.0	4.7	4.6	9.1	6.1	13.1	15.8	15.8
Cycle Q Clear(g_c), s	2.1	7.2	7.5	16.2	0.0	4.7	4.6	9.1	6.1	13.1	15.8	15.8
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	171	170	170	701	0	311	101	1352	602	526	845	878
V/C Ratio(X)	0.22	0.74	0.77	0.83	0.00	0.27	0.78	0.32	0.23	0.85	0.47	0.47
Avail Cap(c_a), veh/h	178	177	176	1025	0	455	202	1352	602	1124	845	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	45.9	46.0	40.1	0.0	35.5	48.5	22.8	21.9	43.0	18.5	18.5
Incr Delay (d2), s/veh	0.7	15.1	17.7	3.7	0.0	0.5	4.8	0.6	0.9	1.5	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.9	4.1	7.3	0.0	1.8	2.1	3.8	2.3	5.5	6.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	61.0	63.6	43.8	0.0	36.0	53.4	23.5	22.8	44.5	20.3	20.3
LnGrp LOS	D	E	E	D	A	D	D	C	C	D	C	C
Approach Vol, veh/h		295			663			654			1257	
Approach Delay, s/veh		60.0			42.8			26.9			28.9	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.0	44.6		14.6	10.0	54.5		25.1				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	11.8	49.6		30.0				
Max Q Clear Time (g_c+I1), s	15.1	11.1		9.5	6.6	17.8		18.2				
Green Ext Time (p_c), s	0.8	2.8		0.1	0.0	5.3		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		34.9	
HCM 6th LOS		C	

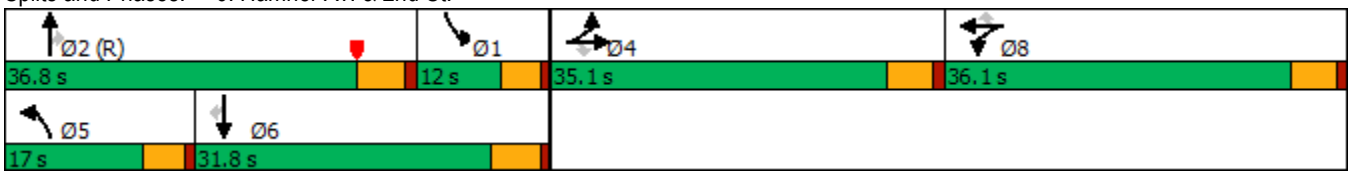
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	397	29	310	353	645	24	663	164	252	461	141
Future Volume (vph)	214	397	29	310	353	645	24	663	164	252	461	141
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	17.0	36.8	36.8	12.0	31.8	31.8
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	14.2%	30.7%	30.7%	10.0%	26.5%	26.5%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.4	31.4	31.4	7.4	36.2	36.2
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.26	0.26	0.06	0.30	0.30
v/c Ratio	0.52	0.54	0.06	0.57	0.57	1.17	0.28	0.79	0.34	1.31	0.47	0.27
Control Delay	44.4	41.9	0.2	40.5	37.6	114.5	61.2	48.3	7.9	221.1	52.6	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	41.9	0.2	40.5	37.6	114.6	61.2	48.3	7.9	221.1	52.6	23.2
LOS	D	D	A	D	D	F	E	D	A	F	D	C
Approach Delay		40.8			76.1			40.9			97.5	
Approach LOS		D			E			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.31	
Intersection Signal Delay: 66.7	Intersection LOS: E
Intersection Capacity Utilization 103.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	397	29	310	353	645	24	663	164	252	461	141
Future Volume (veh/h)	214	397	29	310	353	645	24	663	164	252	461	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	224	452	12	243	525	367	26	729	73	277	507	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	448	941	398	43	930	408	213	1087	484
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.02	0.26	0.26	0.12	0.61	0.61
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1559	3456	3554	1583
Grp Volume(v), veh/h	224	452	12	243	525	367	26	729	73	277	507	100
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1559	1728	1777	1583
Q Serve(g_s), s	12.9	12.4	0.7	14.2	14.7	27.1	1.7	22.9	4.4	7.4	9.3	3.4
Cycle Q Clear(g_c), s	12.9	12.4	0.7	14.2	14.7	27.1	1.7	22.9	4.4	7.4	9.3	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	448	941	398	43	930	408	213	1087	484
V/C Ratio(X)	0.50	0.48	0.03	0.54	0.56	0.92	0.60	0.78	0.18	1.30	0.47	0.21
Avail Cap(c_a), veh/h	445	935	395	460	966	409	184	930	408	213	1087	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	38.4	34.0	38.9	39.1	43.7	58.0	41.1	34.3	52.6	18.0	16.8
Incr Delay (d2), s/veh	4.0	1.8	0.1	1.0	0.6	22.5	5.0	6.6	1.0	164.1	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	5.9	0.3	6.3	6.7	12.9	0.8	10.6	1.7	7.8	3.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	40.2	34.2	39.9	39.7	66.2	63.0	47.7	35.3	216.7	18.3	17.0
LnGrp LOS	D	D	C	D	D	E	E	D	D	F	B	B
Approach Vol, veh/h		688			1135			828			884	
Approach Delay, s/veh		40.9			48.3			47.1			80.3	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	36.8		35.1	7.5	42.1		35.3				
Change Period (Y+Rc), s	5.4	* 5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	7.4	* 31		30.0	12.4	26.4		31.0				
Max Q Clear Time (g_c+I1), s	9.4	24.9		14.9	3.7	11.3		29.1				
Green Ext Time (p_c), s	0.0	2.6		3.2	0.0	3.1		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		54.6
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	47	169	318	83	300	93	718	532	291	550
Future Volume (vph)	47	169	318	83	300	93	718	532	291	550
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	15.9	32.4	32.4	38.0	54.5
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.3%	27.0%	27.0%	31.7%	45.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.4	10.4	20.3	20.3	20.3	9.6	45.2	45.2	14.3	49.9
Actuated g/C Ratio	0.10	0.10	0.19	0.19	0.19	0.09	0.42	0.42	0.13	0.46
v/c Ratio	0.30	0.65	0.67	0.67	0.58	0.63	0.52	0.60	0.69	0.38
Control Delay	53.8	54.2	51.8	51.7	8.6	67.7	26.8	7.5	53.9	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	54.2	51.8	51.7	8.6	67.7	26.8	7.5	53.9	21.2
LOS	D	D	D	D	A	E	C	A	D	C
Approach Delay		54.2		33.3			22.0			32.1
Approach LOS		D		C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 29.9	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	169	40	318	83	300	93	718	532	291	550	34
Future Volume (veh/h)	47	169	40	318	83	300	93	718	532	291	550	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	180	31	213	263	104	99	764	357	310	585	18
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	294	50	314	330	279	125	1558	685	387	1691	52
Arrive On Green	0.10	0.10	0.10	0.18	0.18	0.18	0.07	0.44	0.44	0.11	0.48	0.48
Sat Flow, veh/h	1781	3039	514	1781	1870	1582	1781	3554	1562	3456	3519	108
Grp Volume(v), veh/h	50	104	107	213	263	104	99	764	357	310	295	308
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1870	1582	1781	1777	1562	1728	1777	1851
Q Serve(g_s), s	2.7	5.8	6.0	11.5	13.9	6.0	5.7	15.9	17.2	9.0	10.7	10.7
Cycle Q Clear(g_c), s	2.7	5.8	6.0	11.5	13.9	6.0	5.7	15.9	17.2	9.0	10.7	10.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.06
Lane Grp Cap(c), veh/h	172	172	172	314	330	279	125	1558	685	387	854	889
V/C Ratio(X)	0.29	0.60	0.62	0.68	0.80	0.37	0.79	0.49	0.52	0.80	0.35	0.35
Avail Cap(c_a), veh/h	179	179	179	518	543	460	204	1558	685	1135	854	889
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	44.7	44.8	39.8	40.7	37.5	47.3	20.7	21.1	44.7	16.7	16.7
Incr Delay (d2), s/veh	0.9	5.3	6.2	2.6	4.4	0.8	4.2	1.1	2.8	1.5	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.8	2.9	5.2	6.7	2.3	2.6	6.4	6.4	3.8	4.4	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	50.0	51.0	42.3	45.2	38.3	51.5	21.8	23.9	46.2	17.8	17.8
LnGrp LOS	D	D	D	D	D	D	D	C	C	D	B	B
Approach Vol, veh/h		261			580			1220			913	
Approach Delay, s/veh		49.3			42.9			24.9			27.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	50.2		14.6	11.3	54.5		22.8				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	11.8	49.6		30.0				
Max Q Clear Time (g_c+I1), s	11.0	19.2		8.0	7.7	12.7		15.9				
Green Ext Time (p_c), s	0.5	3.9		0.3	0.0	3.7		2.1				

Intersection Summary		
HCM 6th Ctrl Delay		31.3
HCM 6th LOS		C

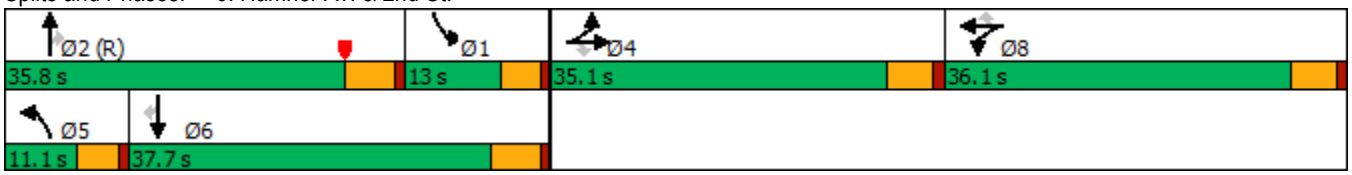
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	414	66	206	237	382	79	698	409	503	774	156
Future Volume (vph)	161	414	66	206	237	382	79	698	409	503	774	156
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	11.1	35.8	35.8	13.0	37.7	37.7
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	9.3%	29.8%	29.8%	10.8%	31.4%	31.4%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	20.1	20.1	20.1	9.4	41.3	41.3	8.4	40.3	40.3
Actuated g/C Ratio	0.25	0.25	0.25	0.17	0.17	0.17	0.08	0.34	0.34	0.07	0.34	0.34
v/c Ratio	0.37	0.52	0.13	0.55	0.54	0.69	0.59	0.59	0.52	2.14	0.67	0.26
Control Delay	40.4	41.4	0.5	45.5	41.3	19.2	70.8	36.1	6.6	551.7	48.7	21.7
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	41.8	0.5	45.5	41.3	19.3	70.8	36.1	6.6	551.7	48.7	21.7
LOS	D	D	A	D	D	B	E	D	A	F	D	C
Approach Delay		37.2			31.8			28.3			222.3	
Approach LOS		D			C			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.14	
Intersection Signal Delay: 98.5	Intersection LOS: F
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	414	66	206	237	382	79	698	409	503	774	156
Future Volume (veh/h)	161	414	66	206	237	382	79	698	409	503	774	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	422	21	151	325	181	81	712	256	513	790	98
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	271	570	242	96	900	395	585	1333	594
Arrive On Green	0.25	0.25	0.25	0.05	0.05	0.05	0.05	0.25	0.25	0.23	0.50	0.50
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1561	3456	3554	1583
Grp Volume(v), veh/h	164	422	21	151	325	181	81	712	256	513	790	98
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1561	1728	1777	1583
Q Serve(g_s), s	9.1	11.4	1.2	9.9	10.2	13.5	5.4	22.4	17.6	17.2	19.0	4.1
Cycle Q Clear(g_c), s	9.1	11.4	1.2	9.9	10.2	13.5	5.4	22.4	17.6	17.2	19.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	271	570	242	96	900	395	585	1333	594
V/C Ratio(X)	0.37	0.45	0.05	0.56	0.57	0.75	0.84	0.79	0.65	0.88	0.59	0.17
Avail Cap(c_a), veh/h	445	935	392	460	966	409	96	900	395	585	1333	594
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	38.0	34.2	53.0	53.1	54.7	56.2	41.8	40.0	45.3	23.5	19.8
Incr Delay (d2), s/veh	2.3	1.6	0.3	1.7	0.9	4.4	43.1	7.0	8.0	13.6	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.4	0.5	4.8	5.1	6.1	3.5	10.5	7.5	7.9	7.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	39.6	34.5	54.7	54.0	59.1	99.3	48.9	48.0	58.9	24.3	19.9
LnGrp LOS	D	D	C	D	D	E	F	D	D	E	C	B
Approach Vol, veh/h		607			657			1049			1401	
Approach Delay, s/veh		39.4			55.6			52.5			36.6	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.7	35.8		35.1	11.1	50.4		23.4				
Change Period (Y+Rc), s	5.4	* 5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	8.4	* 30		30.0	6.5	32.3		31.0				
Max Q Clear Time (g_c+I1), s	19.2	24.4		13.4	7.4	21.0		15.5				
Green Ext Time (p_c), s	0.0	2.7		2.9	0.0	4.2		2.8				

Intersection Summary			
HCM 6th Ctrl Delay		44.9	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.1:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	377	0	0	1101	30	0	0	0	16	0	0
Future Vol, veh/h	0	377	0	0	1101	30	0	0	0	16	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	465	0	0	1359	37	0	0	0	20	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1397	0	0	465	0	0	1145	1862	233	1612	1844	699
Stage 1	-	-	-	-	-	-	465	465	-	1379	1379	-
Stage 2	-	-	-	-	-	-	680	1397	-	233	465	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	750	-	-	1093	-	-	*604	129	769	208	134	*641
Stage 1	-	-	-	-	-	-	*547	561	-	427	409	-
Stage 2	-	-	-	-	-	-	*604	397	-	749	561	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	749	-	-	1093	-	-	*604	129	769	208	134	*640
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	269	-	332	275	-
Stage 1	-	-	-	-	-	-	*547	561	-	427	409	-
Stage 2	-	-	-	-	-	-	*604	397	-	749	561	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	16.5
HCM LOS			A	C

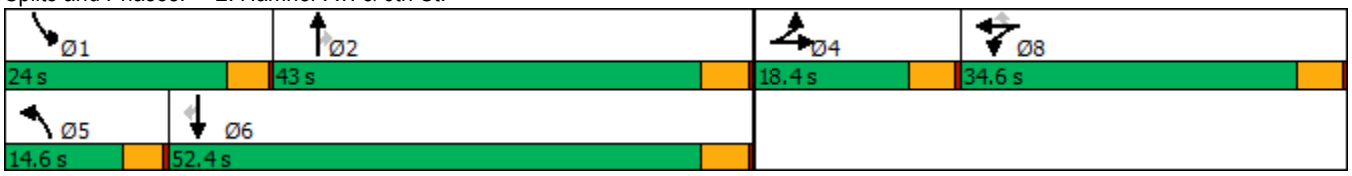
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	749	-	-	1093	-	-	332
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.059
HCM Control Delay (s)	0	0	-	-	0	-	-	16.5
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	38	216	540	85	299	73	517	272	450	840	48
Future Volume (vph)	38	216	540	85	299	73	517	272	450	840	48
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.7	12.7	26.9	26.9	26.9	8.7	38.2	38.2	20.0	51.6	51.6
Actuated g/C Ratio	0.11	0.11	0.23	0.23	0.23	0.08	0.33	0.33	0.17	0.44	0.44
v/c Ratio	0.21	0.70	0.83	0.84	0.52	0.58	0.47	0.41	1.56	0.56	0.07
Control Delay	50.9	57.6	61.3	62.0	7.4	70.7	33.2	5.3	300.7	27.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	57.6	61.3	62.0	7.4	70.7	33.2	5.3	300.7	27.5	0.8
LOS	D	E	E	E	A	E	C	A	F	C	A
Approach Delay		56.8		44.1			27.6			118.5	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.56	
Intersection Signal Delay: 70.1	Intersection LOS: E
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	216	47	540	85	299	73	517	272	450	840	48
Future Volume (veh/h)	38	216	47	540	85	299	73	517	272	450	840	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	227	38	632	0	102	77	544	165	474	884	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	295	49	745	0	330	98	1234	550	323	1681	748
Arrive On Green	0.10	0.10	0.10	0.21	0.00	0.21	0.06	0.35	0.35	0.18	0.47	0.47
Sat Flow, veh/h	1781	3053	503	3563	0	1581	1781	3554	1584	1781	3554	1580
Grp Volume(v), veh/h	40	131	134	632	0	102	77	544	165	474	884	34
Grp Sat Flow(s),veh/h/ln	1781	1777	1780	1781	0	1581	1781	1777	1584	1781	1777	1580
Q Serve(g_s), s	2.3	7.9	8.1	18.7	0.0	6.0	4.7	13.0	8.3	19.9	19.1	1.3
Cycle Q Clear(g_c), s	2.3	7.9	8.1	18.7	0.0	6.0	4.7	13.0	8.3	19.9	19.1	1.3
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	172	172	172	745	0	330	98	1234	550	323	1681	748
V/C Ratio(X)	0.23	0.76	0.78	0.85	0.00	0.31	0.78	0.44	0.30	1.47	0.53	0.05
Avail Cap(c_a), veh/h	224	223	224	974	0	432	170	1234	550	323	1681	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	48.3	48.4	41.7	0.0	36.7	51.2	27.6	26.1	44.9	20.3	15.6
Incr Delay (d2), s/veh	0.7	10.6	12.4	5.6	0.0	0.5	5.0	1.1	1.4	226.7	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.9	4.1	8.7	0.0	2.3	2.2	5.5	3.3	28.9	7.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	58.9	60.8	47.4	0.0	37.2	56.2	28.8	27.5	271.6	21.5	15.7
LnGrp LOS	D	E	E	D	A	D	E	C	C	F	C	B
Approach Vol, veh/h		305			734			786			1392	
Approach Delay, s/veh		58.1			45.9			31.2			106.5	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		15.2	10.2	56.8		27.5				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	15.0		10.1	6.7	21.1		20.7				
Green Ext Time (p_c), s	0.0	4.0		0.5	0.0	6.5		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		69.7	
HCM 6th LOS		E	

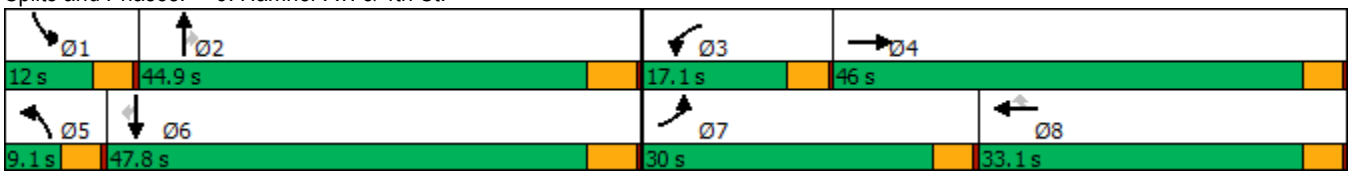
Notes

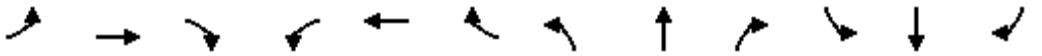
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	57	13	124	137	120	119	872	40	65	845	177
Future Volume (vph)	57	13	124	137	120	119	872	40	65	845	177
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	46.0	17.1	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	38.3%	14.3%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	7.6	13.1	16.3	14.7	14.7	5.1	43.8	43.8	7.1	43.6	43.6
Actuated g/C Ratio	0.09	0.15	0.19	0.17	0.17	0.06	0.51	0.51	0.08	0.51	0.51
v/c Ratio	0.40	0.09	0.41	0.47	0.34	1.24	0.53	0.05	0.49	0.51	0.22
Control Delay	47.8	23.0	38.5	37.7	8.4	205.9	19.1	0.1	53.0	17.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	23.0	38.5	37.7	8.4	205.9	19.1	0.1	53.0	17.6	7.1
LOS	D	C	D	D	A	F	B	A	D	B	A
Approach Delay		40.7		28.7			39.9			18.0	
Approach LOS		D		C			D			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	13	10	124	137	120	119	872	40	65	845	177
Future Volume (veh/h)	57	13	10	124	137	120	119	872	40	65	845	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	14	1	135	149	47	129	948	27	71	918	144
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	211	15	169	321	272	107	1864	832	91	1833	818
Arrive On Green	0.05	0.12	0.12	0.09	0.17	0.17	0.06	0.52	0.52	0.05	0.52	0.52
Sat Flow, veh/h	1781	1725	123	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	62	0	15	135	149	47	129	948	27	71	918	144
Grp Sat Flow(s),veh/h/ln	1781	0	1848	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	0.6	6.2	6.0	2.1	5.0	14.4	0.7	3.3	14.0	4.0
Cycle Q Clear(g_c), s	2.9	0.0	0.6	6.2	6.0	2.1	5.0	14.4	0.7	3.3	14.0	4.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	0	226	169	321	272	107	1864	832	91	1833	818
V/C Ratio(X)	0.76	0.00	0.07	0.80	0.46	0.17	1.20	0.51	0.03	0.78	0.50	0.18
Avail Cap(c_a), veh/h	555	0	931	278	652	553	107	1864	832	169	1833	818
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	32.3	36.9	31.0	29.4	39.1	12.8	9.6	39.0	13.1	10.7
Incr Delay (d2), s/veh	5.4	0.0	0.1	3.3	1.0	0.3	152.0	1.0	0.1	5.3	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.3	2.8	2.8	0.8	6.6	5.2	0.2	1.5	5.1	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	0.0	32.4	40.2	32.1	29.7	191.1	13.8	9.6	44.2	14.1	11.2
LnGrp LOS	D	A	C	D	C	C	F	B	A	D	B	B
Approach Vol, veh/h		77			331			1104			1133	
Approach Delay, s/veh		42.2			35.0			34.4			15.6	
Approach LOS		D			D			C			B	

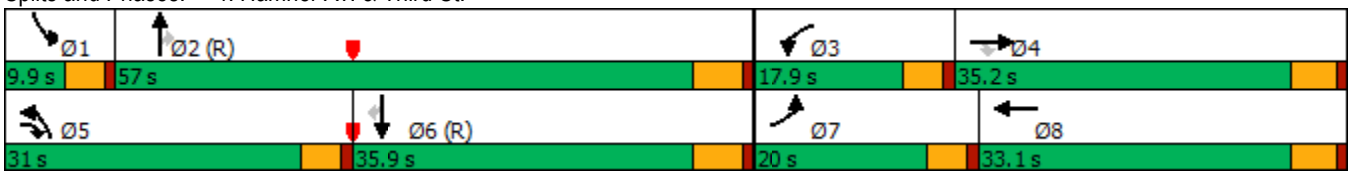
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	48.5	12.0	14.3	9.1	47.8	7.9	18.4
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	13.0	41.9	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	5.3	16.4	8.2	2.6	7.0	16.0	4.9	8.0
Green Ext Time (p_c), s	0.0	6.8	0.1	0.0	0.0	7.3	0.1	0.9

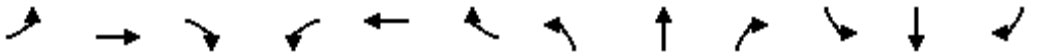
Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	136	20	237	107	186	570	1050	48	15	673	347
Future Volume (vph)	136	20	237	107	186	570	1050	48	15	673	347
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	13.3	20.6	44.9	20.3	21.6	25.2	65.8	65.8	5.4	40.2	40.2
Actuated g/C Ratio	0.11	0.17	0.37	0.17	0.18	0.21	0.55	0.55	0.04	0.34	0.34
v/c Ratio	0.76	0.07	0.40	0.39	0.78	0.87	0.59	0.06	0.20	0.62	0.50
Control Delay	76.0	37.3	15.9	52.3	60.8	53.8	30.1	3.9	61.1	38.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.0	37.3	15.9	52.3	60.8	53.8	30.1	3.9	61.1	38.5	7.6
LOS	E	D	B	D	E	D	C	A	E	D	A
Approach Delay		37.8			58.2		37.4			28.5	
Approach LOS		D			E		D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	20	237	107	186	51	570	1050	48	15	673	347
Future Volume (veh/h)	136	20	237	107	186	51	570	1050	48	15	673	347
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	22	119	118	204	40	626	1154	43	16	740	230
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	329	587	144	239	47	673	1998	891	31	1367	602
Arrive On Green	0.10	0.18	0.18	0.08	0.16	0.16	0.39	1.00	1.00	0.02	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1518	298	3456	3554	1585	1781	3554	1564
Grp Volume(v), veh/h	149	22	119	118	0	244	626	1154	43	16	740	230
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1815	1728	1777	1585	1781	1777	1564
Q Serve(g_s), s	9.9	1.2	6.1	7.8	0.0	15.7	20.8	0.0	0.0	1.1	19.4	12.7
Cycle Q Clear(g_c), s	9.9	1.2	6.1	7.8	0.0	15.7	20.8	0.0	0.0	1.1	19.4	12.7
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	176	329	587	144	0	286	673	1998	891	31	1367	602
V/C Ratio(X)	0.85	0.07	0.20	0.82	0.00	0.85	0.93	0.58	0.05	0.52	0.54	0.38
Avail Cap(c_a), veh/h	229	469	706	197	0	424	760	1998	891	79	1367	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	53.2	41.2	25.7	54.3	0.0	49.2	35.9	0.0	0.0	58.5	28.7	26.6
Incr Delay (d2), s/veh	16.4	0.1	0.2	12.9	0.0	10.5	16.0	1.2	0.1	4.3	1.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.6	2.3	4.0	0.0	7.9	8.2	0.3	0.0	0.5	8.3	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.6	41.3	25.9	67.2	0.0	59.7	51.8	1.2	0.1	62.8	30.0	28.2
LnGrp LOS	E	D	C	E	A	E	D	A	A	E	C	C
Approach Vol, veh/h		290			362			1823			986	
Approach Delay, s/veh		49.5			62.1			18.6			30.1	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	72.9	14.3	26.2	28.0	51.6	16.4	24.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	3.1	2.0	9.8	8.1	22.8	21.4	11.9	17.7
Green Ext Time (p_c), s	0.0	10.7	0.0	0.4	0.6	3.7	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	0	0	0	1	0	0	0	1684	3	0	1016	0
Future Vol, veh/h	0	0	0	1	0	0	0	1684	3	0	1016	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	1	0	0	0	1830	3	0	1104	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2023	2941	556	2384	2940	917	1108	0	0	1833	0	0
Stage 1	1108	1108	-	1832	1832	-	-	-	-	-	-	-
Stage 2	915	1833	-	552	1108	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*61	*3	*669	*61	*4	*389	*1001	-	-	*582	-	-
Stage 1	*631	*553	-	*367	*321	-	-	-	-	-	-	-
Stage 2	*367	*321	-	*631	*553	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*61	*3	*667	*61	*4	*389	*998	-	-	*582	-	-
Mov Cap-2 Maneuver	*302	*252	-	*302	*252	-	-	-	-	-	-	-
Stage 1	*629	*552	-	*367	*321	-	-	-	-	-	-	-
Stage 2	*367	*321	-	*631	*552	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	17	0	0
HCM LOS	A	C		

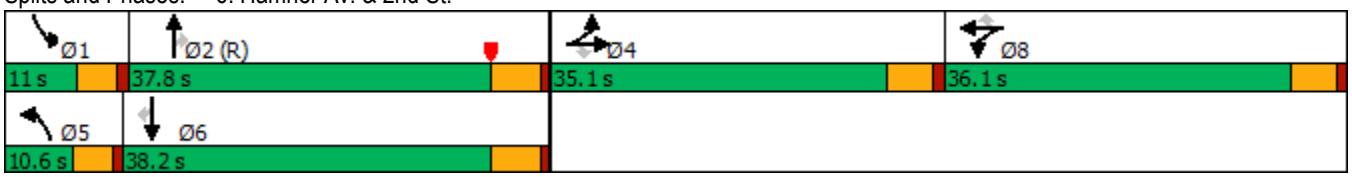
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 998	-	-	-	302	* 582	-	-
HCM Lane V/C Ratio	-	-	-	-	0.004	-	-	-
HCM Control Delay (s)	0	-	-	0	17	0	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

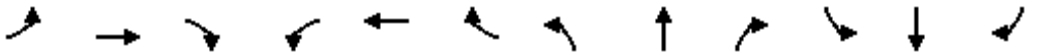
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	524	43	341	606	638	46	750	178	207	505	187
Future Volume (vph)	241	524	43	341	606	638	46	750	178	207	505	187
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	5.8	32.4	32.4	6.4	34.9	34.9
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.29	0.29
v/c Ratio	0.59	0.71	0.10	0.81	0.81	1.23	0.60	0.86	0.36	2.41	0.54	0.34
Control Delay	46.7	46.6	0.4	42.3	35.4	137.9	84.0	52.3	9.8	686.1	47.0	20.5
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	47.3	0.4	42.3	35.4	138.2	84.0	52.3	9.8	686.1	47.0	20.5
LOS	D	D	A	D	D	F	F	D	A	F	D	C
Approach Delay		44.6			78.1			46.0			188.5	
Approach LOS		D			E			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.41	
Intersection Signal Delay: 87.7	Intersection LOS: F
Intersection Capacity Utilization 102.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	524	43	341	606	638	46	750	178	207	505	187
Future Volume (veh/h)	241	524	43	341	606	638	46	750	178	207	505	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	576	27	347	705	359	51	824	89	227	555	150
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	443	929	393	66	995	437	95	1053	469
Arrive On Green	0.25	0.25	0.25	0.41	0.41	0.41	0.04	0.28	0.28	0.02	0.10	0.10
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1583
Grp Volume(v), veh/h	265	576	27	347	705	359	51	824	89	227	555	150
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1583
Q Serve(g_s), s	15.7	16.4	1.6	20.3	19.3	25.6	3.4	26.1	5.2	6.4	17.8	10.6
Cycle Q Clear(g_c), s	15.7	16.4	1.6	20.3	19.3	25.6	3.4	26.1	5.2	6.4	17.8	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	443	929	393	66	995	437	95	1053	469
V/C Ratio(X)	0.60	0.62	0.07	0.78	0.76	0.91	0.78	0.83	0.20	2.39	0.53	0.32
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	995	437	95	1053	469
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	39.9	34.3	32.3	32.0	33.9	57.3	40.5	33.0	58.9	46.1	42.9
Incr Delay (d2), s/veh	5.8	3.0	0.3	5.7	2.3	17.8	17.4	7.9	1.1	656.3	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	7.8	0.6	8.1	7.6	10.2	1.8	12.2	2.1	20.3	8.6	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	42.9	34.7	38.1	34.3	51.7	74.7	48.4	34.0	715.2	46.6	43.3
LnGrp LOS	D	D	C	D	C	D	E	D	C	F	D	D
Approach Vol, veh/h		868			1411			964			932	
Approach Delay, s/veh		43.4			39.7			48.5			208.9	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	39.0		35.1	9.0	41.0		34.9				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	28.1		18.4	5.4	19.8		27.6				
Green Ext Time (p_c), s	0.0	2.1		3.7	0.0	3.3		2.2				

Intersection Summary		
HCM 6th Ctrl Delay		80.3
HCM 6th LOS		F

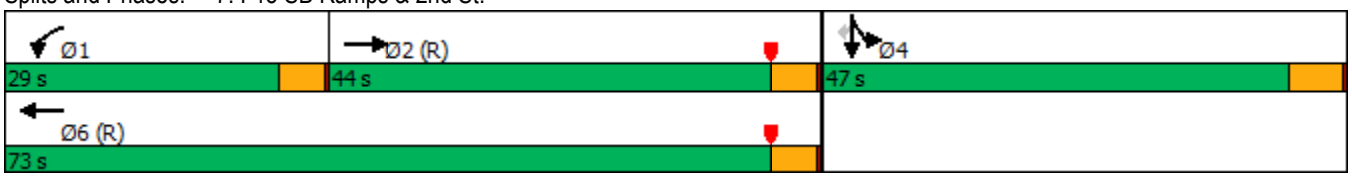
Notes

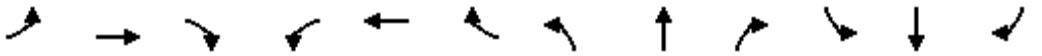
User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	506	266	1201	2	482
Future Volume (vph)	506	266	1201	2	482
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	46.1	21.7	72.3	37.8	37.8
Actuated g/C Ratio	0.38	0.18	0.60	0.32	0.32
v/c Ratio	0.71	0.87	0.59	0.14	0.93
Control Delay	32.2	51.5	6.9	28.6	60.7
Queue Delay	0.9	0.0	0.6	0.0	0.1
Total Delay	33.1	51.5	7.5	28.6	60.8
LOS	C	D	A	C	E
Approach Delay	33.1		15.5	56.6	
Approach LOS	C		B	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 71.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	506	437	266	1201	0	0	0	0	71	2	482
Future Volume (veh/h)	0	506	437	266	1201	0	0	0	0	71	2	482
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	527	375	277	1251	0				74	2	435
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	830	590	304	2227	0				505	14	461
Arrive On Green	0.00	0.84	0.84	0.17	0.63	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2077	1410	1781	3647	0				1737	47	1585
Grp Volume(v), veh/h	0	472	430	277	1251	0				76	0	435
Grp Sat Flow(s),veh/h/ln	0	1777	1617	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	11.1	11.1	18.3	24.3	0.0				3.8	0.0	32.2
Cycle Q Clear(g_c), s	0.0	11.1	11.1	18.3	24.3	0.0				3.8	0.0	32.2
Prop In Lane	0.00		0.87	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	743	676	304	2227	0				519	0	461
V/C Ratio(X)	0.00	0.64	0.64	0.91	0.56	0.00				0.15	0.00	0.94
Avail Cap(c_a), veh/h	0	743	676	364	2227	0				620	0	551
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.69	0.69	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.6	6.6	48.9	12.9	0.0				31.5	0.0	41.6
Incr Delay (d2), s/veh	0.0	0.4	0.4	16.5	0.7	0.0				0.0	0.0	21.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.2	9.4	9.2	0.0				1.6	0.0	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.0	7.0	65.4	13.6	0.0				31.6	0.0	63.3
LnGrp LOS	A	A	A	E	B	A				C	A	E
Approach Vol, veh/h		902			1528						511	
Approach Delay, s/veh		7.0			23.0						58.5	
Approach LOS		A			C						E	

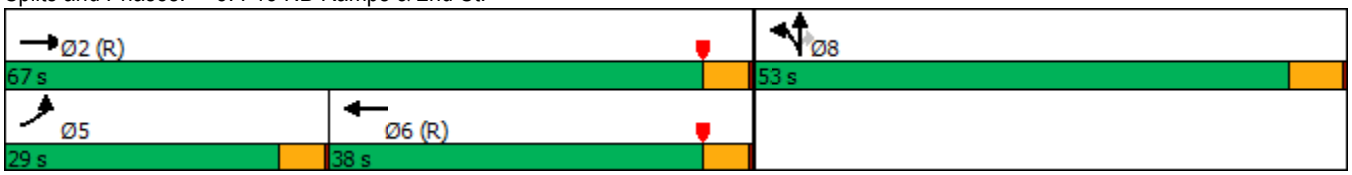
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.0	54.8		40.2		79.8						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	24.5	39.4		41.7		68.4						
Max Q Clear Time (g_c+I1), s	20.3	13.1		34.2		26.3						
Green Ext Time (p_c), s	0.2	4.0		0.7		7.4						

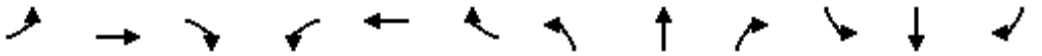
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	192	387	575	894	5	418
Future Volume (vph)	192	387	575	894	5	418
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	29.0	67.0	38.0	53.0	53.0	53.0
Total Split (%)	24.2%	55.8%	31.7%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	18.7	68.3	45.2	41.8	41.8	41.8
Actuated g/C Ratio	0.16	0.57	0.38	0.35	0.35	0.35
v/c Ratio	0.76	0.21	0.56	0.83	0.84	0.57
Control Delay	30.1	6.5	33.3	48.3	48.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	6.5	33.3	48.3	48.8	7.9
LOS	C	A	C	D	D	A
Approach Delay		14.3	33.3		35.7	
Approach LOS		B	C		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 71.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	192	387	0	0	575	104	894	5	418	0	0	0
Future Volume (veh/h)	192	387	0	0	575	104	894	5	418	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	209	421	0	0	625	79	976	0	325			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	241	2171	0	0	1390	175	1092	0	486			
Arrive On Green	0.04	0.20	0.00	0.00	0.44	0.44	0.31	0.00	0.31			
Sat Flow, veh/h	1781	3647	0	0	3268	401	3563	0	1585			
Grp Volume(v), veh/h	209	421	0	0	349	355	976	0	325			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1798	1781	0	1585			
Q Serve(g_s), s	14.0	11.8	0.0	0.0	16.5	16.6	31.4	0.0	21.5			
Cycle Q Clear(g_c), s	14.0	11.8	0.0	0.0	16.5	16.6	31.4	0.0	21.5			
Prop In Lane	1.00		0.00	0.00		0.22	1.00		1.00			
Lane Grp Cap(c), veh/h	241	2171	0	0	778	787	1092	0	486			
V/C Ratio(X)	0.87	0.19	0.00	0.00	0.45	0.45	0.89	0.00	0.67			
Avail Cap(c_a), veh/h	364	2171	0	0	778	787	1416	0	630			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	56.2	23.4	0.0	0.0	23.6	23.6	39.7	0.0	36.3			
Incr Delay (d2), s/veh	7.9	0.1	0.0	0.0	1.9	1.9	5.9	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.2	5.6	0.0	0.0	7.2	7.3	14.0	0.0	8.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	23.5	0.0	0.0	25.5	25.5	45.6	0.0	37.7			
LnGrp LOS	E	C	A	A	C	C	D	A	D			
Approach Vol, veh/h		630			704			1301				
Approach Delay, s/veh		37.0			25.5			43.6				
Approach LOS		D			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.9			20.7	57.2		42.1				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			24.5	33.4		47.7				
Max Q Clear Time (g_c+I1), s		13.8			16.0	18.6		33.4				
Green Ext Time (p_c), s		1.9			0.3	2.4		3.4				
Intersection Summary												
HCM 6th Ctrl Delay			37.2									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	210	0	12	259	4	0	0	0	56	0	0
Future Vol, veh/h	2	210	0	12	259	4	0	0	0	56	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	263	0	15	324	5	0	0	0	70	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	330	0	0	263	0	0	461	629	132	496	627	166
Stage 1	-	-	-	-	-	-	269	269	-	358	358	-
Stage 2	-	-	-	-	-	-	192	360	-	138	269	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1367	-	-	1298	-	-	*631	475	893	594	477	*1000
Stage 1	-	-	-	-	-	-	*713	685	-	785	722	-
Stage 2	-	-	-	-	-	-	*942	720	-	851	685	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1366	-	-	1298	-	-	*625	468	893	587	470	*999
Mov Cap-2 Maneuver	-	-	-	-	-	-	*632	531	-	636	529	-
Stage 1	-	-	-	-	-	-	*712	684	-	783	712	-
Stage 2	-	-	-	-	-	-	*932	711	-	849	684	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	0	11.4
HCM LOS			A	B

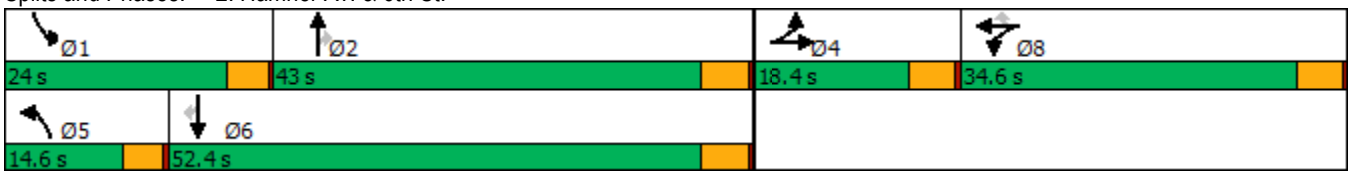
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1366	-	-	1298	-	-	636
HCM Lane V/C Ratio	-	0.002	-	-	0.012	-	-	0.11
HCM Control Delay (s)	0	7.6	-	-	7.8	-	-	11.4
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4

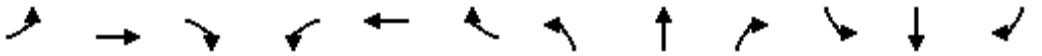
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	179	357	88	318	93	835	585	309	666	36
Future Volume (vph)	50	179	357	88	318	93	835	585	309	666	36
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.0	12.0	21.7	21.7	21.7	9.3	38.3	38.3	20.0	49.0	49.0
Actuated g/C Ratio	0.11	0.11	0.20	0.20	0.20	0.08	0.35	0.35	0.18	0.44	0.44
v/c Ratio	0.28	0.59	0.72	0.70	0.58	0.67	0.72	0.70	1.02	0.45	0.05
Control Delay	51.0	51.1	53.8	53.0	8.4	72.7	36.6	10.6	103.0	23.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	51.1	53.8	53.0	8.4	72.7	36.6	10.6	103.0	23.9	0.1
LOS	D	D	D	D	A	E	D	B	F	C	A
Approach Delay		51.1		34.6			28.8			47.3	
Approach LOS		D		C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.3	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	179	35	357	88	318	93	835	585	309	666	36
Future Volume (veh/h)	50	179	35	357	88	318	93	835	585	309	666	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	190	25	237	294	123	99	888	413	329	709	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	296	38	342	359	304	124	1269	558	332	1684	749
Arrive On Green	0.09	0.09	0.09	0.19	0.19	0.19	0.07	0.36	0.36	0.19	0.47	0.47
Sat Flow, veh/h	1781	3162	410	1781	1870	1583	1781	3554	1561	1781	3554	1582
Grp Volume(v), veh/h	53	106	109	237	294	123	99	888	413	329	709	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1795	1781	1870	1583	1781	1777	1561	1781	1777	1582
Q Serve(g_s), s	3.0	6.1	6.3	13.2	16.1	7.3	5.8	22.9	24.7	19.7	14.0	0.7
Cycle Q Clear(g_c), s	3.0	6.1	6.3	13.2	16.1	7.3	5.8	22.9	24.7	19.7	14.0	0.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	166	168	342	359	304	124	1269	558	332	1684	749
V/C Ratio(X)	0.32	0.63	0.65	0.69	0.82	0.40	0.80	0.70	0.74	0.99	0.42	0.03
Avail Cap(c_a), veh/h	230	230	232	501	526	445	175	1269	558	332	1684	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	46.6	46.7	40.2	41.3	37.8	48.9	29.4	30.0	43.3	18.5	15.0
Incr Delay (d2), s/veh	1.1	4.0	4.2	2.5	6.4	0.9	10.2	3.2	8.6	46.6	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.9	3.0	5.9	7.9	2.9	2.9	9.9	10.2	12.7	5.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	50.5	50.9	42.7	47.8	38.6	59.0	32.6	38.6	89.9	19.2	15.0
LnGrp LOS	D	D	D	D	D	D	E	C	D	F	B	B
Approach Vol, veh/h		268			654			1400			1058	
Approach Delay, s/veh		49.8			44.2			36.2			41.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		14.6	11.5	55.5		25.1				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.7	26.7		8.3	7.8	16.0		18.1				
Green Ext Time (p_c), s	0.0	5.6		0.6	0.0	5.1		2.3				

Intersection Summary			
HCM 6th Ctrl Delay		40.4	
HCM 6th LOS		D	

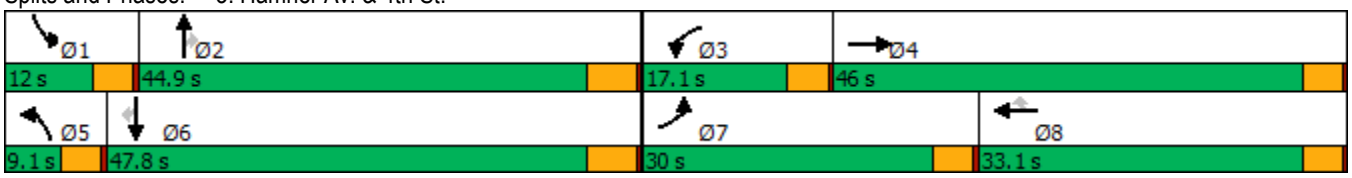
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	276	188	99	20	51	12	1066	142	56	983	88
Future Volume (vph)	276	188	99	20	51	12	1066	142	56	983	88
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	46.0	17.1	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	38.3%	14.3%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	19.1	22.3	9.5	14.1	14.1	5.2	42.6	42.6	7.0	49.7	49.7
Actuated g/C Ratio	0.20	0.24	0.10	0.15	0.15	0.06	0.45	0.45	0.07	0.53	0.53
v/c Ratio	0.79	0.69	0.56	0.07	0.15	0.12	0.68	0.19	0.44	0.53	0.10
Control Delay	53.9	38.7	57.3	37.5	0.9	53.2	27.6	7.3	58.1	19.9	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	38.7	57.3	37.5	0.9	53.2	27.6	7.3	58.1	19.9	2.3
LOS	D	D	E	D	A	D	C	A	E	B	A
Approach Delay		46.0		38.1			25.5			20.4	
Approach LOS		D		D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 28.1	Intersection LOS: C
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	188	107	99	20	51	12	1066	142	56	983	88
Future Volume (veh/h)	276	188	107	99	20	51	12	1066	142	56	983	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	282	192	60	101	20	18	12	1088	101	57	1003	62
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	305	95	129	215	179	26	1649	735	77	1750	763
Arrive On Green	0.18	0.22	0.22	0.07	0.11	0.11	0.01	0.46	0.46	0.04	0.49	0.49
Sat Flow, veh/h	1781	1366	427	1781	1870	1563	1781	3554	1583	1781	3554	1549
Grp Volume(v), veh/h	282	0	252	101	20	18	12	1088	101	57	1003	62
Grp Sat Flow(s),veh/h/ln	1781	0	1793	1781	1870	1563	1781	1777	1583	1781	1777	1549
Q Serve(g_s), s	13.4	0.0	11.1	4.9	0.8	0.9	0.6	20.6	3.2	2.8	17.4	1.8
Cycle Q Clear(g_c), s	13.4	0.0	11.1	4.9	0.8	0.9	0.6	20.6	3.2	2.8	17.4	1.8
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	0	400	129	215	179	26	1649	735	77	1750	763
V/C Ratio(X)	0.88	0.00	0.63	0.78	0.09	0.10	0.47	0.66	0.14	0.74	0.57	0.08
Avail Cap(c_a), veh/h	530	0	863	266	623	520	102	1649	735	162	1750	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	30.6	39.7	34.5	34.5	42.6	18.0	13.4	41.2	15.6	11.7
Incr Delay (d2), s/veh	5.1	0.0	1.6	3.9	0.2	0.2	4.8	2.1	0.4	5.3	1.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	4.9	2.3	0.4	0.4	0.3	8.0	1.2	1.3	6.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	32.2	43.6	34.7	34.8	47.4	20.1	13.7	46.5	17.0	11.9
LnGrp LOS	D	A	C	D	C	C	D	C	B	D	B	B
Approach Vol, veh/h		534			139			1201			1122	
Approach Delay, s/veh		36.2			41.2			19.8			18.2	
Approach LOS		D			D			B			B	

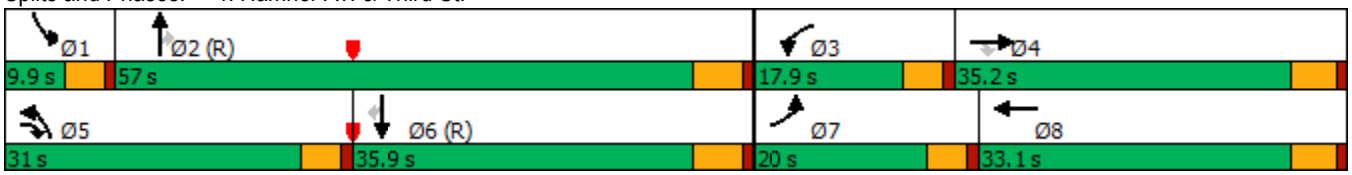
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	45.3	10.4	23.5	5.4	47.8	19.8	14.1
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	13.0	41.9	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	4.8	22.6	6.9	13.1	2.6	19.4	15.4	2.9
Green Ext Time (p_c), s	0.0	7.3	0.1	1.7	0.0	7.5	0.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	81	25	160	39	11	107	1223	75	65	1323	46
Future Volume (vph)	81	25	160	39	11	107	1223	75	65	1323	46
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	11.8	16.0	27.0	11.4	13.6	8.9	67.8	67.8	10.1	69.0	69.0
Actuated g/C Ratio	0.10	0.13	0.22	0.10	0.11	0.07	0.56	0.56	0.08	0.58	0.58
v/c Ratio	0.57	0.12	0.39	0.29	0.26	0.51	0.75	0.10	0.53	0.79	0.06
Control Delay	64.3	42.8	6.4	55.7	19.6	51.3	37.2	11.1	66.6	26.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	42.8	6.4	55.7	19.6	51.3	37.2	11.1	66.6	26.3	0.1
LOS	E	D	A	E	B	D	D	B	E	C	A
Approach Delay		27.5			35.8		36.9			27.3	
Approach LOS		C			D		D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	25	160	39	11	38	107	1223	75	65	1323	46
Future Volume (veh/h)	81	25	160	39	11	38	107	1223	75	65	1323	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	30	82	48	13	18	130	1491	71	79	1613	41
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	247	296	62	69	95	188	2220	968	79	2183	972
Arrive On Green	0.07	0.13	0.13	0.03	0.10	0.10	0.05	0.62	0.62	0.04	0.61	0.61
Sat Flow, veh/h	1781	1870	1585	1781	702	972	3456	3554	1550	1781	3554	1582
Grp Volume(v), veh/h	99	30	82	48	0	31	130	1491	71	79	1613	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1674	1728	1777	1550	1781	1777	1582
Q Serve(g_s), s	6.6	1.7	5.3	3.2	0.0	2.0	4.4	32.6	2.2	5.3	38.5	1.2
Cycle Q Clear(g_c), s	6.6	1.7	5.3	3.2	0.0	2.0	4.4	32.6	2.2	5.3	38.5	1.2
Prop In Lane	1.00		1.00	1.00		0.58	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	247	296	62	0	164	188	2220	968	79	2183	972
V/C Ratio(X)	0.80	0.12	0.28	0.78	0.00	0.19	0.69	0.67	0.07	1.00	0.74	0.04
Avail Cap(c_a), veh/h	229	469	484	197	0	391	760	2220	968	79	2183	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	55.0	45.9	41.9	57.4	0.0	49.8	55.7	14.6	8.9	57.3	16.3	9.2
Incr Delay (d2), s/veh	4.5	0.2	0.5	7.5	0.0	0.6	1.7	1.6	0.1	93.6	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.8	2.1	1.6	0.0	0.9	1.9	12.3	0.7	4.4	14.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	46.1	42.4	64.9	0.0	50.3	57.4	16.2	9.0	150.9	18.2	9.2
LnGrp LOS	E	D	D	E	A	D	E	B	A	F	B	A
Approach Vol, veh/h		211			79			1692			1733	
Approach Delay, s/veh		51.0			59.2			19.1			24.1	
Approach LOS		D			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	80.4	8.8	21.0	11.1	79.1	12.9	16.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	7.3	34.6	5.2	7.3	6.4	40.5	8.6	4.0
Green Ext Time (p_c), s	0.0	10.1	0.0	0.3	0.2	0.0	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	0	0	0	3	1	0	0	1351	5	1	1521	0
Future Vol, veh/h	0	0	0	3	1	0	0	1351	5	1	1521	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	1	0	0	1379	5	1	1552	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2244	2938	776	2160	2936	692	1552	0	0	1384	0	0
Stage 1	1554	1554	-	1382	1382	-	-	-	-	-	-	-
Stage 2	690	1384	-	778	1554	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*36	*6	*465	*36	4	*516	*696	-	-	*773	-	-
Stage 1	*439	*385	-	*487	210	-	-	-	-	-	-	-
Stage 2	*487	*427	-	*439	173	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*36	*6	*465	*36	4	*516	*696	-	-	*773	-	-
Mov Cap-2 Maneuver	*302	*257	-	*303	121	-	-	-	-	-	-	-
Stage 1	*439	*384	-	*487	210	-	-	-	-	-	-	-
Stage 2	*485	*427	-	*438	173	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	21.7	0	0
HCM LOS	A	C		

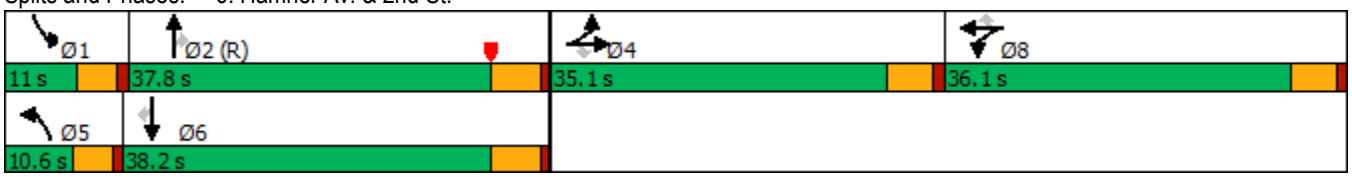
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 696	-	-	-	220	* 773	-	-
HCM Lane V/C Ratio	-	-	-	-	0.019	0.001	-	-
HCM Control Delay (s)	0	-	-	0	21.7	9.7	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

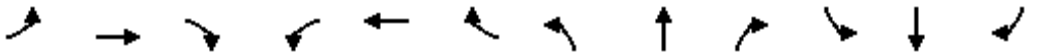
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	688	94	222	397	337	101	768	440	486	870	192
Future Volume (vph)	212	688	94	222	397	337	101	768	440	486	870	192
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	23.8	23.8	23.8	11.7	32.4	32.4	13.6	34.3	34.3
Actuated g/C Ratio	0.25	0.25	0.25	0.20	0.20	0.20	0.10	0.27	0.27	0.11	0.29	0.29
v/c Ratio	0.48	0.86	0.20	0.64	0.64	0.66	0.60	0.82	0.63	2.48	0.88	0.35
Control Delay	43.2	54.3	6.0	36.5	31.7	14.7	68.5	49.4	9.9	698.5	62.9	27.0
Queue Delay	0.0	52.9	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0
Total Delay	43.2	107.2	6.0	36.5	31.7	14.8	68.5	49.4	10.3	698.5	62.9	27.0
LOS	D	F	A	D	C	B	E	D	B	F	E	C
Approach Delay		85.4			26.7			37.7			258.0	
Approach LOS		F			C			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.48	
Intersection Signal Delay: 116.3	Intersection LOS: F
Intersection Capacity Utilization 105.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	688	94	222	397	337	101	768	440	486	870	192
Future Volume (veh/h)	212	688	94	222	397	337	101	768	440	486	870	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	702	50	211	428	135	103	784	288	496	888	135
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	288	604	256	89	1303	573	95	1315	586
Arrive On Green	0.25	0.25	0.25	0.05	0.05	0.05	0.05	0.37	0.37	0.02	0.12	0.12
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1563	1781	3554	1582
Grp Volume(v), veh/h	216	702	50	211	428	135	103	784	288	496	888	135
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1563	1781	1777	1582
Q Serve(g_s), s	12.4	20.8	3.0	14.0	13.5	10.0	6.0	21.5	17.2	6.4	28.7	9.2
Cycle Q Clear(g_c), s	12.4	20.8	3.0	14.0	13.5	10.0	6.0	21.5	17.2	6.4	28.7	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	288	604	256	89	1303	573	95	1315	586
V/C Ratio(X)	0.49	0.75	0.13	0.73	0.71	0.53	1.16	0.60	0.50	5.22	0.68	0.23
Avail Cap(c_a), veh/h	445	935	392	460	966	409	89	1303	573	95	1315	586
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	41.5	34.9	54.3	54.0	52.3	57.0	30.9	29.5	58.9	45.8	37.2
Incr Delay (d2), s/veh	3.7	5.5	0.7	3.4	1.4	1.6	143.6	2.1	3.1	1922.6	1.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	10.2	1.2	7.0	6.9	4.3	6.2	9.3	6.8	53.7	13.9	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	47.1	35.5	57.6	55.5	53.9	200.6	32.9	32.6	1981.5	47.2	37.4
LnGrp LOS	D	D	D	E	E	D	F	C	C	F	D	D
Approach Vol, veh/h		968			774			1175			1519	
Approach Delay, s/veh		45.4			55.8			47.6			677.9	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	49.4		35.1	10.6	49.8		24.5				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	23.5		22.8	8.0	30.7		16.0				
Green Ext Time (p_c), s	0.0	4.0		3.1	0.0	1.3		3.4				

Intersection Summary			
HCM 6th Ctrl Delay		264.4	
HCM 6th LOS		F	

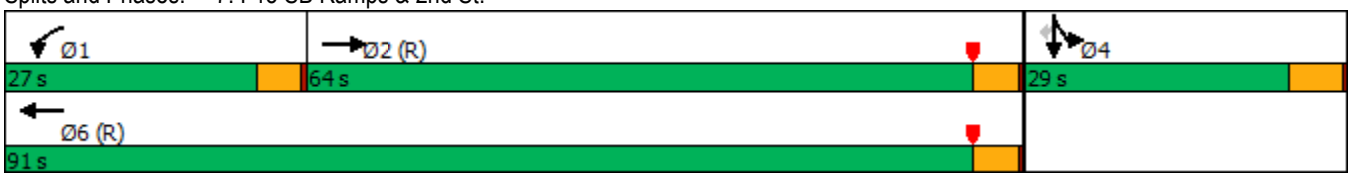
Notes

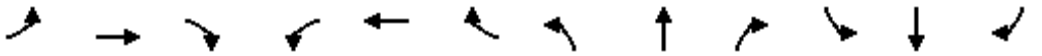
User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	898	183	802	5	265
Future Volume (vph)	898	183	802	5	265
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	77.7	16.8	99.0	11.1	11.1
Actuated g/C Ratio	0.65	0.14	0.82	0.09	0.09
v/c Ratio	0.77	0.75	0.28	0.57	0.74
Control Delay	22.1	52.9	0.5	65.0	21.2
Queue Delay	47.9	0.0	0.0	0.0	0.0
Total Delay	70.0	52.9	0.5	65.0	21.2
LOS	E	D	A	E	C
Approach Delay	70.0		10.2	32.5	
Approach LOS	E		B	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 46.1	Intersection LOS: D
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	898	780	183	802	0	0	0	0	87	5	265
Future Volume (veh/h)	0	898	780	183	802	0	0	0	0	87	5	265
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	916	641	187	818	0				89	5	178
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1281	859	215	2799	0				220	12	206
Arrive On Green	0.00	0.63	0.63	0.12	0.79	0.00				0.13	0.13	0.13
Sat Flow, veh/h	0	2129	1366	1781	3647	0				1691	95	1585
Grp Volume(v), veh/h	0	794	763	187	818	0				94	0	178
Grp Sat Flow(s),veh/h/ln	0	1777	1625	1781	1777	0				1786	0	1585
Q Serve(g_s), s	0.0	36.0	39.3	12.4	7.6	0.0				5.8	0.0	13.2
Cycle Q Clear(g_c), s	0.0	36.0	39.3	12.4	7.6	0.0				5.8	0.0	13.2
Prop In Lane	0.00		0.84	1.00		0.00				0.95		1.00
Lane Grp Cap(c), veh/h	0	1118	1022	215	2799	0				232	0	206
V/C Ratio(X)	0.00	0.71	0.75	0.87	0.29	0.00				0.41	0.00	0.86
Avail Cap(c_a), veh/h	0	1118	1022	334	2799	0				353	0	313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.73	0.73	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.9	15.5	51.8	3.5	0.0				48.0	0.0	51.2
Incr Delay (d2), s/veh	0.0	0.4	0.5	6.9	0.2	0.0				0.4	0.0	9.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.4	13.4	5.9	2.2	0.0				2.6	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.3	16.0	58.7	3.7	0.0				48.4	0.0	61.1
LnGrp LOS	A	B	B	E	A	A				D	A	E
Approach Vol, veh/h		1557			1005						272	
Approach Delay, s/veh		15.6			13.9						56.7	
Approach LOS		B			B						E	

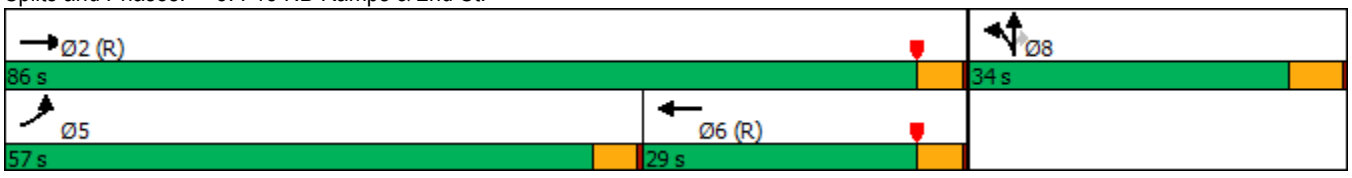
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.0	80.1		20.9		99.1						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	14.4	41.3		15.2		9.6						
Green Ext Time (p_c), s	0.2	7.6		0.4		4.1						

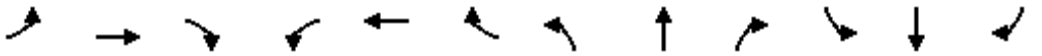
Intersection Summary												
HCM 6th Ctrl Delay			19.0									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	601	383	432	551	38	399
Future Volume (vph)	601	383	432	551	38	399
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	57.0	86.0	29.0	34.0	34.0	34.0
Total Split (%)	47.5%	71.7%	24.2%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	46.7	84.1	33.0	26.0	26.0	26.0
Actuated g/C Ratio	0.39	0.70	0.28	0.22	0.22	0.22
v/c Ratio	0.90	0.16	0.52	0.83	0.84	0.62
Control Delay	35.9	6.1	40.5	63.9	64.6	8.1
Queue Delay	5.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	6.1	40.5	63.9	64.6	8.1
LOS	D	A	D	E	E	A
Approach Delay		27.4	40.5		41.6	
Approach LOS		C	D		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 35.7	Intersection LOS: D
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	601	383	0	0	432	51	551	38	399	0	0	0
Future Volume (veh/h)	601	383	0	0	432	51	551	38	399	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	620	395	0	0	445	41	596	0	232			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	659	2580	0	0	1046	96	683	0	304			
Arrive On Green	0.18	0.36	0.00	0.00	0.32	0.32	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	3377	301	3563	0	1585			
Grp Volume(v), veh/h	620	395	0	0	240	246	596	0	232			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1808	1781	0	1585			
Q Serve(g_s), s	41.2	9.0	0.0	0.0	12.8	12.9	19.5	0.0	16.6			
Cycle Q Clear(g_c), s	41.2	9.0	0.0	0.0	12.8	12.9	19.5	0.0	16.6			
Prop In Lane	1.00		0.00	0.00		0.17	1.00		1.00			
Lane Grp Cap(c), veh/h	659	2580	0	0	566	576	683	0	304			
V/C Ratio(X)	0.94	0.15	0.00	0.00	0.42	0.43	0.87	0.00	0.76			
Avail Cap(c_a), veh/h	779	2580	0	0	566	576	852	0	379			
HCM Platoon Ratio	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.55	0.55	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	47.6	13.3	0.0	0.0	32.2	32.3	47.1	0.0	45.9			
Incr Delay (d2), s/veh	11.1	0.1	0.0	0.0	2.3	2.3	7.9	0.0	6.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	21.3	3.7	0.0	0.0	5.8	6.0	9.1	0.0	6.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	13.4	0.0	0.0	34.5	34.6	55.0	0.0	52.2			
LnGrp LOS	E	B	A	A	C	C	D	A	D			
Approach Vol, veh/h		1015			486			828				
Approach Delay, s/veh		41.1			34.6			54.2				
Approach LOS		D			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.7			48.9	42.8		28.3				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		81.4			52.5	24.4		28.7				
Max Q Clear Time (g_c+I1), s		11.0			43.2	14.9		21.5				
Green Ext Time (p_c), s		1.8			1.2	1.3		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 6.2:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	373	4	37	1101	30	0	0	81	16	0	0
Future Vol, veh/h	0	373	4	37	1101	30	0	0	81	16	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	460	5	46	1359	37	0	0	100	20	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1397	0	0	465	0	0	1235	1952	233	1701	1936	699
Stage 1	-	-	-	-	-	-	463	463	-	1471	1471	-
Stage 2	-	-	-	-	-	-	772	1489	-	230	465	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	750	-	-	1093	-	-	*589	105	769	162	108	*641
Stage 1	-	-	-	-	-	-	*548	562	-	346	350	-
Stage 2	-	-	-	-	-	-	*604	338	-	752	561	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	749	-	-	1093	-	-	*570	100	769	136	104	*640
Mov Cap-2 Maneuver	-	-	-	-	-	-	*534	229	-	257	230	-
Stage 1	-	-	-	-	-	-	*548	562	-	346	335	-
Stage 2	-	-	-	-	-	-	*579	324	-	654	561	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	10.4	20.2
HCM LOS			B	C

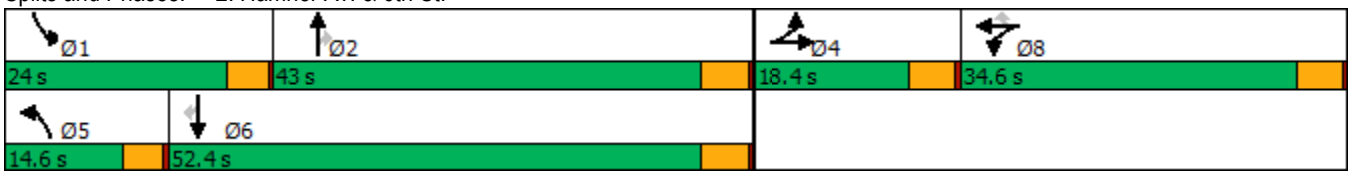
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	769	749	-	-	1093	-	-	257
HCM Lane V/C Ratio	0.13	-	-	-	0.042	-	-	0.077
HCM Control Delay (s)	10.4	0	-	-	8.4	-	-	20.2
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.2

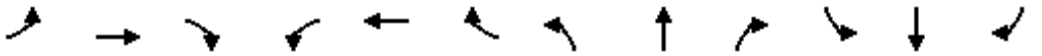
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	38	216	547	85	299	79	541	276	450	862	48
Future Volume (vph)	38	216	547	85	299	79	541	276	450	862	48
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.7	12.7	27.1	27.1	27.1	8.9	38.2	38.2	19.9	51.4	51.4
Actuated g/C Ratio	0.11	0.11	0.23	0.23	0.23	0.08	0.33	0.33	0.17	0.44	0.44
v/c Ratio	0.21	0.72	0.84	0.85	0.52	0.62	0.49	0.41	1.56	0.58	0.07
Control Delay	50.9	57.9	61.9	62.7	7.3	72.6	33.6	5.3	302.5	28.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	57.9	61.9	62.7	7.3	72.6	33.6	5.3	302.5	28.1	0.8
LOS	D	E	E	E	A	E	C	A	F	C	A
Approach Delay		57.0		44.6			28.3			117.9	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.56	
Intersection Signal Delay: 70.1	Intersection LOS: E
Intersection Capacity Utilization 88.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	216	53	547	85	299	79	541	276	450	862	48
Future Volume (veh/h)	38	216	53	547	85	299	79	541	276	450	862	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	227	45	640	0	102	83	569	170	474	907	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	293	57	751	0	333	106	1227	547	321	1657	737
Arrive On Green	0.10	0.10	0.10	0.21	0.00	0.21	0.06	0.35	0.35	0.18	0.47	0.47
Sat Flow, veh/h	1781	2966	578	3563	0	1581	1781	3554	1584	1781	3554	1580
Grp Volume(v), veh/h	40	134	138	640	0	102	83	569	170	474	907	34
Grp Sat Flow(s),veh/h/ln	1781	1777	1766	1781	0	1581	1781	1777	1584	1781	1777	1580
Q Serve(g_s), s	2.3	8.1	8.4	19.1	0.0	6.0	5.1	13.8	8.7	19.9	20.2	1.3
Cycle Q Clear(g_c), s	2.3	8.1	8.4	19.1	0.0	6.0	5.1	13.8	8.7	19.9	20.2	1.3
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	176	175	174	751	0	333	106	1227	547	321	1657	737
V/C Ratio(X)	0.23	0.77	0.79	0.85	0.00	0.31	0.79	0.46	0.31	1.48	0.55	0.05
Avail Cap(c_a), veh/h	223	222	221	968	0	430	169	1227	547	321	1657	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	48.5	48.6	41.9	0.0	36.7	51.2	28.2	26.5	45.2	21.1	16.1
Incr Delay (d2), s/veh	0.6	11.5	13.8	5.9	0.0	0.5	4.8	1.3	1.5	230.3	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.1	4.3	8.8	0.0	2.3	2.4	5.9	3.4	29.1	8.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	60.0	62.4	47.8	0.0	37.3	56.0	29.4	28.0	275.6	22.4	16.2
LnGrp LOS	D	E	E	D	A	D	E	C	C	F	C	B
Approach Vol, veh/h		312			742			822			1415	
Approach Delay, s/veh		59.3			46.4			31.8			107.1	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		15.5	10.6	56.4		27.9				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	15.8		10.4	7.1	22.2		21.1				
Green Ext Time (p_c), s	0.0	4.2		0.5	0.0	6.7		2.0				

Intersection Summary		
HCM 6th Ctrl Delay		70.1
HCM 6th LOS		E

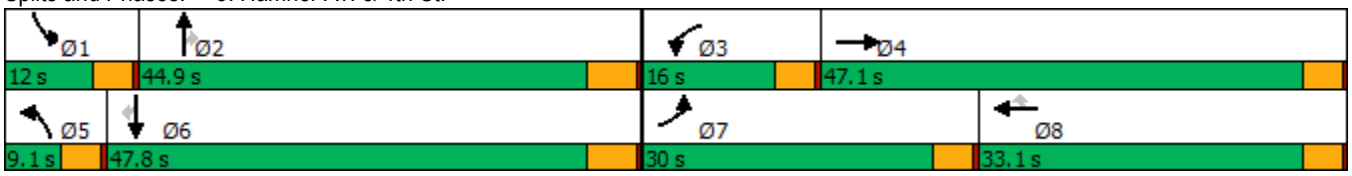
Notes

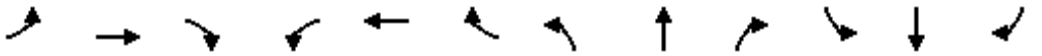
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	57	13	128	137	120	119	906	42	65	880	177
Future Volume (vph)	57	13	128	137	120	119	906	42	65	880	177
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	30.0	47.1	16.0	33.1	33.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	25.0%	39.3%	13.3%	27.6%	27.6%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	7.6	13.3	15.8	14.5	14.5	5.1	43.8	43.8	7.1	43.6	43.6
Actuated g/C Ratio	0.09	0.15	0.18	0.17	0.17	0.06	0.51	0.51	0.08	0.51	0.51
v/c Ratio	0.40	0.09	0.43	0.47	0.35	1.24	0.55	0.05	0.49	0.53	0.22
Control Delay	47.5	22.6	39.7	37.9	8.4	205.9	19.3	0.1	52.7	17.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	22.6	39.7	37.9	8.4	205.9	19.3	0.1	52.7	17.8	7.1
LOS	D	C	D	D	A	F	B	A	D	B	A
Approach Delay		40.4		29.3			39.3			18.1	
Approach LOS		D		C			D			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	13	10	128	137	120	119	906	42	65	880	177
Future Volume (veh/h)	57	13	10	128	137	120	119	906	42	65	880	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	14	1	139	149	47	129	985	30	71	957	144
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	211	15	173	325	275	107	1859	829	91	1828	815
Arrive On Green	0.05	0.12	0.12	0.10	0.17	0.17	0.06	0.52	0.52	0.05	0.51	0.51
Sat Flow, veh/h	1781	1725	123	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	62	0	15	139	149	47	129	985	30	71	957	144
Grp Sat Flow(s),veh/h/ln	1781	0	1848	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	0.6	6.4	6.0	2.1	5.0	15.2	0.8	3.3	14.9	4.0
Cycle Q Clear(g_c), s	2.9	0.0	0.6	6.4	6.0	2.1	5.0	15.2	0.8	3.3	14.9	4.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	226	173	325	275	107	1859	829	91	1828	815
V/C Ratio(X)	0.76	0.00	0.07	0.80	0.46	0.17	1.21	0.53	0.04	0.78	0.52	0.18
Avail Cap(c_a), veh/h	553	0	953	254	650	551	107	1859	829	169	1828	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	0.0	32.4	36.9	30.9	29.3	39.2	13.1	9.7	39.1	13.5	10.8
Incr Delay (d2), s/veh	5.4	0.0	0.1	6.6	1.0	0.3	153.3	1.1	0.1	5.3	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.3	3.1	2.8	0.8	6.6	5.5	0.3	1.5	5.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	32.5	43.5	31.9	29.6	192.5	14.2	9.7	44.3	14.5	11.3
LnGrp LOS	D	A	C	D	C	C	F	B	A	D	B	B
Approach Vol, veh/h		77			335			1144			1172	
Approach Delay, s/veh		42.4			36.4			34.2			15.9	
Approach LOS		D			D			C			B	

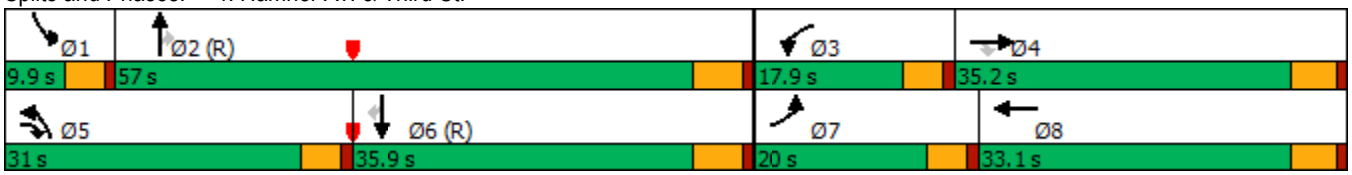
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	48.5	12.2	14.3	9.1	47.8	7.9	18.6
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	11.9	43.0	5.0	42.9	25.9	29.0
Max Q Clear Time (g_c+I1), s	5.3	17.2	8.4	2.6	7.0	16.9	4.9	8.0
Green Ext Time (p_c), s	0.0	7.1	0.1	0.0	0.0	7.6	0.1	0.9

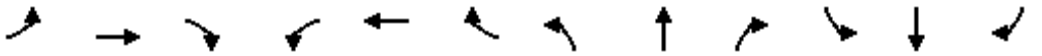
Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	195	26	249	107	197	578	1028	48	15	693	365
Future Volume (vph)	195	26	249	107	197	578	1028	48	15	693	365
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	20.8	45.2	22.9	22.3	25.4	63.1	63.1	5.4	37.2	37.2
Actuated g/C Ratio	0.13	0.17	0.38	0.19	0.19	0.21	0.53	0.53	0.04	0.31	0.31
v/c Ratio	0.94	0.09	0.42	0.35	0.80	0.87	0.61	0.06	0.20	0.69	0.55
Control Delay	98.9	37.8	16.9	50.0	61.7	50.7	30.4	3.4	61.1	41.9	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	37.8	16.9	50.0	61.7	50.7	30.4	3.4	61.1	41.9	8.8
LOS	F	D	B	D	E	D	C	A	E	D	A
Approach Delay		52.0			58.2		36.7			30.9	
Approach LOS		D			E		D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 39.1	Intersection LOS: D
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	26	249	107	197	51	578	1028	48	15	693	365
Future Volume (veh/h)	195	26	249	107	197	51	578	1028	48	15	693	365
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	29	133	118	216	40	635	1130	43	16	762	250
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	396	651	144	251	47	689	1871	834	31	1223	538
Arrive On Green	0.13	0.21	0.21	0.08	0.16	0.16	0.27	0.70	0.70	0.02	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	1781	1534	284	3456	3554	1585	1781	3554	1564
Grp Volume(v), veh/h	214	29	133	118	0	256	635	1130	43	16	762	250
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1818	1728	1777	1585	1781	1777	1564
Q Serve(g_s), s	14.3	1.5	6.5	7.8	0.0	16.4	21.4	19.8	1.0	1.1	21.5	15.0
Cycle Q Clear(g_c), s	14.3	1.5	6.5	7.8	0.0	16.4	21.4	19.8	1.0	1.1	21.5	15.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	396	651	144	0	298	689	1871	834	31	1223	538
V/C Ratio(X)	0.94	0.07	0.20	0.82	0.00	0.86	0.92	0.60	0.05	0.52	0.62	0.46
Avail Cap(c_a), veh/h	229	469	714	197	0	424	760	1871	834	79	1223	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	51.8	37.9	22.7	54.3	0.0	48.8	43.2	11.5	8.7	58.5	32.8	30.7
Incr Delay (d2), s/veh	41.6	0.1	0.2	12.9	0.0	11.8	15.0	1.5	0.1	4.2	2.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.7	2.4	4.0	0.0	8.4	9.8	6.0	0.4	0.5	9.3	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.4	38.0	22.9	67.2	0.0	60.6	58.1	12.9	8.8	62.7	34.9	33.1
LnGrp LOS	F	D	C	E	A	E	E	B	A	E	C	C
Approach Vol, veh/h		376			374			1808			1028	
Approach Delay, s/veh		64.2			62.7			28.7			34.9	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	68.6	14.3	30.5	28.5	46.7	20.0	24.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	3.1	21.8	9.8	8.5	23.4	23.5	16.3	18.4
Green Ext Time (p_c), s	0.0	9.3	0.0	0.5	0.5	3.2	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	94	1	0	0	98	1670	3	0	1013	35
Future Vol, veh/h	0	0	94	1	0	0	98	1670	3	0	1013	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	102	1	0	0	107	1815	3	0	1101	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	574	2582	3174	909	1143	0	0	1818	0	0
Stage 1	-	-	-	2031	2031	-	-	-	-	-	-	-
Stage 2	-	-	-	551	1143	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*669	*61	*0	*389	*1001	-	-	*582	-	-
Stage 1	0	0	-	*245	*238	-	-	-	-	-	-	-
Stage 2	0	0	-	*631	*553	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*667	*47	*0	*389	*998	-	-	*582	-	-
Mov Cap-2 Maneuver	-	-	-	*188	*175	-	-	-	-	-	-	-
Stage 1	-	-	-	*219	*213	-	-	-	-	-	-	-
Stage 2	-	-	-	*534	*552	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	24.3	0.5	0
HCM LOS	B	C		

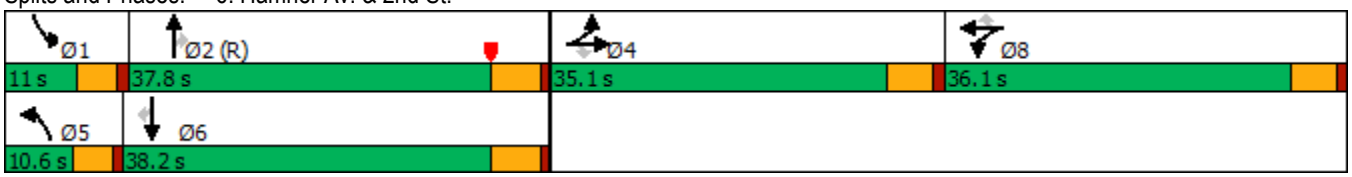
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 998	-	-	667	188	* 582	-	-
HCM Lane V/C Ratio	0.107	-	-	0.153	0.006	-	-	-
HCM Control Delay (s)	9	-	-	11.4	24.3	0	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0	0	-	-

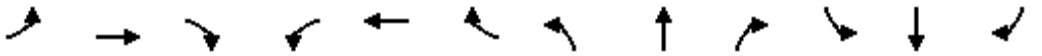
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	524	43	341	606	693	46	765	178	268	522	200
Future Volume (vph)	254	524	43	341	606	693	46	765	178	268	522	200
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	5.8	32.4	32.4	6.4	34.9	34.9
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.29	0.29
v/c Ratio	0.62	0.71	0.10	0.81	0.81	1.36	0.60	0.88	0.36	3.14	0.56	0.36
Control Delay	47.9	46.6	0.4	41.6	35.0	190.7	84.0	53.8	10.1	1003.5	45.8	18.7
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	47.8	0.4	41.6	35.0	190.9	84.0	53.8	10.1	1003.5	45.8	18.7
LOS	D	D	A	D	C	F	F	D	B	F	D	B
Approach Delay		45.4			102.1			47.4			299.7	
Approach LOS		D			F			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.14	
Intersection Signal Delay: 123.5	Intersection LOS: F
Intersection Capacity Utilization 106.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	524	43	341	606	693	46	765	178	268	522	200
Future Volume (veh/h)	254	524	43	341	606	693	46	765	178	268	522	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	576	27	347	705	420	51	841	89	295	574	165
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	460	966	409	66	959	421	95	1018	454
Arrive On Green	0.25	0.25	0.25	0.43	0.43	0.43	0.04	0.27	0.27	0.02	0.09	0.09
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1583
Grp Volume(v), veh/h	279	576	27	347	705	420	51	841	89	295	574	165
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1583
Q Serve(g_s), s	16.7	16.4	1.6	19.7	18.8	31.0	3.4	27.2	5.3	6.4	18.5	11.7
Cycle Q Clear(g_c), s	16.7	16.4	1.6	19.7	18.8	31.0	3.4	27.2	5.3	6.4	18.5	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	460	966	409	66	959	421	95	1018	454
V/C Ratio(X)	0.63	0.62	0.07	0.75	0.73	1.03	0.78	0.88	0.21	3.11	0.56	0.36
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	959	421	95	1018	454
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	39.9	34.3	30.9	30.6	34.1	57.3	41.9	33.9	58.9	47.2	44.1
Incr Delay (d2), s/veh	6.5	3.0	0.3	4.5	1.8	42.6	17.4	11.1	1.1	974.5	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	7.8	0.6	7.7	7.3	14.7	1.8	13.0	2.1	28.7	8.9	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	42.9	34.7	35.4	32.5	76.8	74.7	53.0	35.1	1033.4	47.9	44.6
LnGrp LOS	D	D	C	D	C	F	E	D	D	F	D	D
Approach Vol, veh/h		882			1472			981			1034	
Approach Delay, s/veh		43.8			45.8			52.5			328.5	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	37.8		35.1	9.0	39.8		36.1				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	29.2		18.7	5.4	20.5		33.0				
Green Ext Time (p_c), s	0.0	1.7		3.6	0.0	3.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		113.8	
HCM 6th LOS		F	

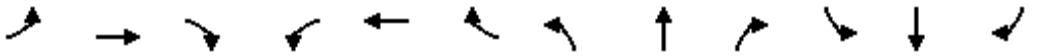
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	544	266	1237	2	501
Future Volume (vph)	544	266	1237	2	501
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	45.0	28.0	73.0	47.0	47.0
Total Split (%)	37.5%	23.3%	60.8%	39.2%	39.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	45.2	21.4	71.1	39.0	39.0
Actuated g/C Ratio	0.38	0.18	0.59	0.32	0.32
v/c Ratio	0.77	0.88	0.61	0.13	0.95
Control Delay	36.8	51.5	7.3	28.1	62.6
Queue Delay	1.5	0.0	0.7	0.0	0.0
Total Delay	38.4	51.5	8.0	28.1	62.6
LOS	D	D	A	C	E
Approach Delay	38.4		15.7	58.2	
Approach LOS	D		B	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 105.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	544	460	266	1237	0	0	0	0	71	2	501
Future Volume (veh/h)	0	544	460	266	1237	0	0	0	0	71	2	501
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	567	399	277	1289	0				74	2	455
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	810	570	304	2184	0				526	14	480
Arrive On Green	0.00	0.81	0.81	0.17	0.61	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	2086	1402	1781	3647	0				1737	47	1585
Grp Volume(v), veh/h	0	506	460	277	1289	0				76	0	455
Grp Sat Flow(s),veh/h/ln	0	1777	1618	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	14.8	14.8	18.3	26.3	0.0				3.7	0.0	33.7
Cycle Q Clear(g_c), s	0.0	14.8	14.8	18.3	26.3	0.0				3.7	0.0	33.7
Prop In Lane	0.00		0.87	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	723	658	304	2184	0				540	0	480
V/C Ratio(X)	0.00	0.70	0.70	0.91	0.59	0.00				0.14	0.00	0.95
Avail Cap(c_a), veh/h	0	723	658	349	2184	0				620	0	551
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.65	0.65	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	8.0	48.9	14.0	0.0				30.5	0.0	40.9
Incr Delay (d2), s/veh	0.0	0.5	0.6	17.2	0.8	0.0				0.0	0.0	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	2.8	9.5	10.1	0.0				1.6	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.6	8.6	66.1	14.7	0.0				30.5	0.0	64.2
LnGrp LOS	A	A	A	E	B	A				C	A	E
Approach Vol, veh/h		966			1566						531	
Approach Delay, s/veh		8.6			23.8						59.4	
Approach LOS		A			C						E	

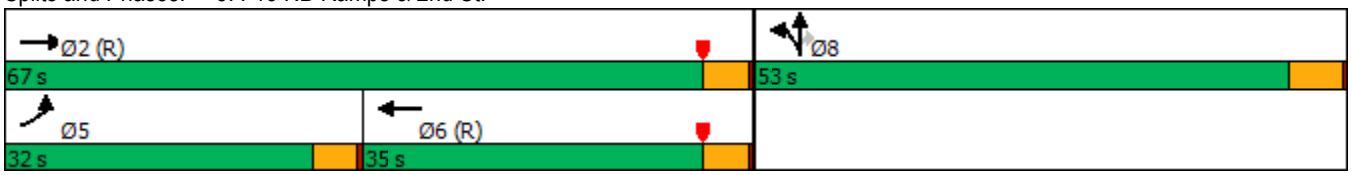
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.0	53.4		41.6		78.4						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	23.5	40.4		41.7		68.4						
Max Q Clear Time (g_c+I1), s	20.3	16.8		35.7		28.3						
Green Ext Time (p_c), s	0.1	4.3		0.7		7.7						

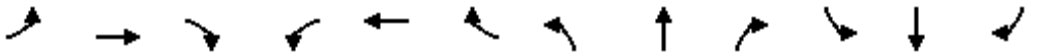
Intersection Summary												
HCM 6th Ctrl Delay			25.2									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	215	402	592	913	5	418
Future Volume (vph)	215	402	592	913	5	418
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	32.0	67.0	35.0	53.0	53.0	53.0
Total Split (%)	26.7%	55.8%	29.2%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	20.6	67.9	42.9	42.2	42.2	42.2
Actuated g/C Ratio	0.17	0.57	0.36	0.35	0.35	0.35
v/c Ratio	0.77	0.22	0.61	0.84	0.85	0.57
Control Delay	27.4	6.1	35.9	48.9	49.5	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	6.1	35.9	48.9	49.5	8.7
LOS	C	A	D	D	D	A
Approach Delay		13.5	35.9		36.5	
Approach LOS		B	D		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 31.0	Intersection LOS: C
Intersection Capacity Utilization 105.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	402	0	0	592	104	913	5	418	0	0	0
Future Volume (veh/h)	215	402	0	0	592	104	913	5	418	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	234	437	0	0	643	79	996	0	325			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	267	2152	0	0	1332	163	1112	0	495			
Arrive On Green	0.05	0.20	0.00	0.00	0.42	0.42	0.31	0.00	0.31			
Sat Flow, veh/h	1781	3647	0	0	3279	391	3563	0	1585			
Grp Volume(v), veh/h	234	437	0	0	358	364	996	0	325			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1799	1781	0	1585			
Q Serve(g_s), s	15.7	12.3	0.0	0.0	17.6	17.7	32.0	0.0	21.3			
Cycle Q Clear(g_c), s	15.7	12.3	0.0	0.0	17.6	17.7	32.0	0.0	21.3			
Prop In Lane	1.00		0.00	0.00		0.22	1.00		1.00			
Lane Grp Cap(c), veh/h	267	2152	0	0	743	752	1112	0	495			
V/C Ratio(X)	0.88	0.20	0.00	0.00	0.48	0.48	0.90	0.00	0.66			
Avail Cap(c_a), veh/h	408	2152	0	0	743	752	1416	0	630			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.55	0.55	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.9	23.9	0.0	0.0	25.5	25.5	39.4	0.0	35.7			
Incr Delay (d2), s/veh	6.6	0.1	0.0	0.0	2.2	2.2	6.2	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.0	5.9	0.0	0.0	7.8	7.9	14.3	0.0	8.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	24.0	0.0	0.0	27.7	27.7	45.6	0.0	37.0			
LnGrp LOS	E	C	A	A	C	C	D	A	D			
Approach Vol, veh/h		671			722			1321				
Approach Delay, s/veh		37.4			27.7			43.5				
Approach LOS		D			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.3			22.5	54.8		42.7				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			27.5	30.4		47.7				
Max Q Clear Time (g_c+I1), s		14.3			17.7	19.7		34.0				
Green Ext Time (p_c), s		2.0			0.3	2.2		3.4				

Intersection Summary	
HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	206	4	56	259	4	0	0	77	56	0	0
Future Vol, veh/h	2	206	4	56	259	4	0	0	77	56	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	258	5	70	324	5	0	0	96	70	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	330	0	0	263	0	0	569	737	132	603	737	166
Stage 1	-	-	-	-	-	-	267	267	-	468	468	-
Stage 2	-	-	-	-	-	-	302	470	-	135	269	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1367	-	-	1298	-	-	522	408	893	491	408	*1000
Stage 1	-	-	-	-	-	-	715	687	-	669	641	-
Stage 2	-	-	-	-	-	-	852	639	-	854	685	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1366	-	-	1298	-	-	499	385	893	419	385	*999
Mov Cap-2 Maneuver	-	-	-	-	-	-	570	466	-	501	454	-
Stage 1	-	-	-	-	-	-	714	686	-	667	605	-
Stage 2	-	-	-	-	-	-	806	604	-	760	684	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.4	9.5	13.3
HCM LOS			A	B

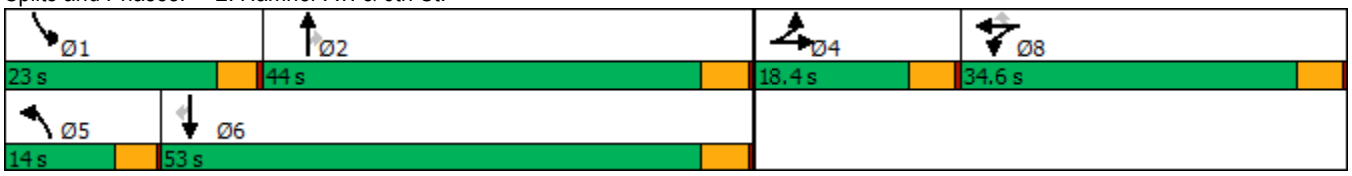
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	893	1366	-	-	1298	-	-	501
HCM Lane V/C Ratio	0.108	0.002	-	-	0.054	-	-	0.14
HCM Control Delay (s)	9.5	7.6	-	-	7.9	-	-	13.3
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.5

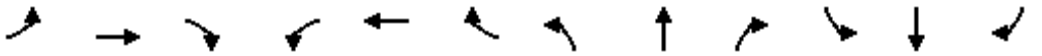
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	179	363	88	318	98	857	590	309	694	36
Future Volume (vph)	50	179	363	88	318	98	857	590	309	694	36
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.0	44.0	44.0	23.0	53.0	53.0
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	11.7%	36.7%	36.7%	19.2%	44.2%	44.2%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.1	-0.9	-0.9	-0.1	-0.9	-0.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.7	12.7	22.5	22.5	22.5	9.2	40.2	40.2	19.1	50.1	50.1
Actuated g/C Ratio	0.11	0.11	0.20	0.20	0.20	0.08	0.36	0.36	0.17	0.45	0.45
v/c Ratio	0.26	0.57	0.70	0.69	0.58	0.71	0.71	0.70	1.08	0.46	0.05
Control Delay	50.1	49.5	52.3	51.5	8.1	76.4	35.0	10.2	118.2	23.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	49.5	52.3	51.5	8.1	76.4	35.0	10.2	118.2	23.4	0.1
LOS	D	D	D	D	A	E	C	B	F	C	A
Approach Delay		49.6		33.8			28.1			50.8	
Approach LOS		D		C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 37.4	Intersection LOS: D
Intersection Capacity Utilization 75.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	179	42	363	88	318	98	857	590	309	694	36
Future Volume (veh/h)	50	179	42	363	88	318	98	857	590	309	694	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	190	33	240	298	123	104	912	419	329	738	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	301	51	354	372	315	131	1330	585	317	1700	757
Arrive On Green	0.10	0.10	0.09	0.20	0.20	0.20	0.07	0.37	0.37	0.18	0.48	0.48
Sat Flow, veh/h	1781	3034	518	1781	1870	1583	1781	3554	1562	1781	3554	1582
Grp Volume(v), veh/h	53	110	113	240	298	123	104	912	419	329	738	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1775	1781	1870	1583	1781	1777	1562	1781	1777	1582
Q Serve(g_s), s	3.0	6.3	6.6	13.3	16.2	7.2	6.1	23.1	24.5	19.0	14.6	0.7
Cycle Q Clear(g_c), s	3.0	6.3	6.6	13.3	16.2	7.2	6.1	23.1	24.5	19.0	14.6	0.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	176	176	354	372	315	131	1330	585	317	1700	757
V/C Ratio(X)	0.30	0.62	0.64	0.68	0.80	0.39	0.79	0.69	0.72	1.04	0.43	0.03
Avail Cap(c_a), veh/h	240	239	239	510	536	453	167	1330	585	317	1700	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	46.2	46.4	39.6	40.8	37.2	48.7	28.1	28.6	43.9	18.3	14.7
Incr Delay (d2), s/veh	0.9	3.6	3.9	2.3	5.6	0.8	13.9	2.9	7.4	61.0	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.9	3.1	5.9	7.9	2.8	3.2	9.9	9.9	13.5	5.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	49.8	50.3	41.9	46.4	38.0	62.6	31.0	36.0	104.9	19.2	14.8
LnGrp LOS	D	D	D	D	D	D	E	C	D	F	B	B
Approach Vol, veh/h		276			661			1435			1087	
Approach Delay, s/veh		49.2			43.2			34.8			45.0	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	44.0		14.6	11.9	55.1		25.3				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	18.9	39.1		13.8	9.9	48.1		30.0				
Max Q Clear Time (g_c+I1), s	21.0	26.5		8.6	8.1	16.6		18.2				
Green Ext Time (p_c), s	0.0	6.1		0.6	0.0	5.4		2.3				

Intersection Summary		
HCM 6th Ctrl Delay		40.7
HCM 6th LOS		D

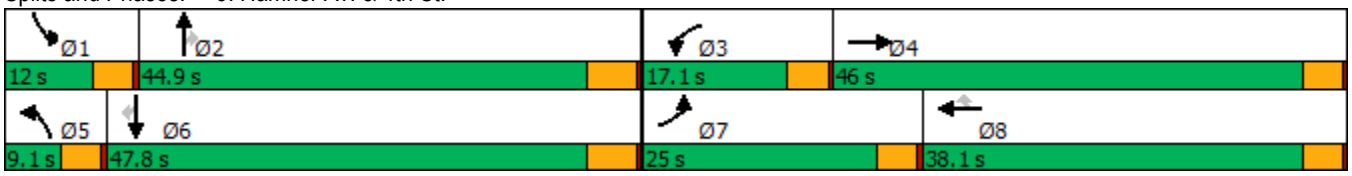
Notes

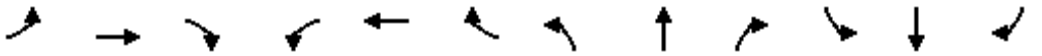
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	276	188	102	20	51	12	1098	145	56	1023	88
Future Volume (vph)	276	188	102	20	51	12	1098	145	56	1023	88
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	25.0	46.0	17.1	38.1	38.1	9.1	44.9	44.9	12.0	47.8	47.8
Total Split (%)	20.8%	38.3%	14.3%	31.8%	31.8%	7.6%	37.4%	37.4%	10.0%	39.8%	39.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.9	-0.9	-0.1	-0.9	-0.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	19.2	22.8	9.8	14.5	14.5	5.3	43.2	43.2	7.1	50.3	50.3
Actuated g/C Ratio	0.20	0.24	0.10	0.15	0.15	0.06	0.46	0.46	0.08	0.54	0.54
v/c Ratio	0.78	0.67	0.57	0.07	0.15	0.12	0.69	0.19	0.43	0.55	0.10
Control Delay	53.9	38.3	56.4	36.0	0.9	51.8	27.0	6.9	56.9	19.2	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	38.3	56.4	36.0	0.9	51.8	27.0	6.9	56.9	19.2	2.1
LOS	D	D	E	D	A	D	C	A	E	B	A
Approach Delay		45.8		37.7			24.9			19.7	
Approach LOS		D		D			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 71.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	188	107	102	20	51	12	1098	145	56	1023	88
Future Volume (veh/h)	276	188	107	102	20	51	12	1098	145	56	1023	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	282	192	60	104	20	18	12	1120	104	57	1044	62
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	322	302	94	135	217	181	28	1688	752	79	1790	780
Arrive On Green	0.18	0.22	0.22	0.08	0.12	0.12	0.02	0.48	0.48	0.04	0.50	0.50
Sat Flow, veh/h	1781	1366	427	1781	1870	1563	1781	3554	1583	1781	3554	1549
Grp Volume(v), veh/h	282	0	252	104	20	18	12	1120	104	57	1044	62
Grp Sat Flow(s),veh/h/ln	1781	0	1793	1781	1870	1563	1781	1777	1583	1781	1777	1549
Q Serve(g_s), s	13.4	0.0	11.1	5.0	0.8	0.9	0.6	21.0	3.2	2.7	18.0	1.8
Cycle Q Clear(g_c), s	13.4	0.0	11.1	5.0	0.8	0.9	0.6	21.0	3.2	2.7	18.0	1.8
Prop In Lane	1.00		0.24	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	0	397	135	217	181	28	1688	752	79	1790	780
V/C Ratio(X)	0.88	0.00	0.64	0.77	0.09	0.10	0.43	0.66	0.14	0.73	0.58	0.08
Avail Cap(c_a), veh/h	430	0	866	268	733	613	104	1688	752	164	1790	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	30.7	39.5	34.3	34.4	42.4	17.5	12.8	41.0	15.2	11.2
Incr Delay (d2), s/veh	11.9	0.0	1.7	3.5	0.2	0.2	3.9	2.1	0.4	4.7	1.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	4.9	2.3	0.4	0.4	0.3	8.1	1.2	1.3	6.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	0.0	32.4	43.0	34.5	34.6	46.3	19.6	13.2	45.7	16.6	11.4
LnGrp LOS	D	A	C	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		534			142			1236			1163	
Approach Delay, s/veh		39.9			40.7			19.3			17.7	
Approach LOS		D			D			B			B	

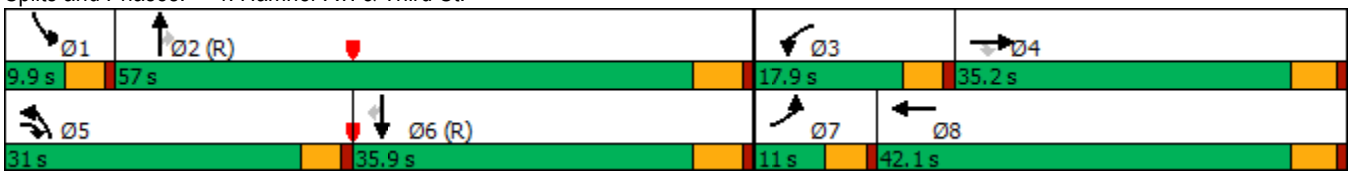
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	45.3	10.6	23.2	5.4	47.8	19.7	14.1
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	7.9	40.0	13.0	41.9	5.0	42.9	20.9	34.0
Max Q Clear Time (g_c+I1), s	4.7	23.0	7.0	13.1	2.6	20.0	15.4	2.9
Green Ext Time (p_c), s	0.0	7.5	0.1	1.7	0.0	7.8	0.2	0.1

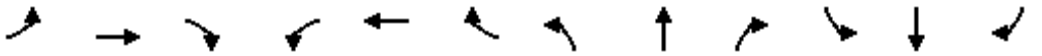
Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	138	33	169	39	19	121	1200	75	65	1344	68
Future Volume (vph)	138	33	169	39	19	121	1200	75	65	1344	68
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	11.0	35.2	31.0	17.9	42.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	9.2%	29.3%	25.8%	14.9%	35.1%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.1	-0.6	-0.6	-1.1	-0.6	-1.4	-1.4	-0.6	-1.4	-1.4
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	7.8	15.1	26.3	11.4	16.8	10.2	72.0	72.0	10.5	72.2	72.2
Actuated g/C Ratio	0.06	0.13	0.22	0.10	0.14	0.08	0.60	0.60	0.09	0.60	0.60
v/c Ratio	1.46	0.17	0.45	0.29	0.26	0.51	0.69	0.09	0.51	0.77	0.08
Control Delay	288.1	45.5	14.5	55.4	19.5	50.6	30.6	5.3	64.7	23.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	288.1	45.5	14.5	55.4	19.5	50.6	30.6	5.3	64.7	23.5	0.2
LOS	F	D	B	E	B	D	C	A	E	C	A
Approach Delay		128.5			34.2		31.0			24.2	
Approach LOS		F			C		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.46	
Intersection Signal Delay: 38.1	Intersection LOS: D
Intersection Capacity Utilization 65.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	33	169	39	19	38	121	1200	75	65	1344	68
Future Volume (veh/h)	138	33	169	39	19	38	121	1200	75	65	1344	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	40	93	48	23	18	148	1463	71	79	1639	68
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	235	295	71	103	81	224	2318	1011	88	2262	1007
Arrive On Green	0.06	0.13	0.12	0.04	0.11	0.10	0.06	0.65	0.65	0.05	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	1781	964	754	3456	3554	1550	1781	3554	1582
Grp Volume(v), veh/h	168	40	93	48	0	41	148	1463	71	79	1639	68
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1718	1728	1777	1550	1781	1777	1582
Q Serve(g_s), s	7.0	2.3	6.1	3.2	0.0	2.6	5.0	29.2	2.0	5.3	37.3	2.0
Cycle Q Clear(g_c), s	7.0	2.3	6.1	3.2	0.0	2.6	5.0	29.2	2.0	5.3	37.3	2.0
Prop In Lane	1.00		1.00	1.00		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	235	295	71	0	184	224	2318	1011	88	2262	1007
V/C Ratio(X)	1.62	0.17	0.31	0.68	0.00	0.22	0.66	0.63	0.07	0.90	0.72	0.07
Avail Cap(c_a), veh/h	104	486	508	206	0	545	778	2318	1011	88	2262	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	56.5	46.9	42.2	56.9	0.0	49.2	54.8	12.3	7.6	56.8	14.7	8.3
Incr Delay (d2), s/veh	317.3	0.3	0.6	4.2	0.0	0.6	1.2	1.3	0.1	55.6	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	1.1	2.4	1.5	0.0	1.2	2.2	10.7	0.7	3.7	13.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	373.8	47.2	42.8	61.1	0.0	49.8	56.1	13.7	7.7	112.3	16.4	8.4
LnGrp LOS	F	D	D	E	A	D	E	B	A	F	B	A
Approach Vol, veh/h		301			89			1682			1786	
Approach Delay, s/veh		228.1			55.9			17.1			20.3	
Approach LOS		F			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	82.3	8.8	19.1	11.8	80.4	11.0	16.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	6.4	37.0
Max Q Clear Time (g_c+I1), s	7.3	31.2	5.2	8.1	7.0	39.3	9.0	4.6
Green Ext Time (p_c), s	0.0	11.0	0.0	0.4	0.2	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	96	3	1	0	113	1342	5	1	1507	44
Future Vol, veh/h	0	0	96	3	1	0	113	1342	5	1	1507	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	3	1	0	115	1369	5	1	1538	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	792	2373	3187	687	1583	0	0	1374	0	0
Stage 1	-	-	-	1602	1602	-	-	-	-	-	-	-
Stage 2	-	-	-	771	1585	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*465	*60	*0	*542	*696	-	-	*811	-	-
Stage 1	0	0	-	*388	*365	-	-	-	-	-	-	-
Stage 2	0	0	-	*439	*385	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*465	*41	*0	*542	*696	-	-	*811	-	-
Mov Cap-2 Maneuver	-	-	-	*181	*181	-	-	-	-	-	-	-
Stage 1	-	-	-	*324	*305	-	-	-	-	-	-	-
Stage 2	-	-	-	*346	*384	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.8	25.3	0.9	0
HCM LOS	B	D		

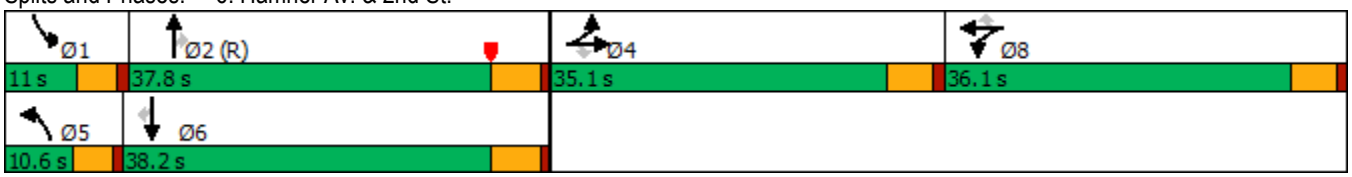
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 696	-	-	465	181	* 811	-	-
HCM Lane V/C Ratio	0.166	-	-	0.211	0.023	0.001	-	-
HCM Control Delay (s)	11.2	-	-	14.8	25.3	9.4	-	-
HCM Lane LOS	B	-	-	B	D	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.8	0.1	0	-	-

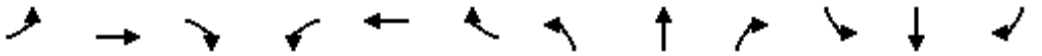
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	688	94	222	397	406	101	787	440	542	884	204
Future Volume (vph)	227	688	94	222	397	406	101	787	440	542	884	204
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-0.6	-1.4	-1.4	-0.6	-1.4	-1.4
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	31.1	31.1	31.1	25.5	25.5	25.5	11.2	33.8	33.8	13.6	36.3	36.3
Actuated g/C Ratio	0.26	0.26	0.26	0.21	0.21	0.21	0.09	0.28	0.28	0.11	0.30	0.30
v/c Ratio	0.50	0.83	0.20	0.60	0.60	0.77	0.63	0.81	0.62	2.77	0.84	0.35
Control Delay	42.8	51.2	5.8	35.2	31.3	22.0	70.9	47.4	9.7	823.4	56.6	23.1
Queue Delay	0.0	56.3	0.0	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	42.8	107.5	5.8	35.2	31.3	22.2	70.9	47.4	10.2	823.4	56.6	23.1
LOS	D	F	A	D	C	C	E	D	B	F	E	C
Approach Delay		84.9			28.4			36.9			307.4	
Approach LOS		F			C			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.77	
Intersection Signal Delay: 133.2	Intersection LOS: F
Intersection Capacity Utilization 105.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	688	94	222	397	406	101	787	440	542	884	204
Future Volume (veh/h)	227	688	94	222	397	406	101	787	440	542	884	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	702	50	211	428	205	103	803	288	553	902	147
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	969	407	320	673	285	98	1312	577	104	1324	590
Arrive On Green	0.26	0.26	0.26	0.12	0.12	0.12	0.06	0.37	0.37	0.02	0.12	0.12
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1563	1781	3554	1582
Grp Volume(v), veh/h	232	702	50	211	428	205	103	803	288	553	902	147
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1563	1781	1777	1582
Q Serve(g_s), s	13.3	20.5	2.9	13.6	13.1	14.9	6.6	22.1	17.1	7.0	29.2	10.1
Cycle Q Clear(g_c), s	13.3	20.5	2.9	13.6	13.1	14.9	6.6	22.1	17.1	7.0	29.2	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	462	969	407	320	673	285	98	1312	577	104	1324	590
V/C Ratio(X)	0.50	0.72	0.12	0.66	0.64	0.72	1.05	0.61	0.50	5.32	0.68	0.25
Avail Cap(c_a), veh/h	462	969	407	476	1001	424	98	1312	577	104	1324	590
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	40.5	34.0	49.3	49.0	49.9	56.7	30.8	29.3	58.8	45.8	37.4
Incr Delay (d2), s/veh	3.9	4.7	0.6	2.1	0.9	3.1	105.5	2.1	3.1	1966.0	1.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	10.0	1.2	6.4	6.4	6.4	5.8	9.6	6.7	60.0	14.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	45.2	34.6	51.4	49.9	53.0	162.2	33.0	32.3	2024.8	47.2	37.7
LnGrp LOS	D	D	C	D	D	D	F	C	C	F	D	D
Approach Vol, veh/h		984			844			1194			1602	
Approach Delay, s/veh		43.9			51.0			44.0			729.0	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	48.3		35.1	10.6	48.7		25.6				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	9.0	24.1		22.5	8.6	31.2		16.9				
Green Ext Time (p_c), s	0.0	3.9		3.3	0.0	1.0		3.5				

Intersection Summary		
HCM 6th Ctrl Delay		282.6
HCM 6th LOS		F

Notes

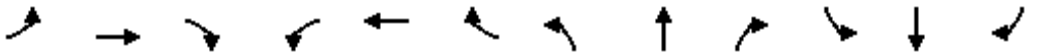
User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	933	183	846	5	291
Future Volume (vph)	933	183	846	5	291
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.6	-0.5	-0.6	-1.3	-1.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	75.1	17.3	96.4	15.6	15.6
Actuated g/C Ratio	0.63	0.14	0.80	0.13	0.13
v/c Ratio	0.82	0.73	0.30	0.64	0.74
Control Delay	26.3	31.2	0.4	67.7	24.0
Queue Delay	47.7	0.0	0.2	0.0	0.0
Total Delay	74.0	31.2	0.6	67.7	24.0
LOS	E	C	A	E	C
Approach Delay	74.0		6.1	34.5	
Approach LOS	E		A	C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 47.0 — Intersection LOS: D
Intersection Capacity Utilization 80.6% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	933	801	183	846	0	0	0	0	87	5	291
Future Volume (veh/h)	0	933	801	183	846	0	0	0	0	87	5	291
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	952	662	187	863	0				89	5	205
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1269	839	222	2763	0				264	15	247
Arrive On Green	0.00	0.62	0.61	0.12	0.78	0.00				0.16	0.16	0.16
Sat Flow, veh/h	0	2142	1355	1781	3647	0				1691	95	1585
Grp Volume(v), veh/h	0	819	795	187	863	0				94	0	205
Grp Sat Flow(s),veh/h/ln	0	1777	1627	1781	1777	0				1786	0	1585
Q Serve(g_s), s	0.0	39.1	43.8	12.3	8.6	0.0				5.6	0.0	15.0
Cycle Q Clear(g_c), s	0.0	39.1	43.8	12.3	8.6	0.0				5.6	0.0	15.0
Prop In Lane	0.00		0.83	1.00		0.00				0.95		1.00
Lane Grp Cap(c), veh/h	0	1101	1008	222	2763	0				278	0	247
V/C Ratio(X)	0.00	0.74	0.79	0.84	0.31	0.00				0.34	0.00	0.83
Avail Cap(c_a), veh/h	0	1101	1008	341	2763	0				372	0	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.71	0.71	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.1	17.2	51.4	3.9	0.0				45.1	0.0	49.1
Incr Delay (d2), s/veh	0.0	0.4	0.6	4.9	0.2	0.0				0.3	0.0	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.7	15.2	5.7	2.5	0.0				2.5	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.5	17.8	56.2	4.1	0.0				45.4	0.0	58.6
LnGrp LOS	A	B	B	E	A	A				D	A	E
Approach Vol, veh/h		1614			1050						299	
Approach Delay, s/veh		17.2			13.4						54.5	
Approach LOS		B			B						D	

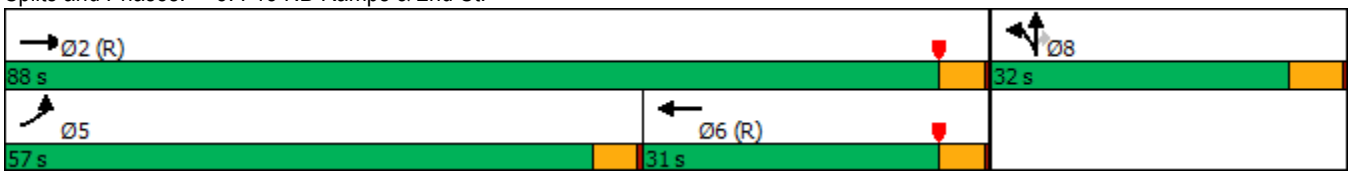
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.9	78.3		22.7		97.3						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	14.3	45.8		17.0		10.6						
Green Ext Time (p_c), s	0.2	6.9		0.4		4.4						

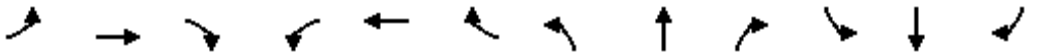
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	622	397	450	577	38	399
Future Volume (vph)	622	397	450	577	38	399
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	57.0	88.0	31.0	32.0	32.0	32.0
Total Split (%)	47.5%	73.3%	25.8%	26.7%	26.7%	26.7%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.5	-0.6	-0.6	-1.3	-1.3	-1.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	48.2	85.4	33.2	26.6	26.6	26.6
Actuated g/C Ratio	0.40	0.71	0.28	0.22	0.22	0.22
v/c Ratio	0.90	0.16	0.53	0.85	0.85	0.61
Control Delay	31.5	4.7	40.2	65.5	65.8	8.0
Queue Delay	5.9	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	4.7	40.2	65.5	65.8	8.0
LOS	D	A	D	E	E	A
Approach Delay		24.7	40.2		43.0	
Approach LOS		C	D		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 35.1	Intersection LOS: D
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	622	397	0	0	450	51	577	38	399	0	0	0
Future Volume (veh/h)	622	397	0	0	450	51	577	38	399	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	641	409	0	0	464	41	623	0	232			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	688	2586	0	0	1015	89	732	0	326			
Arrive On Green	0.13	0.24	0.00	0.00	0.31	0.30	0.21	0.00	0.21			
Sat Flow, veh/h	1781	3647	0	0	3390	290	3563	0	1585			
Grp Volume(v), veh/h	641	409	0	0	249	256	623	0	232			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1810	1781	0	1585			
Q Serve(g_s), s	42.8	10.9	0.0	0.0	13.5	13.7	20.2	0.0	16.3			
Cycle Q Clear(g_c), s	42.8	10.9	0.0	0.0	13.5	13.7	20.2	0.0	16.3			
Prop In Lane	1.00		0.00	0.00		0.16	1.00		1.00			
Lane Grp Cap(c), veh/h	688	2586	0	0	547	557	732	0	326			
V/C Ratio(X)	0.93	0.16	0.00	0.00	0.46	0.46	0.85	0.00	0.71			
Avail Cap(c_a), veh/h	787	2586	0	0	547	557	831	0	370			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.47	0.47	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	50.8	16.6	0.0	0.0	33.4	33.5	45.9	0.0	44.4			
Incr Delay (d2), s/veh	8.9	0.1	0.0	0.0	2.7	2.7	7.3	0.0	4.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	22.1	5.0	0.0	0.0	6.2	6.4	9.4	0.0	6.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	16.6	0.0	0.0	36.1	36.2	53.2	0.0	49.3			
LnGrp LOS	E	B	A	A	D	D	D	A	D			
Approach Vol, veh/h		1050			505			855				
Approach Delay, s/veh		42.9			36.2			52.1				
Approach LOS		D			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.3			50.4	41.0		28.7				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		83.4			52.5	26.4		26.7				
Max Q Clear Time (g_c+I1), s		12.9			44.8	15.7		22.2				
Green Ext Time (p_c), s		1.8			1.1	1.4		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 6.3:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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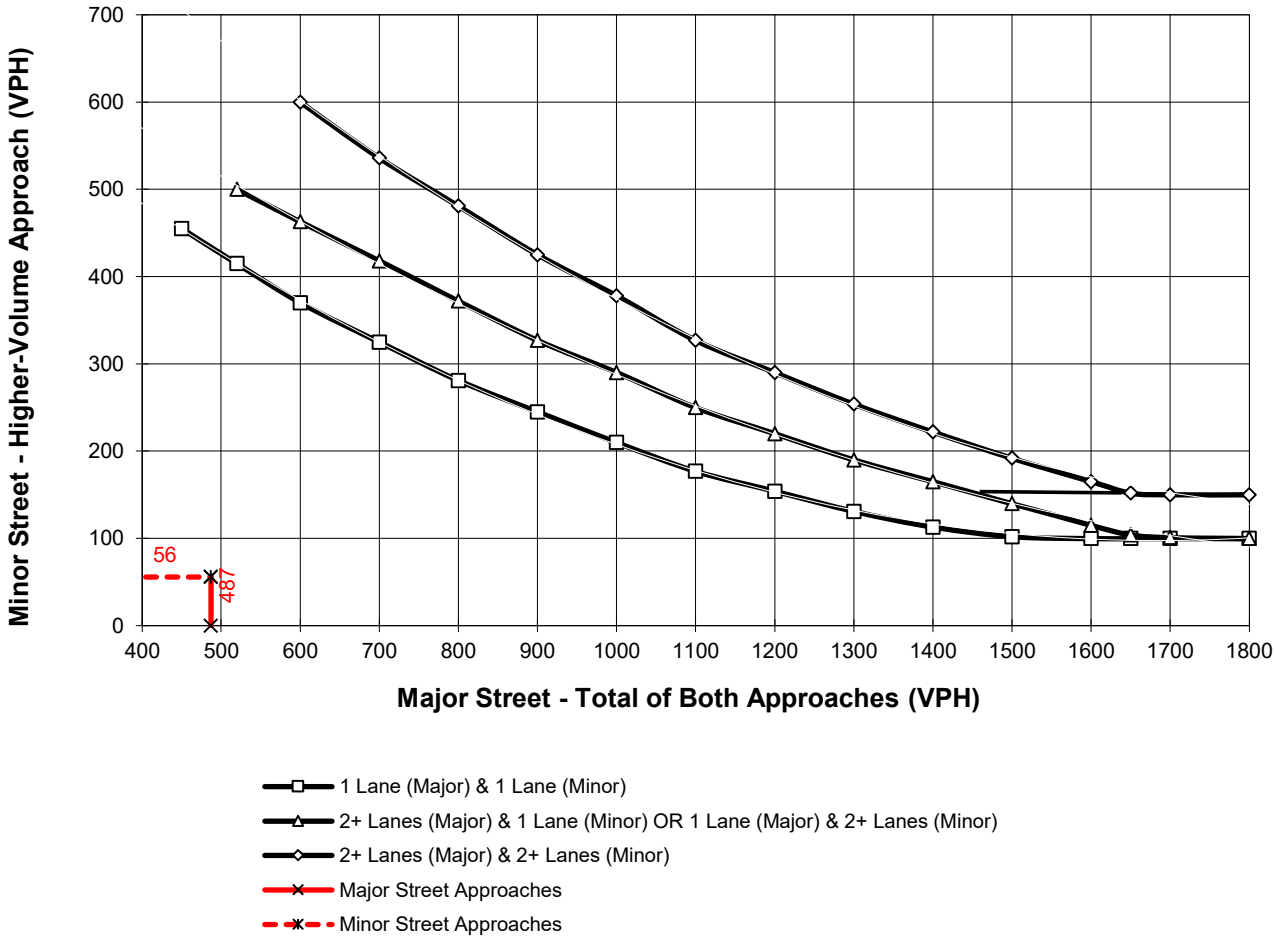
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2023) Without Project Conditions - Weekday PM Peak Hou**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **487**
Number of Approach Lanes on Major Street = **3**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **56**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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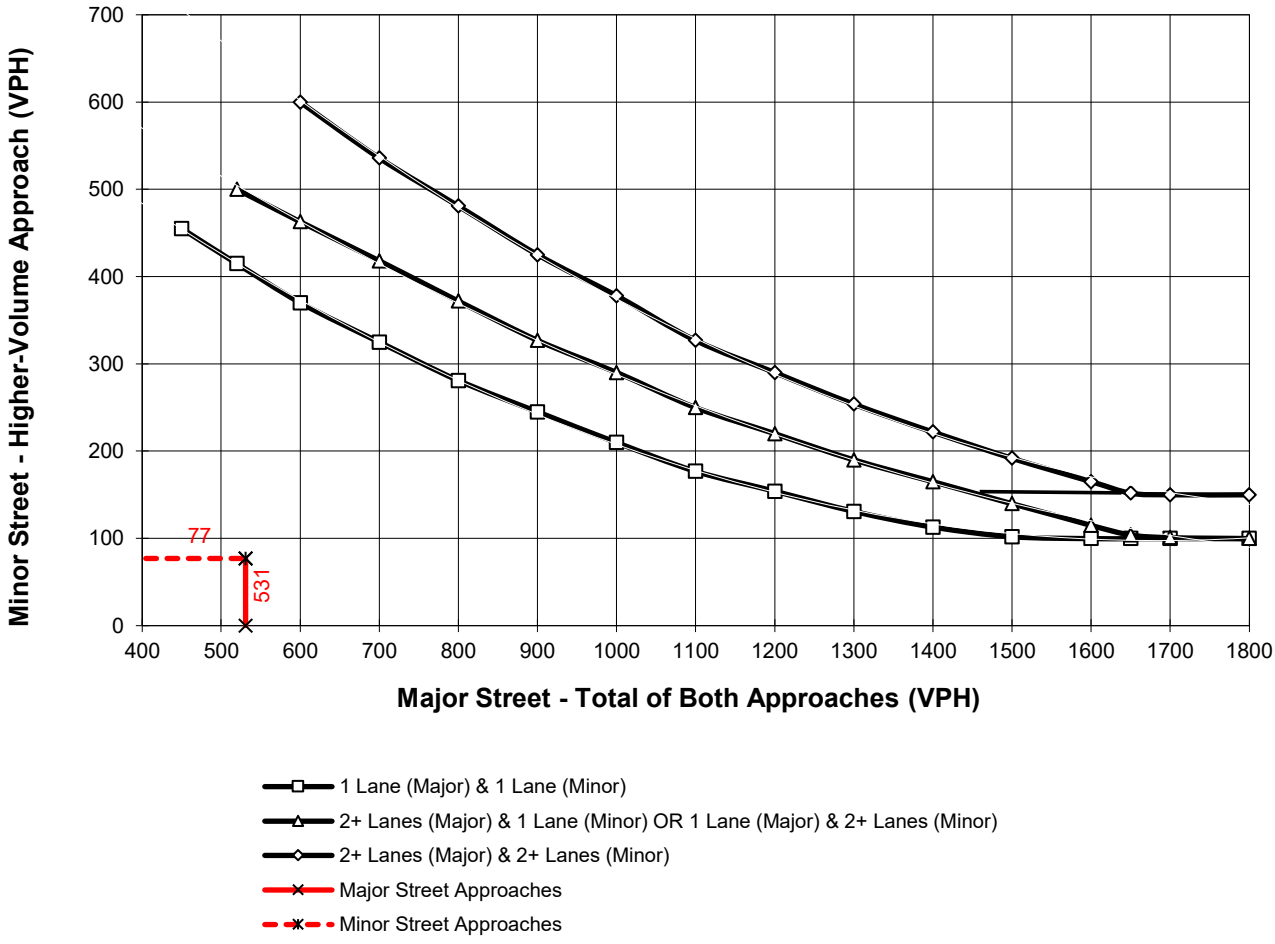
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Opening Year Cumulative (2023) With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **531**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **77**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.5:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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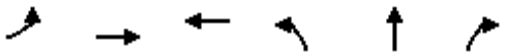
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	982	277	1251	76	502
v/c Ratio	0.71	0.87	0.59	0.14	0.93
Control Delay	29.5	51.5	6.9	28.6	60.7
Queue Delay	0.5	0.0	0.6	0.0	0.0
Total Delay	30.0	51.5	7.5	28.6	60.7
Queue Length 50th (ft)	291	229	140	41	330
Queue Length 95th (ft)	386	#329	162	76	#519
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1383	361	2132	617	587
Starvation Cap Reductn	110	0	452	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.77	0.74	0.12	0.86

Intersection Summary

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



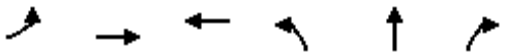
Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	209	421	738	486	491	454
v/c Ratio	0.76	0.21	0.56	0.83	0.84	0.57
Control Delay	36.2	6.3	33.3	48.3	48.8	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	6.3	33.3	48.3	48.8	7.9
Queue Length 50th (ft)	103	52	237	351	356	36
Queue Length 95th (ft)	m121	67	343	472	477	119
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	361	2014	1307	668	670	860
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	0.58	0.21	0.56	0.73	0.73	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1712	187	818	94	270
v/c Ratio	0.77	0.75	0.28	0.57	0.74
Control Delay	16.8	52.9	0.5	65.0	21.2
Queue Delay	8.5	0.0	0.0	0.0	0.0
Total Delay	25.4	52.9	0.5	65.0	21.2
Queue Length 50th (ft)	388	74	0	71	19
Queue Length 95th (ft)	647	65	0	121	103
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	2221	331	2920	351	508
Starvation Cap Reductn	488	0	0	0	0
Spillback Cap Reductn	104	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.99	0.56	0.28	0.27	0.53

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	620	395	498	301	306	411
v/c Ratio	0.90	0.16	0.52	0.83	0.84	0.62
Control Delay	35.1	6.3	40.5	63.9	64.6	8.1
Queue Delay	5.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	6.3	40.5	63.9	64.6	8.1
Queue Length 50th (ft)	443	68	176	229	233	0
Queue Length 95th (ft)	578	m48	247	#355	#365	86
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	774	2481	961	402	405	691
Starvation Cap Reductn	101	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	0.92	0.16	0.52	0.75	0.76	0.59

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 6.6:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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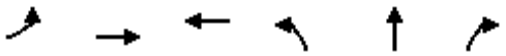
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1046	277	1289	76	522
v/c Ratio	0.77	0.88	0.61	0.13	0.95
Control Delay	36.8	51.5	7.3	28.1	62.6
Queue Delay	1.5	0.0	0.7	0.0	0.0
Total Delay	38.4	51.5	8.0	28.1	62.6
Queue Length 50th (ft)	379	229	151	40	347
Queue Length 95th (ft)	m364	#342	170	76	#556
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1359	346	2096	617	585
Starvation Cap Reductn	156	0	438	0	0
Spillback Cap Reductn	0	0	79	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.87	0.80	0.78	0.12	0.89

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	NBL	NBT	NBR
Lane Group Flow (vph)	234	437	756	496	501	454
v/c Ratio	0.77	0.22	0.61	0.84	0.85	0.57
Control Delay	27.4	6.1	35.9	48.9	49.5	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	6.1	35.9	48.9	49.5	8.7
Queue Length 50th (ft)	99	48	253	358	364	44
Queue Length 95th (ft)	m121	73	#386	485	491	131
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	405	2003	1242	668	670	850
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	0.58	0.22	0.61	0.74	0.75	0.53

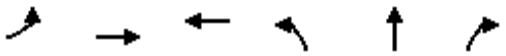
Intersection Summary

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	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1769	187	863	94	297
v/c Ratio	0.82	0.73	0.30	0.64	0.74
Control Delay	26.3	31.2	0.4	67.7	24.0
Queue Delay	47.7	0.0	0.2	0.0	0.0
Total Delay	74.0	31.2	0.6	67.7	24.0
Queue Length 50th (ft)	695	39	0	70	50
Queue Length 95th (ft)	m597	10	0	121	141
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	2157	339	2842	236	509
Starvation Cap Reductn	709	0	1030	0	0
Spillback Cap Reductn	162	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.55	0.48	0.40	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	641	409	517	315	319	411
v/c Ratio	0.90	0.16	0.53	0.85	0.85	0.61
Control Delay	31.5	4.7	40.2	65.5	65.8	8.0
Queue Delay	5.9	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	4.7	40.2	65.5	65.8	8.0
Queue Length 50th (ft)	515	56	183	244	247	0
Queue Length 95th (ft)	563	m33	250	#393	#397	86
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	781	2518	969	392	395	684
Starvation Cap Reductn	97	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	0.94	0.16	0.53	0.80	0.81	0.60

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 6.7:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6547	7161	0.91	58.2	37.5	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6547	590	7200	2100	0.91	0.28	63.9	60.2	34.2	34.7	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5957	7161	0.83	62.2	31.9	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6768	811	9600	2100	0.62	0.39	69.0	-	21.6	-	C

Segment 5: Basic

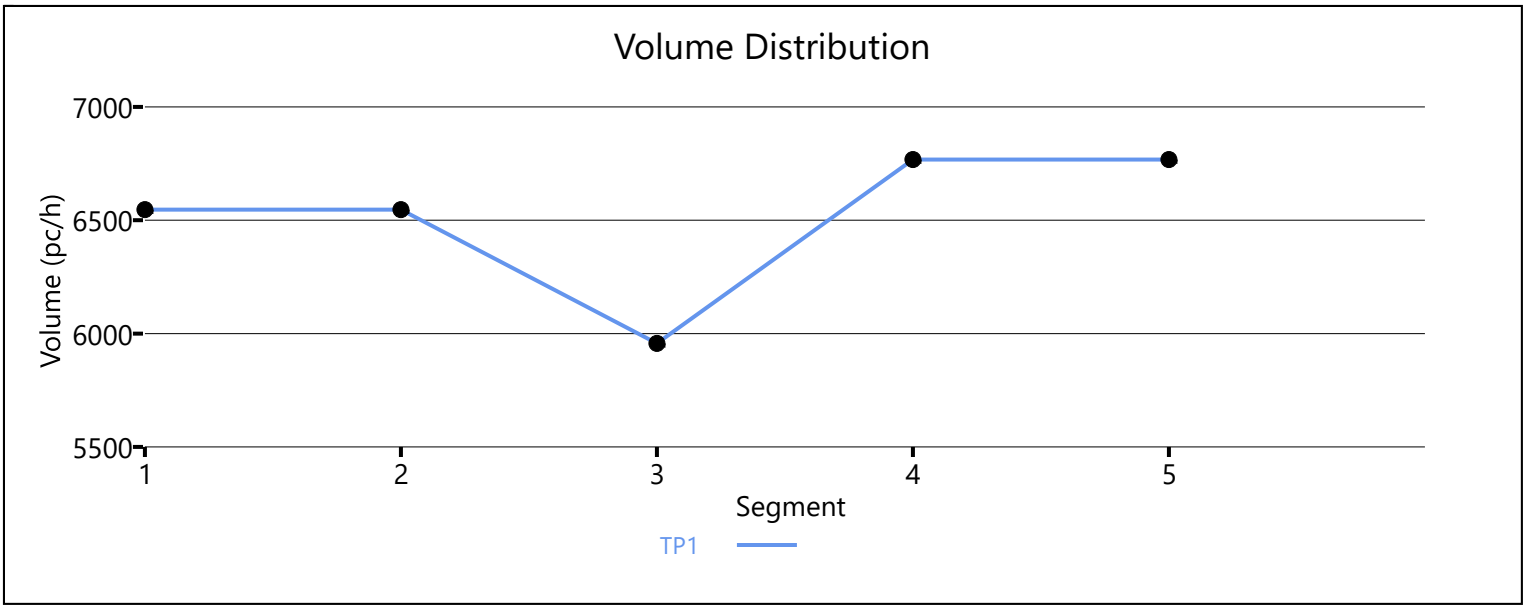
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6768	11935	0.57	68.6	19.7	C

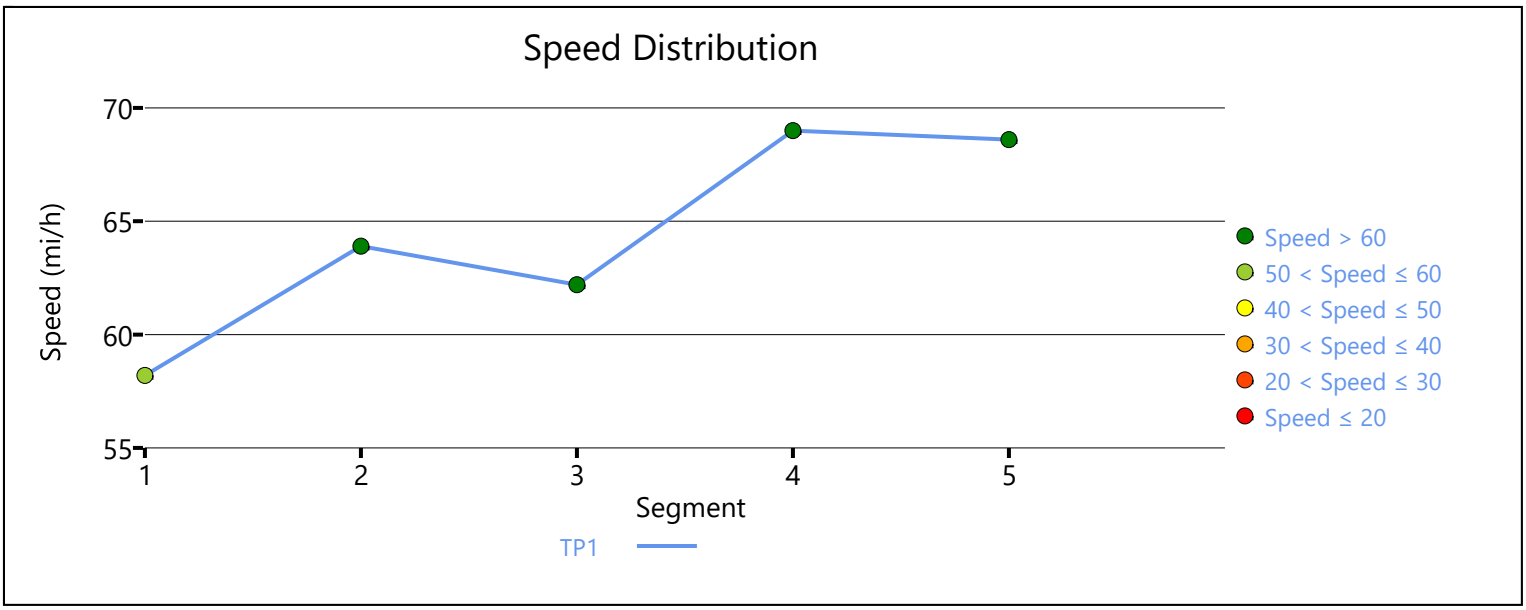
Facility Time Period Results

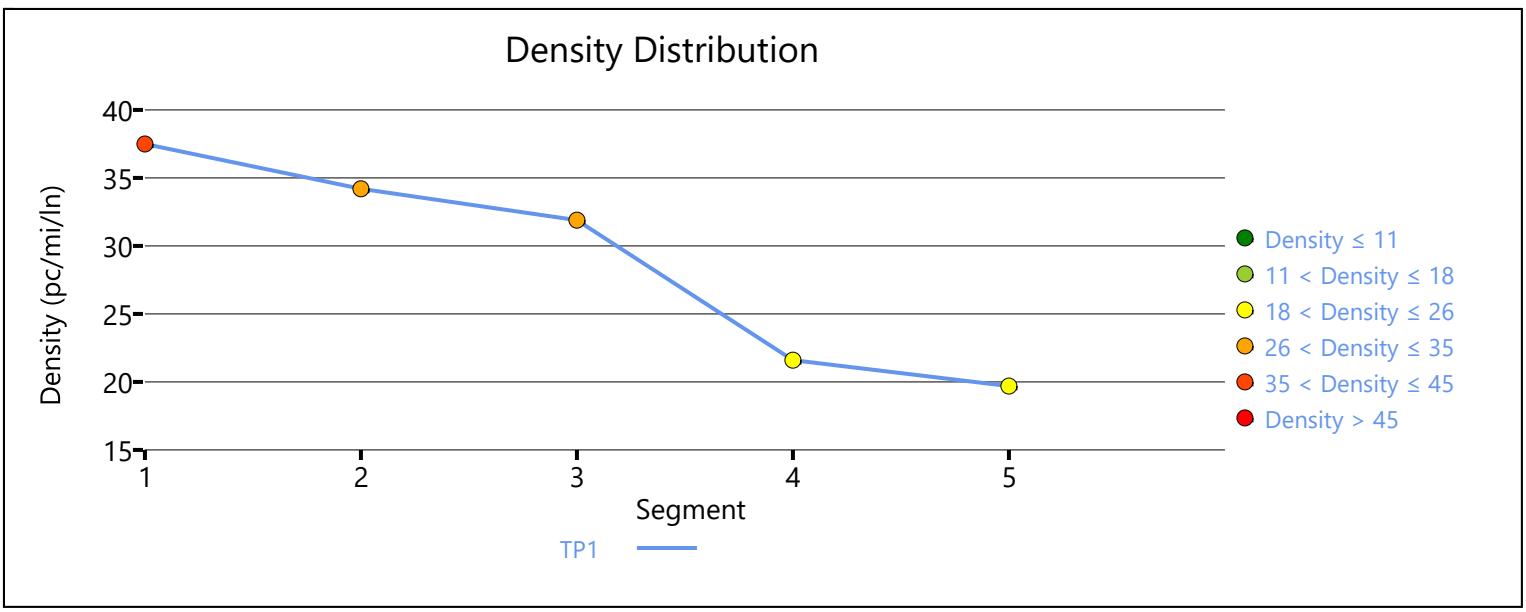
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	61.5	31.4	29.7	2.5	D

Facility Overall Results

Space Mean Speed, mi/h	61.5	Density, veh/mi/ln	29.7
Average Travel Time, min	2.5	Density, pc/mi/ln	31.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	9256	11935	0.78	64.3	28.8	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8273	1451	12000	4200	0.77	0.35	25.9	-	63.8	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6362	9548	0.81	19.1	83.1	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.926	6668	343	7200	2100	1.13	0.16	40.1	37.9	55.4	43.7	F

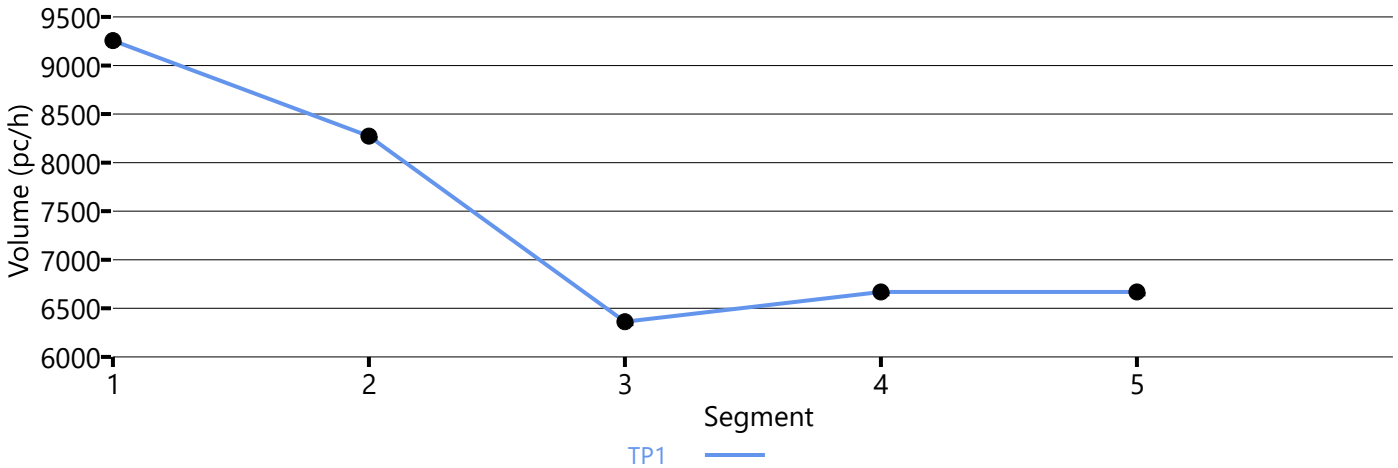
Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.13	57.9	38.4	F

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	36.3	53.3	51.3	4.5	F

Facility Overall Results			
Space Mean Speed, mi/h	36.3	Density, veh/mi/ln	51.3
Average Travel Time, min	4.5	Density, pc/mi/ln	53.3

Volume Distribution



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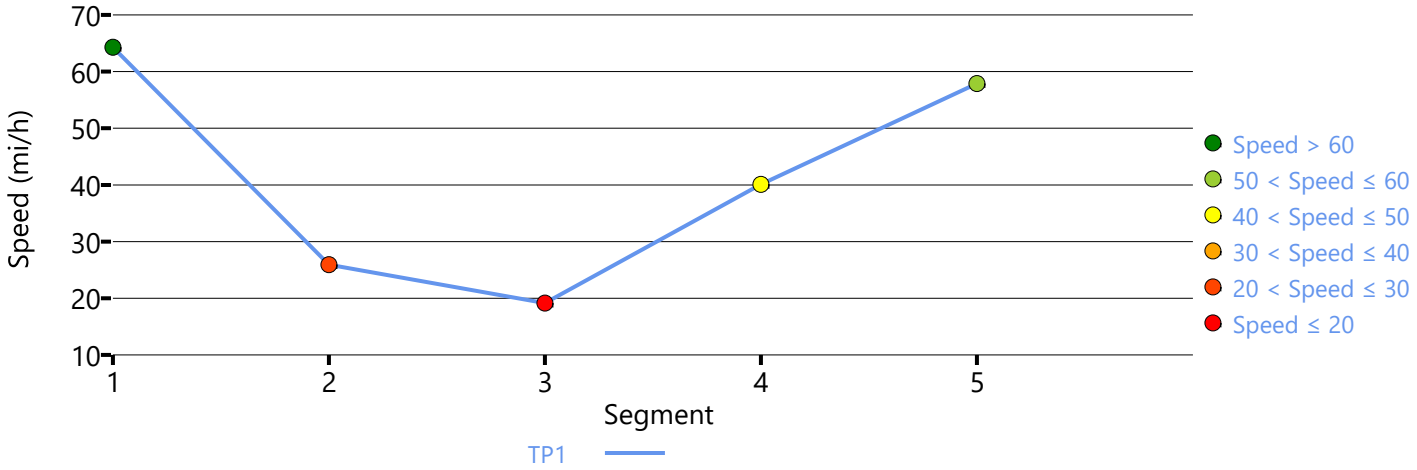
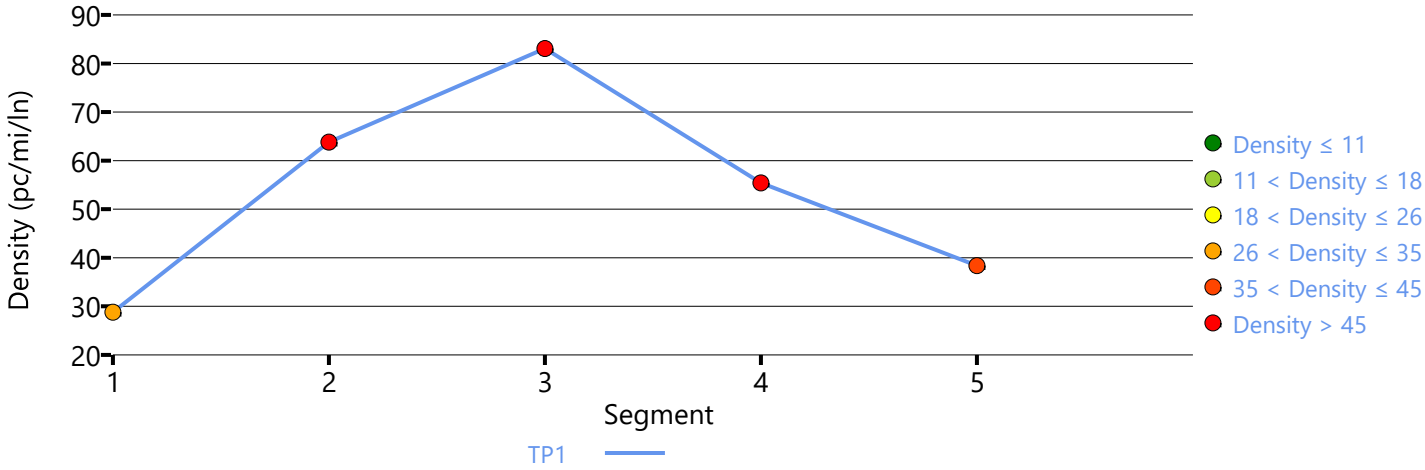


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6501	7161	0.91	58.5	37.0	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.962	6501	390	7200	2100	0.90	0.19	64.3	60.7	33.7	34.3	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6107	7161	0.85	61.2	33.3	D

Segment 4: Merge

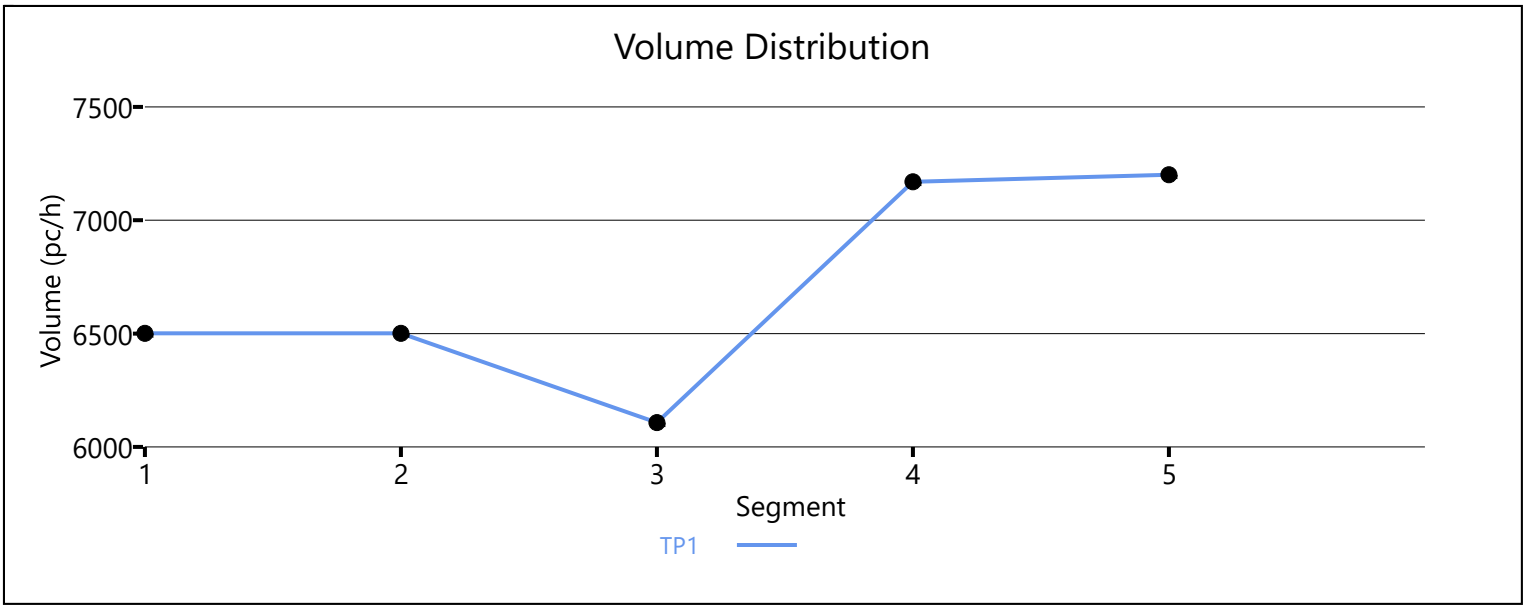
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.980	7170	1063	9600	2100	0.64	0.51	68.8	-	22.2	-	C

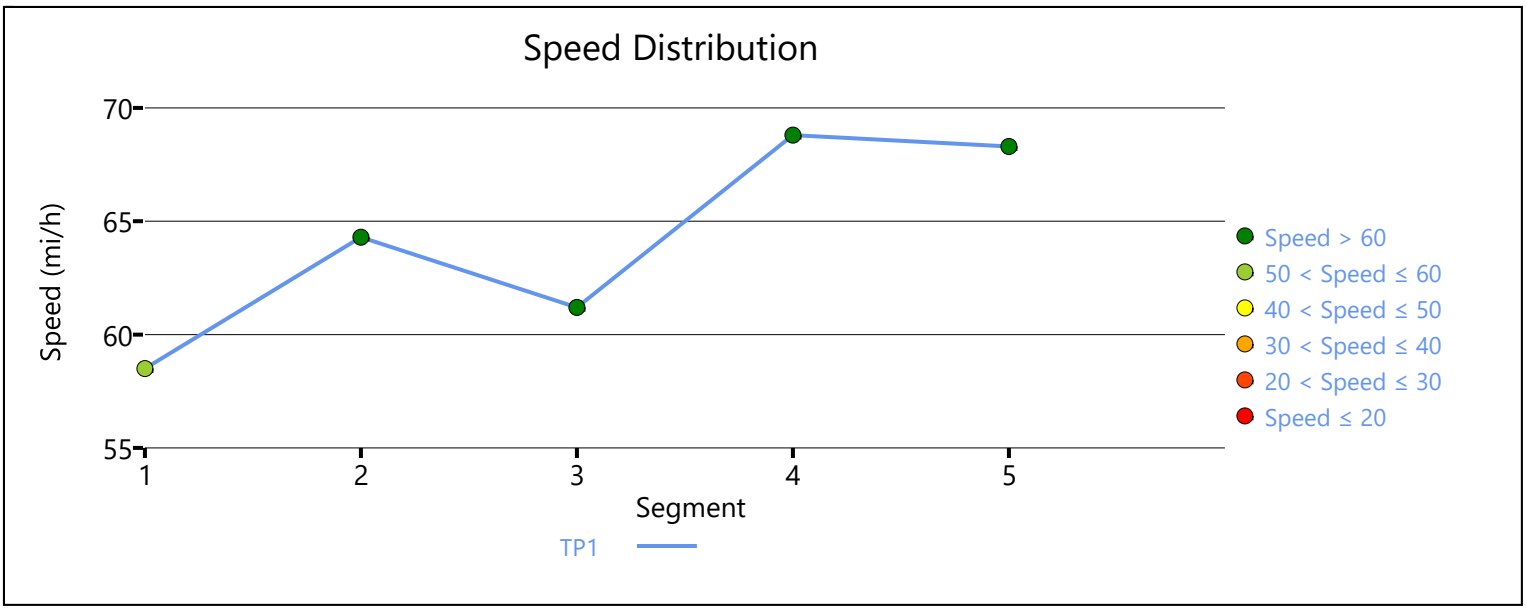
Segment 5: Basic

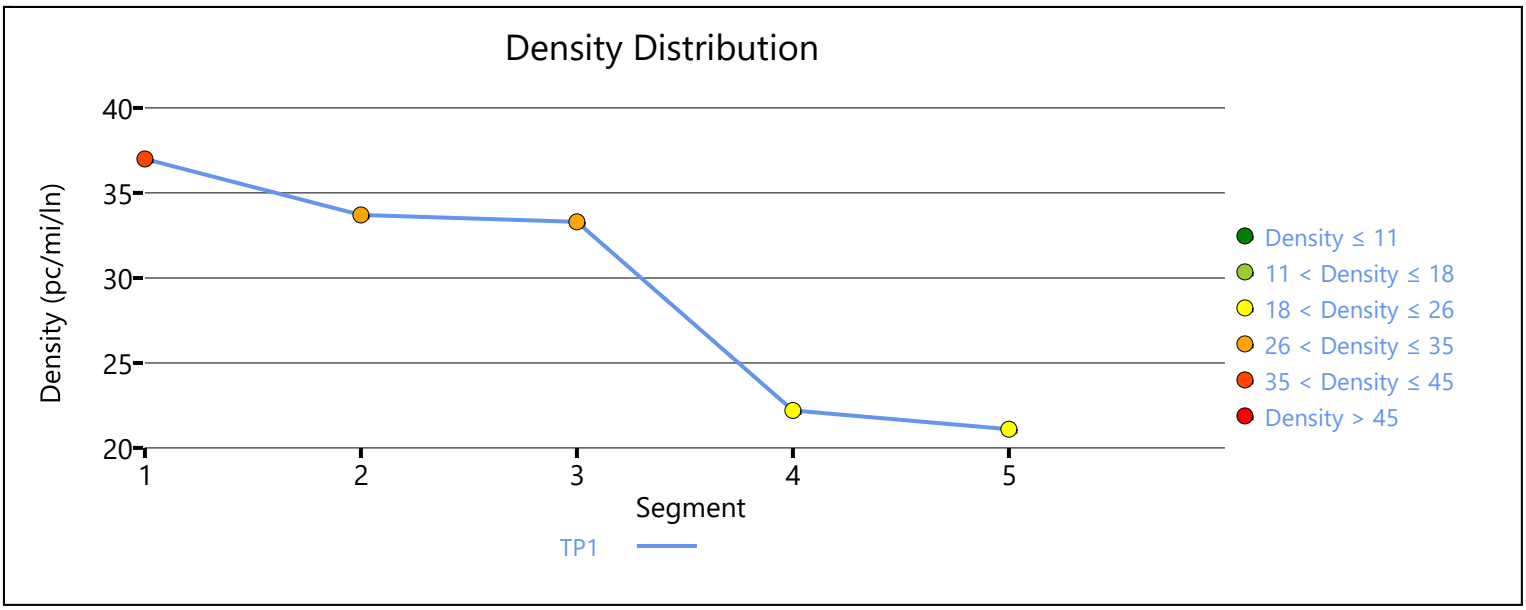
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7201	11935	0.60	68.3	21.1	C

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	61.6	31.6	30.1	2.5	D

Facility Overall Results			
Space Mean Speed, mi/h	61.6	Density, veh/mi/ln	30.1
Average Travel Time, min	2.5	Density, pc/mi/ln	31.6







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6727	11935	0.56	68.6	19.6	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	6727	1104	12000	4200	0.56	0.26	69.8	-	19.3	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5601	9548	0.59	68.4	20.5	C

Segment 4: Merge

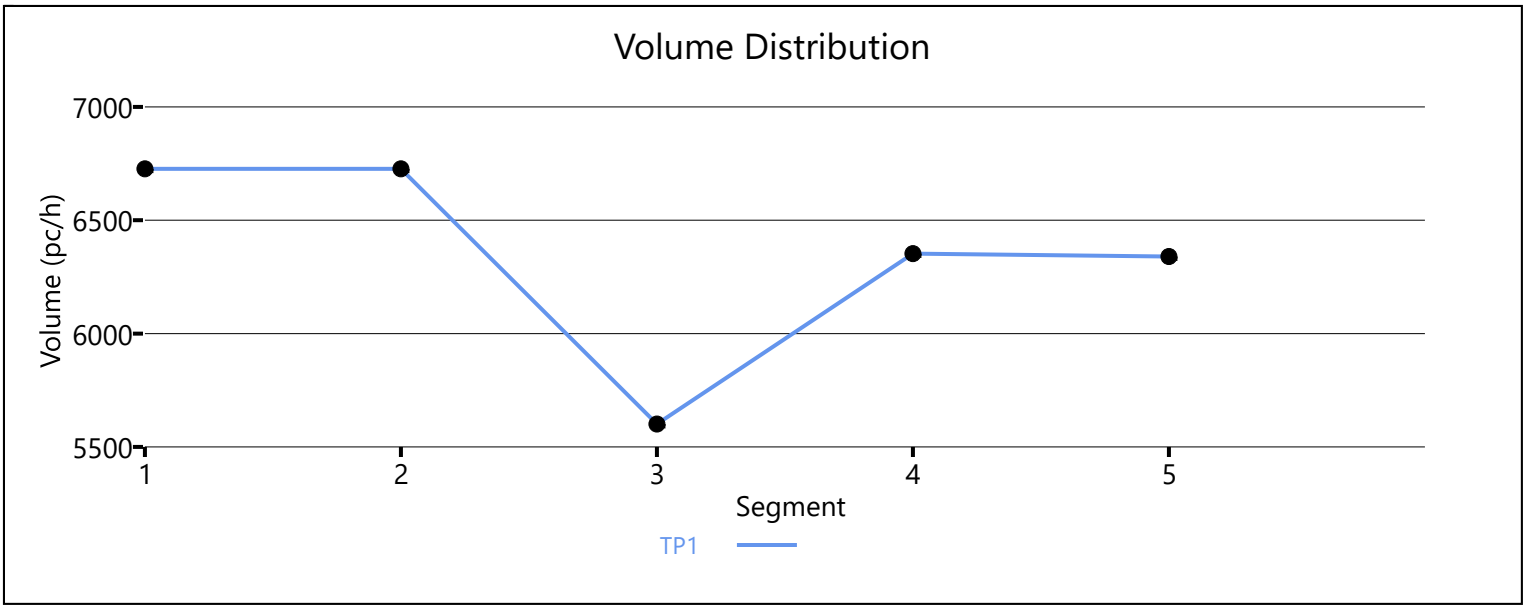
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.935	6353	752	7200	2100	0.88	0.36	58.6	56.1	36.1	33.1	D

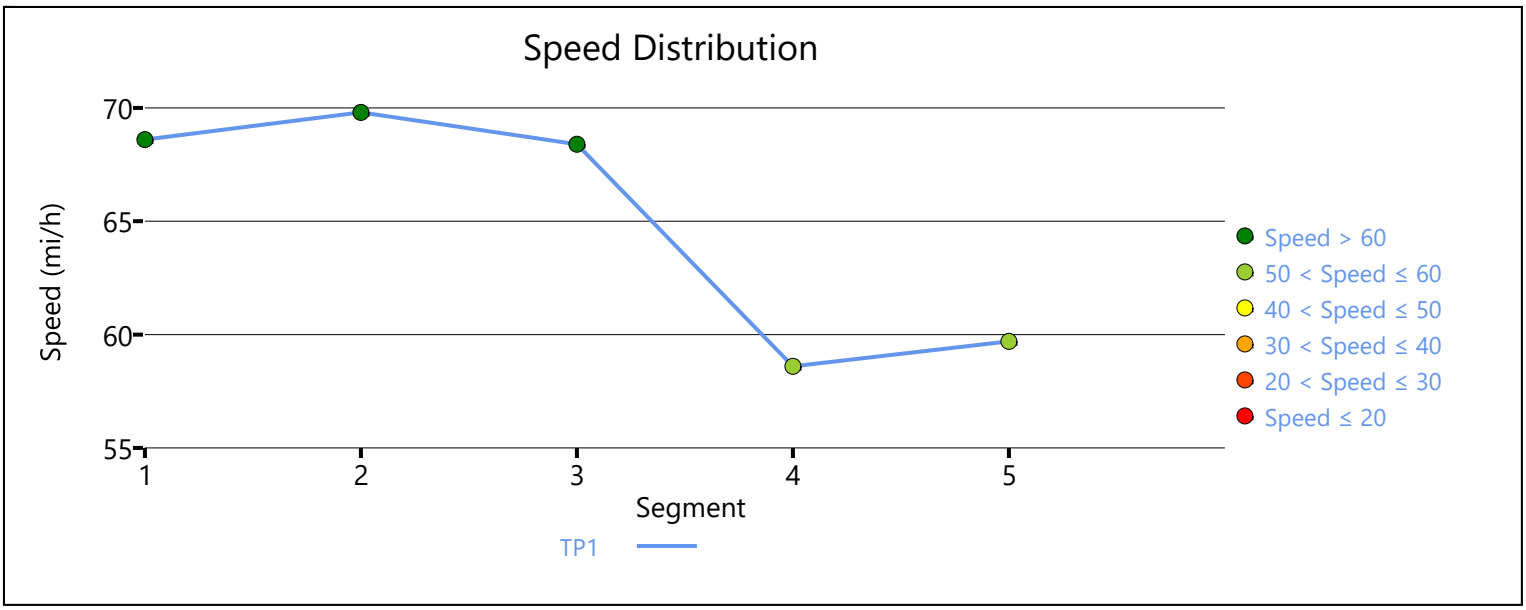
Segment 5: Basic

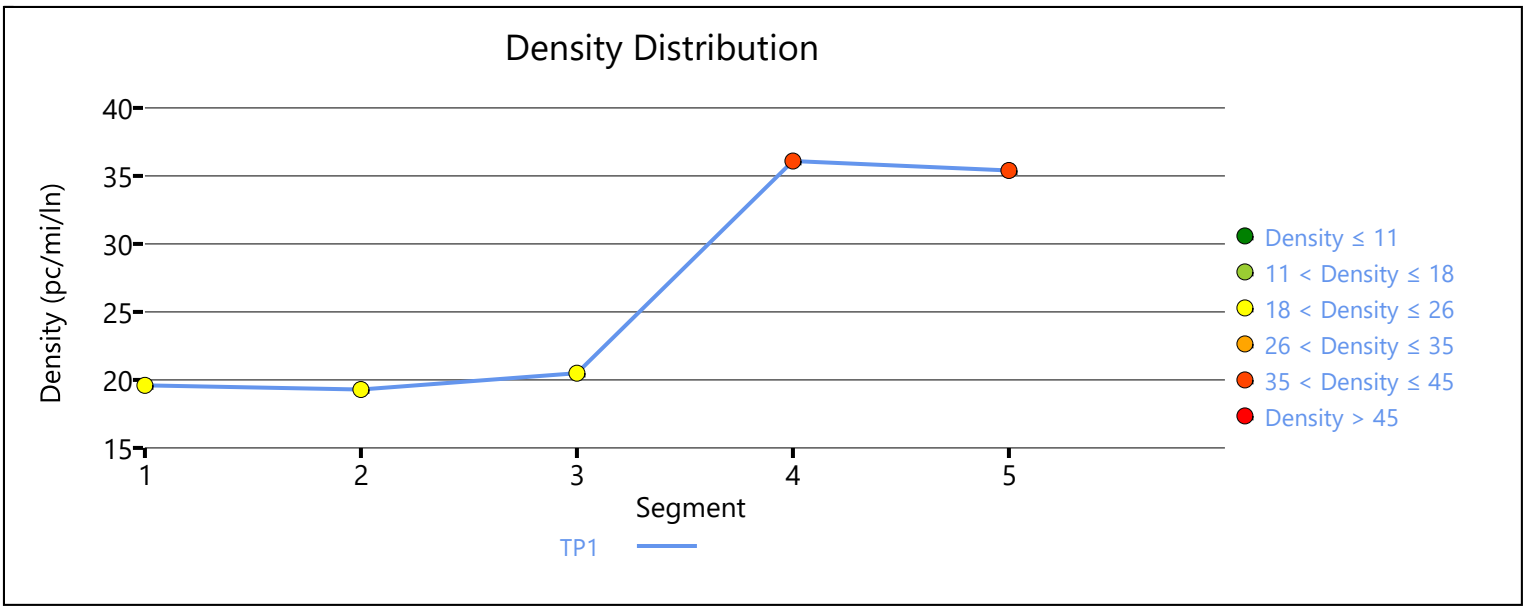
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6340	7161	0.89	59.7	35.4	E

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	63.0	27.5	26.2	2.6	D

Facility Overall Results			
Space Mean Speed, mi/h	63.0	Density, veh/mi/ln	26.2
Average Travel Time, min	2.6	Density, pc/mi/ln	27.5







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APPENDIX 6.8:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6569	7161	0.92	58.0	37.8	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6569	612	7200	2100	0.91	0.29	63.8	60.1	34.3	34.8	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5957	7161	0.83	62.2	31.9	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6795	838	9600	2100	0.62	0.40	69.0	-	21.6	-	C

Segment 5: Basic

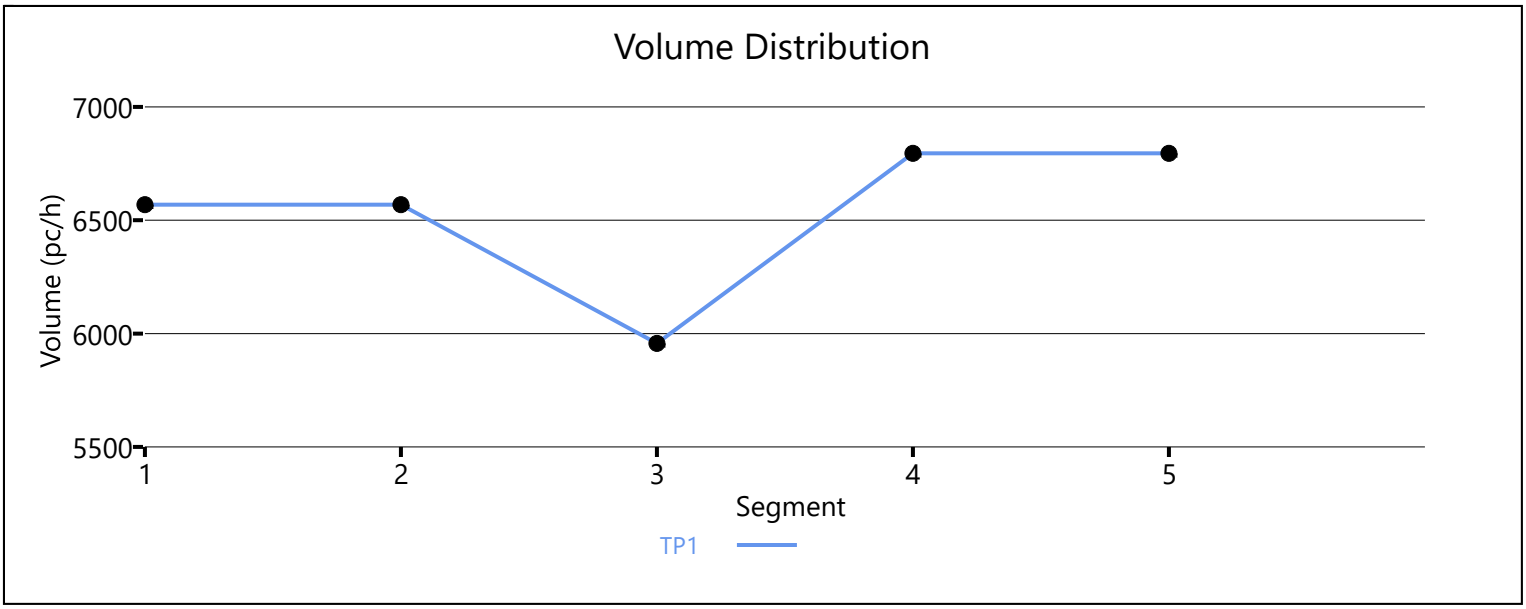
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6795	11935	0.57	68.6	19.8	C

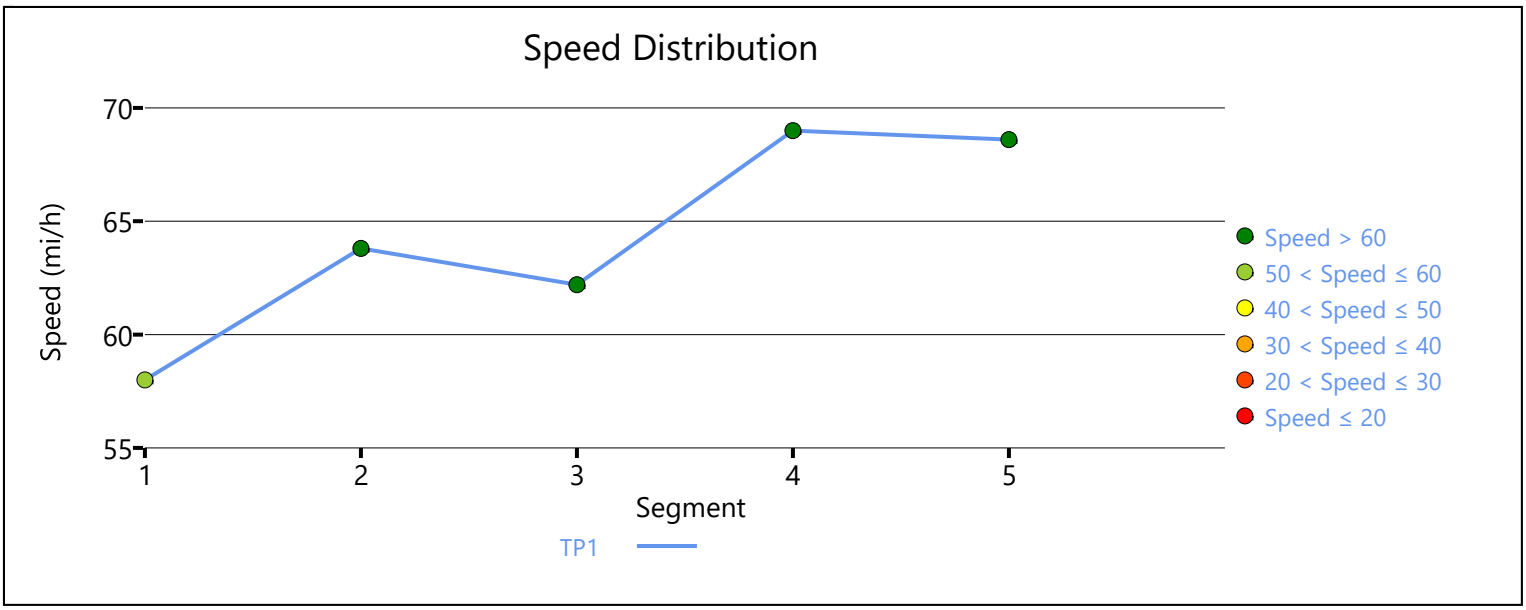
Facility Time Period Results

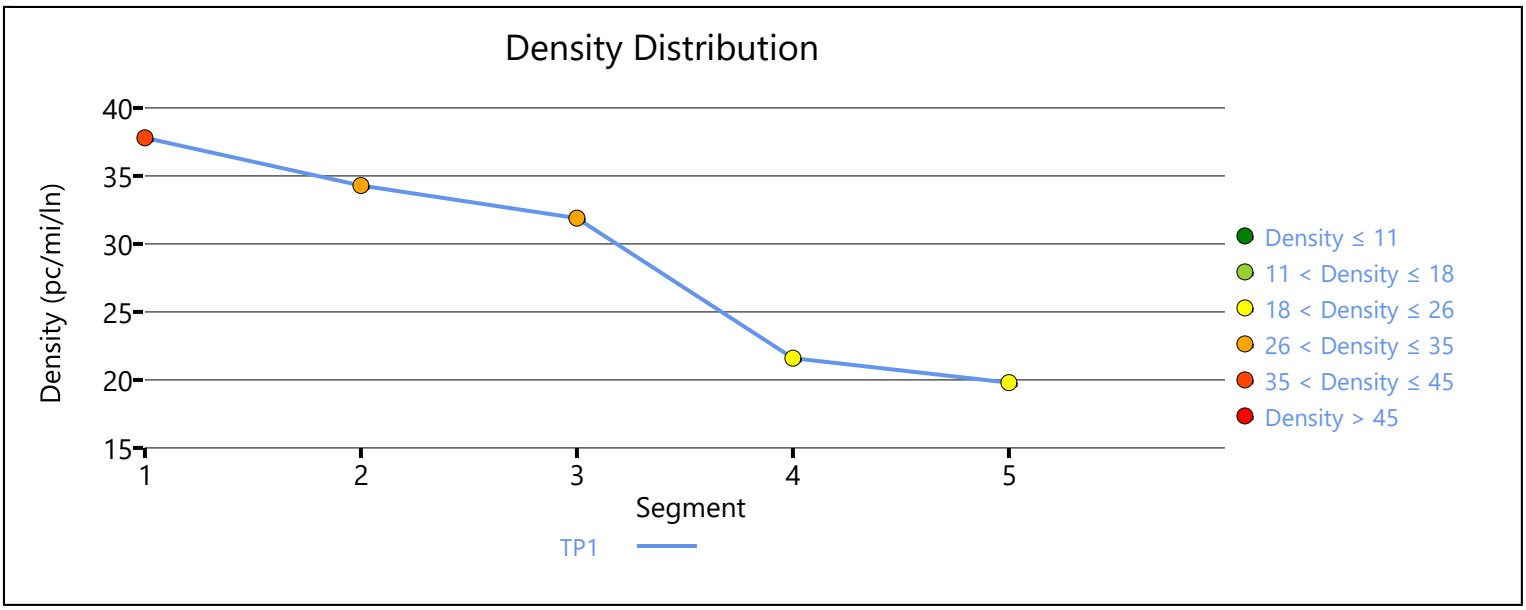
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	61.4	31.6	29.8	2.5	D

Facility Overall Results

Space Mean Speed, mi/h	61.4	Density, veh/mi/ln	29.8
Average Travel Time, min	2.5	Density, pc/mi/ln	31.6







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	9278	11935	0.78	64.3	28.9	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8273	1472	12000	4200	0.77	0.35	25.7	-	64.3	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6339	9548	0.81	19.0	83.5	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.935	6668	366	7200	2100	1.13	0.17	40.1	37.3	55.4	43.9	F

Segment 5: Basic

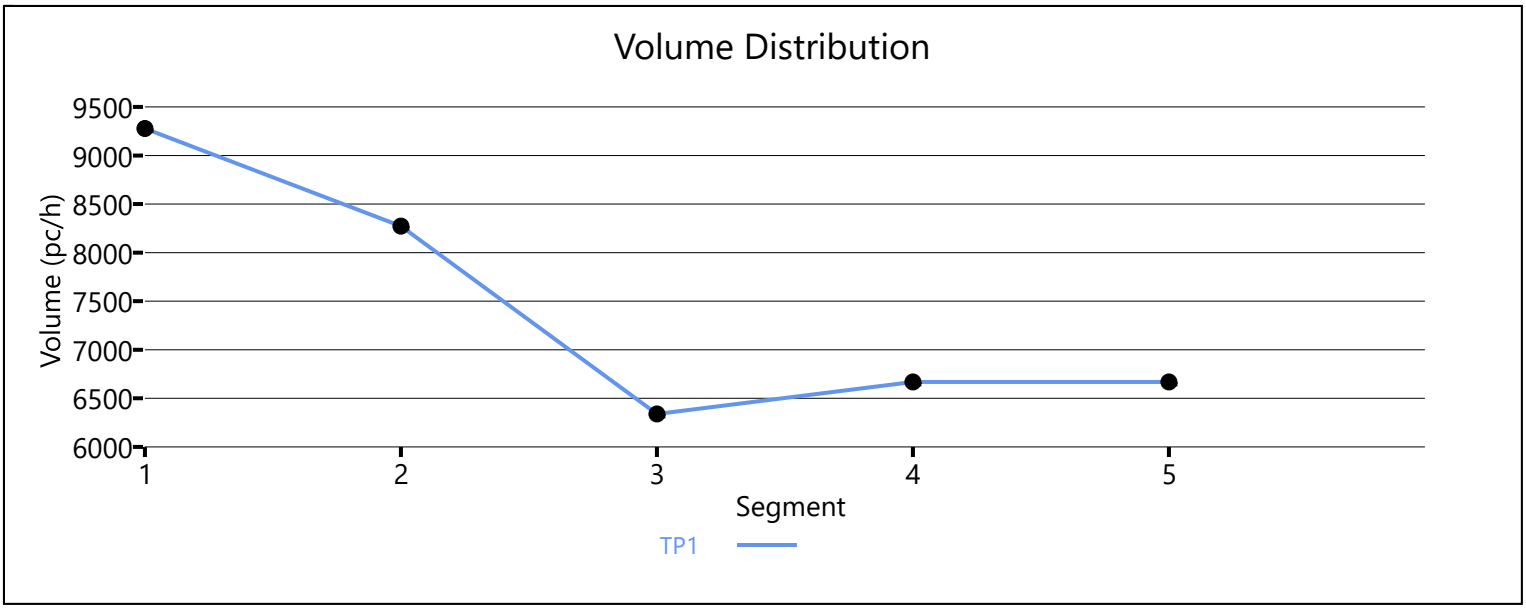
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.14	57.9	38.4	F

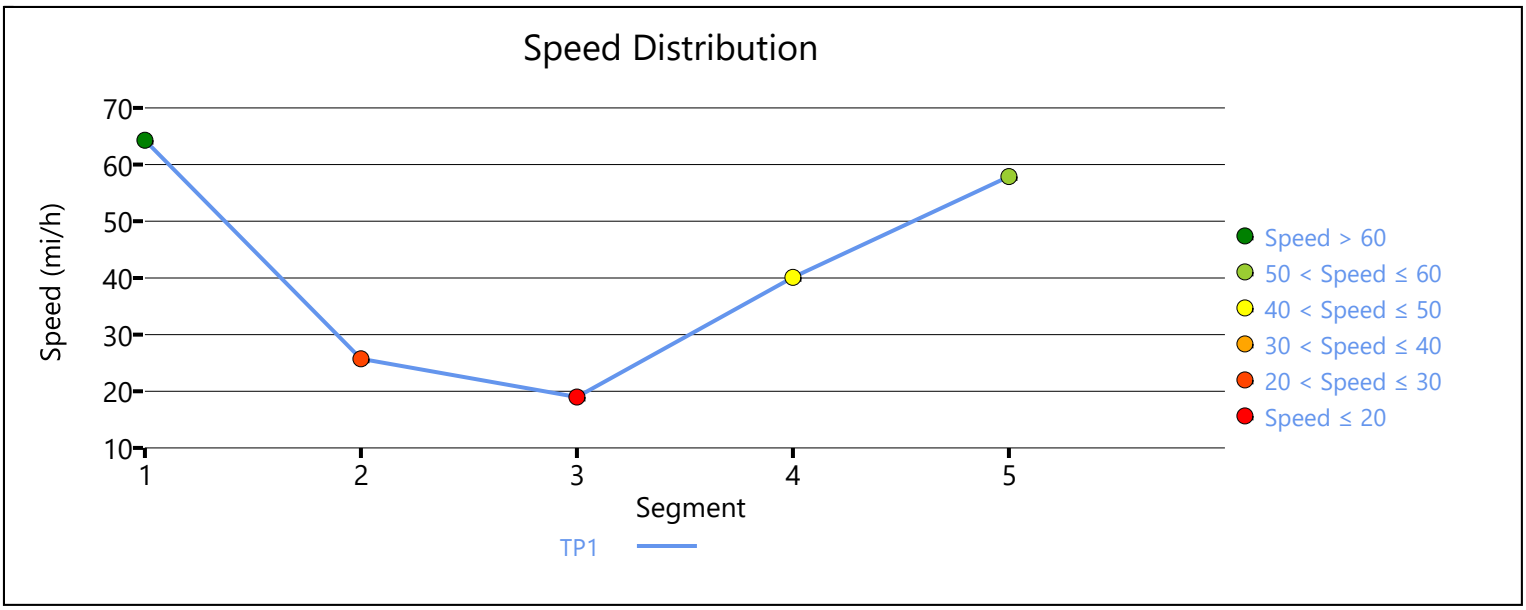
Facility Time Period Results

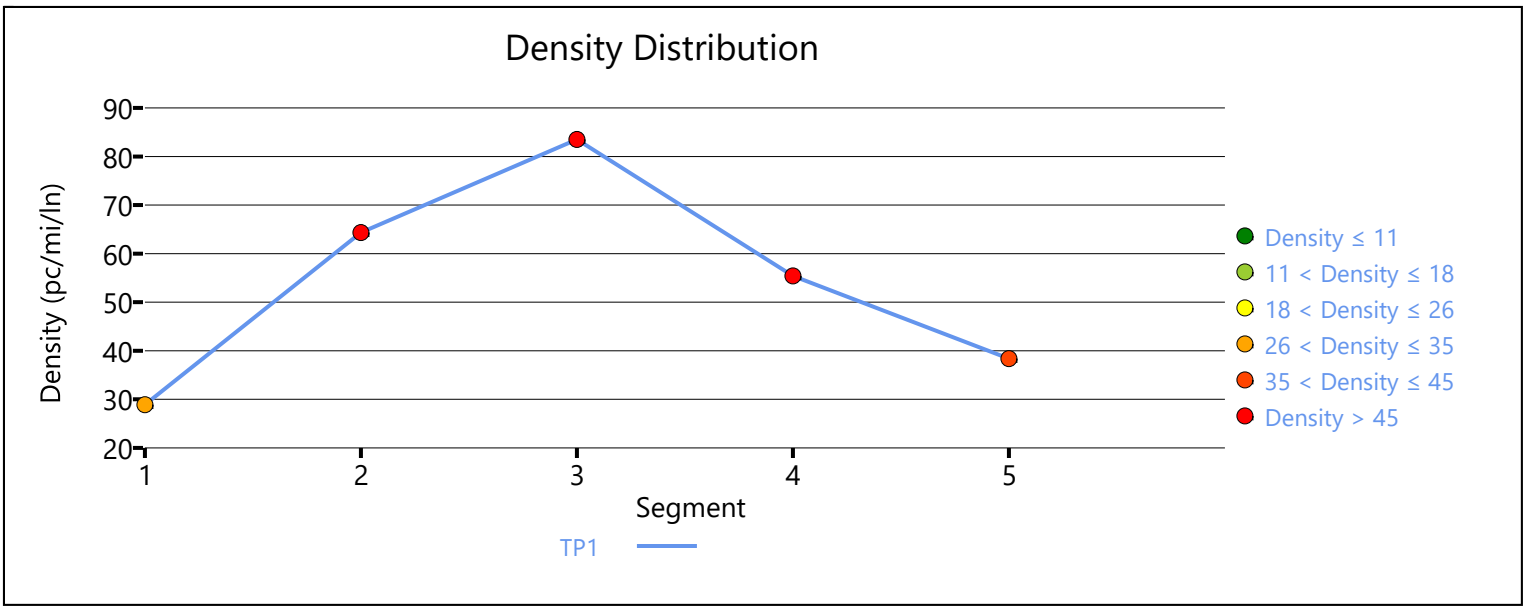
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	36.0	53.7	51.7	4.5	F

Facility Overall Results

Space Mean Speed, mi/h	36.0	Density, veh/mi/ln	51.7
Average Travel Time, min	4.5	Density, pc/mi/ln	53.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6531	7161	0.91	58.3	37.3	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.952	6531	424	7200	2100	0.91	0.20	64.2	60.6	33.9	34.4	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6107	7161	0.85	61.2	33.3	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.980	7193	1086	9600	2100	0.64	0.52	68.8	-	22.2	-	C

Segment 5: Basic

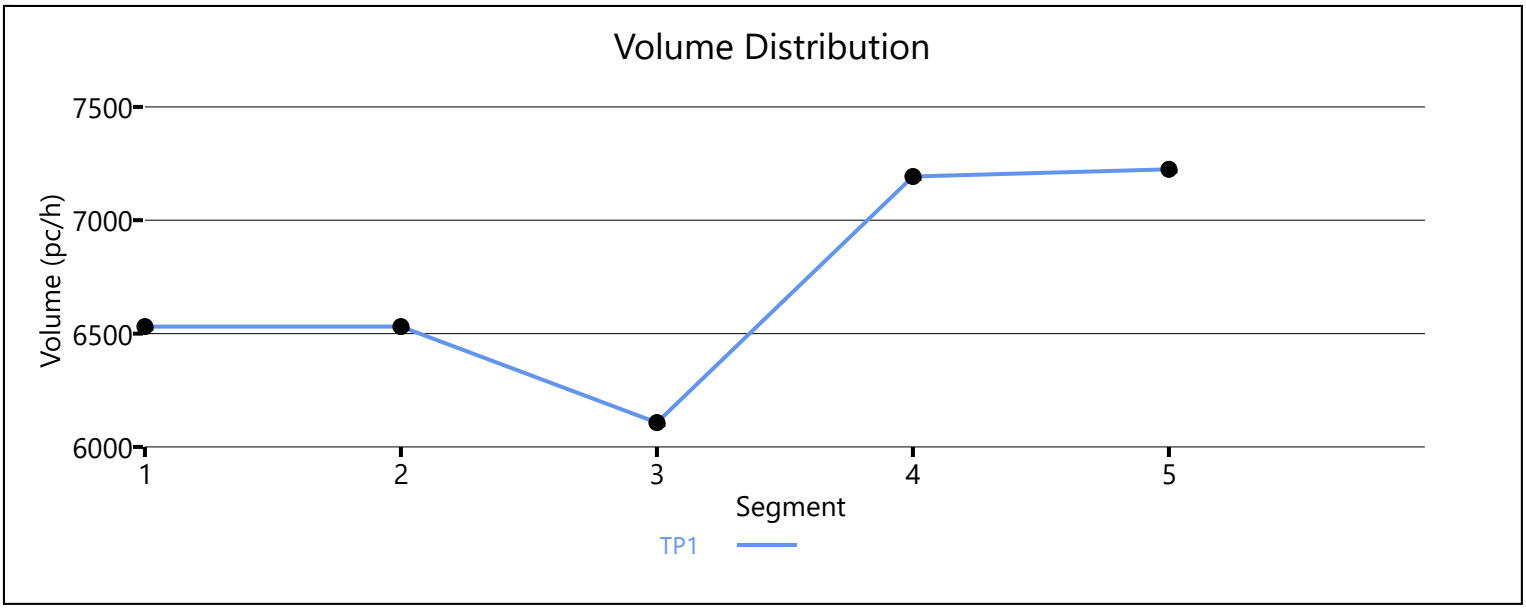
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7225	11935	0.61	68.2	21.2	C

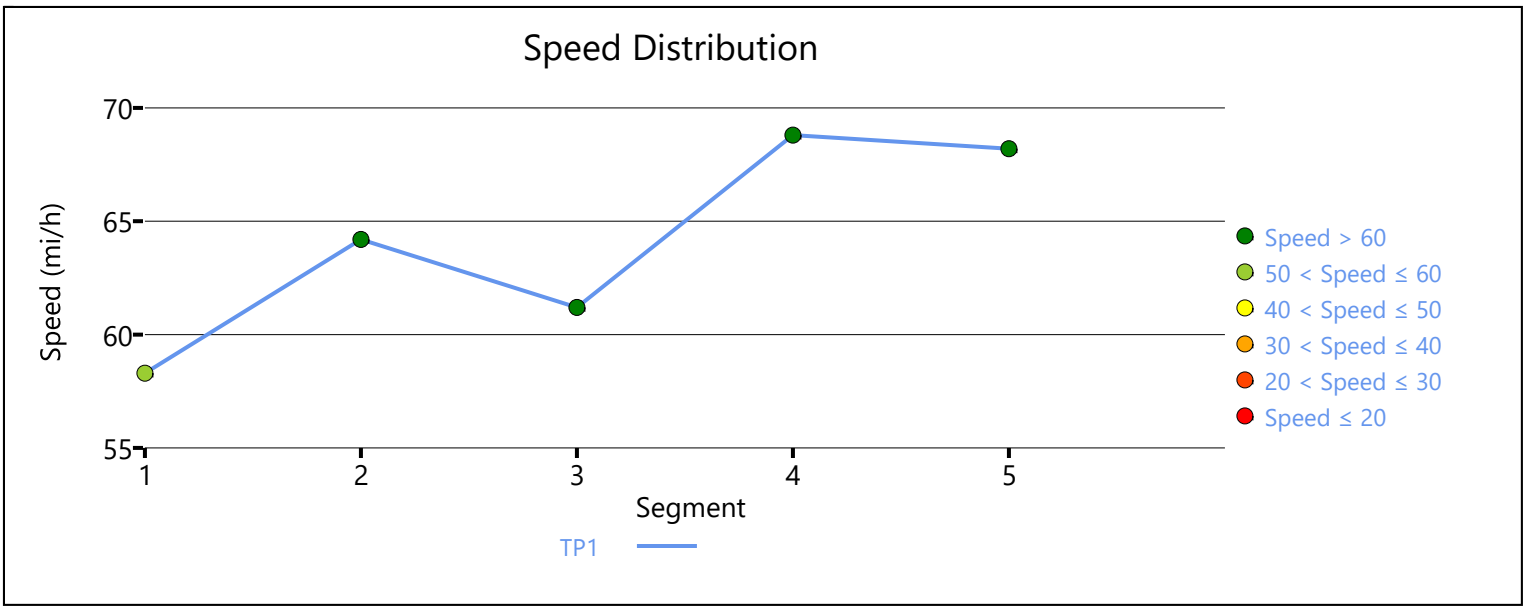
Facility Time Period Results

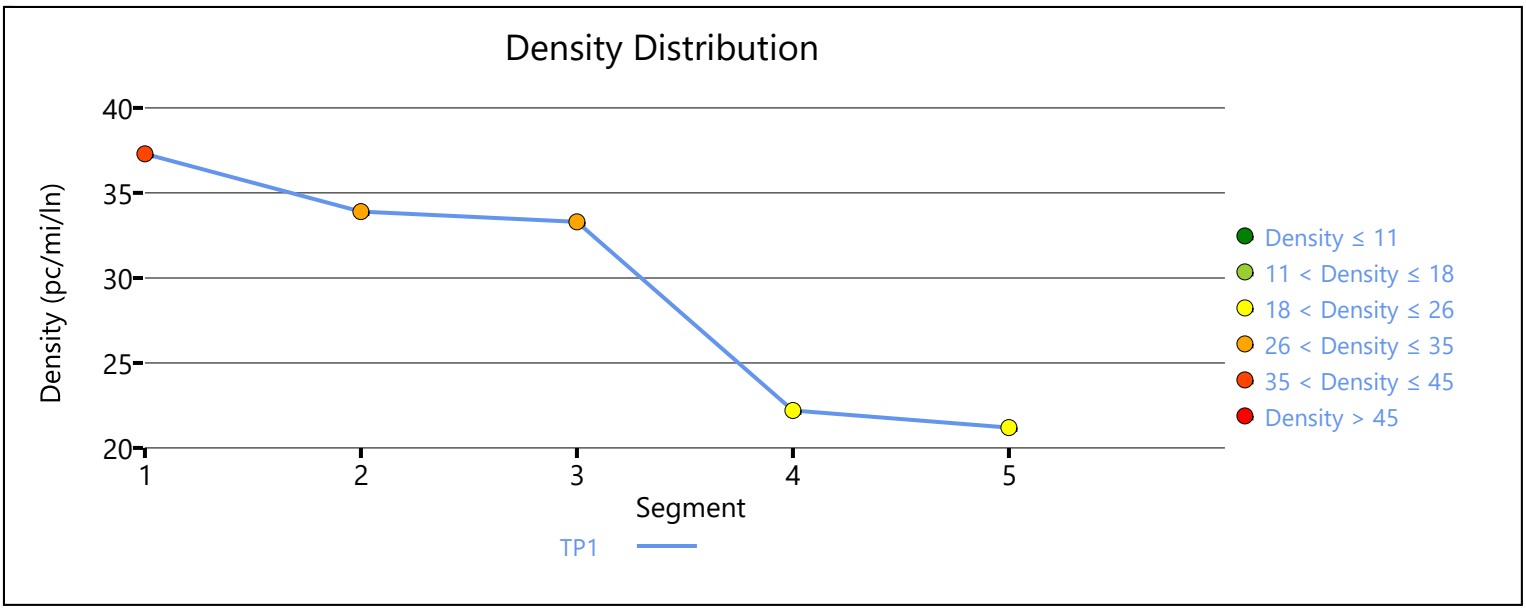
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	61.5	31.8	30.3	2.5	D

Facility Overall Results

Space Mean Speed, mi/h	61.5	Density, veh/mi/ln	30.3
Average Travel Time, min	2.5	Density, pc/mi/ln	31.8







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6757	11935	0.57	68.6	19.7	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	6757	1133	12000	4200	0.56	0.27	69.7	-	19.4	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5601	9548	0.59	68.4	20.5	C

Segment 4: Merge

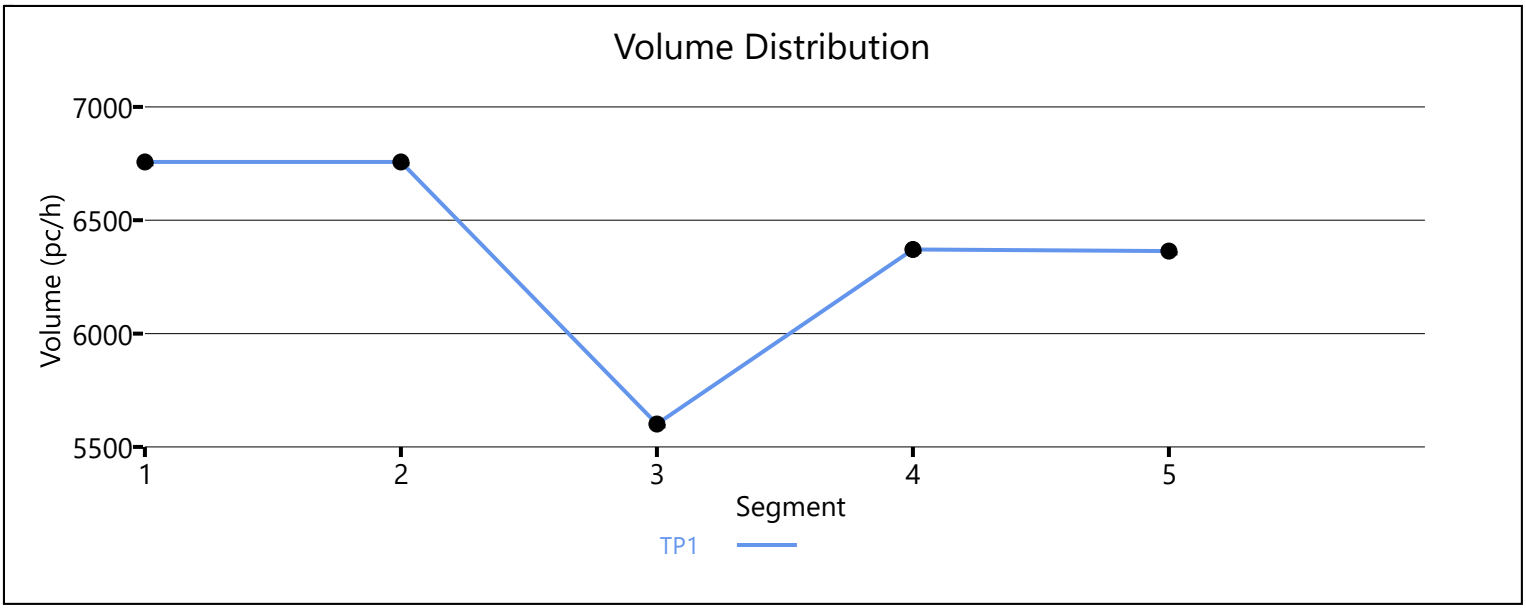
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.943	6371	770	7200	2100	0.88	0.37	58.5	56.0	36.3	33.2	D

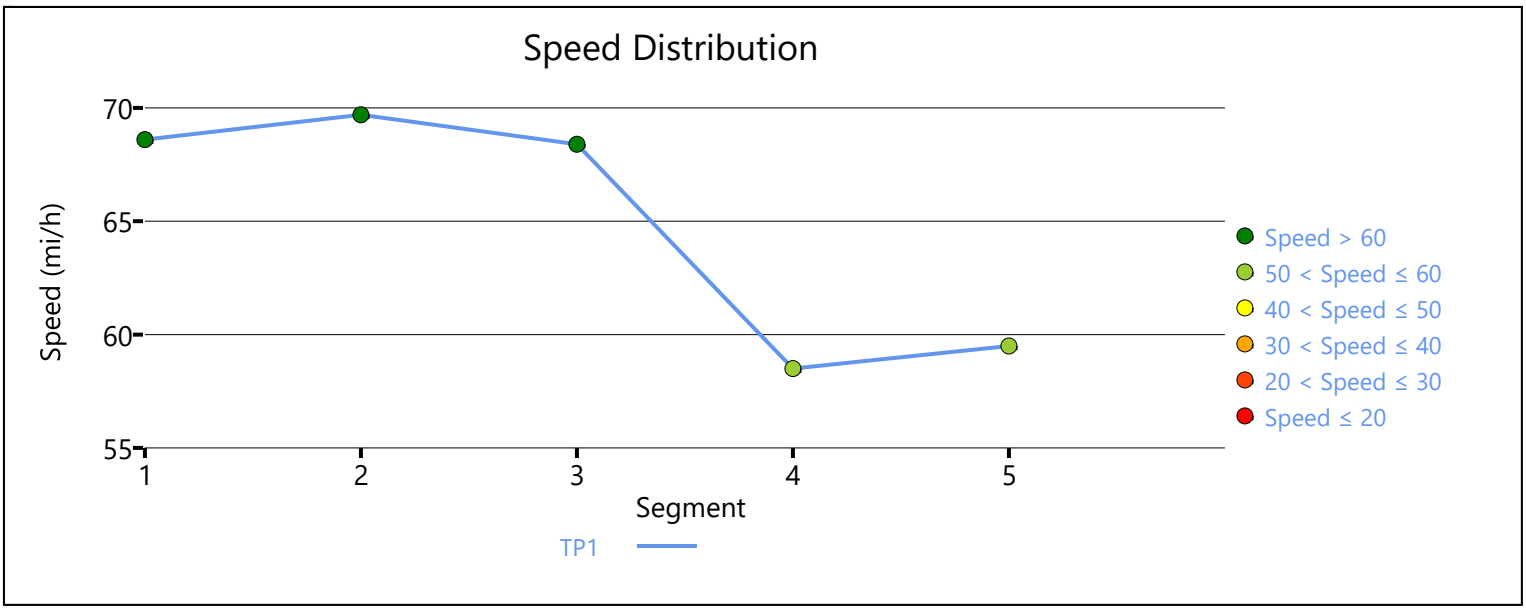
Segment 5: Basic

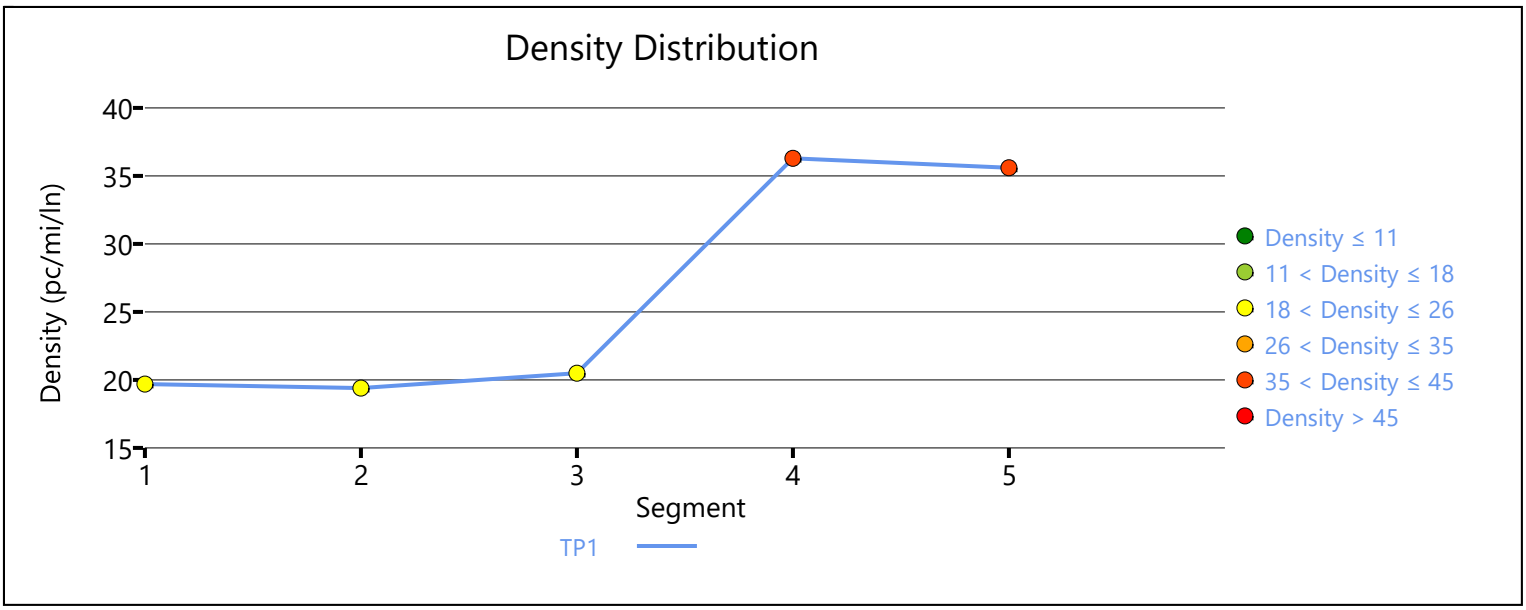
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6364	7161	0.89	59.5	35.6	E

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	62.8	27.6	26.3	2.6	D

Facility Overall Results			
Space Mean Speed, mi/h	62.8	Density, veh/mi/ln	26.3
Average Travel Time, min	2.6	Density, pc/mi/ln	27.6







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APPENDIX 6.9:

OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	38	216	540	85	299	73	517	272	450	840
Future Volume (vph)	38	216	540	85	299	73	517	272	450	840
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	16.2	32.4	32.4	38.0	54.2
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.5%	27.0%	27.0%	31.7%	45.2%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.5	10.5	26.3	26.3	26.3	9.0	36.6	36.6	19.9	49.8
Actuated g/C Ratio	0.09	0.09	0.24	0.24	0.24	0.08	0.33	0.33	0.18	0.45
v/c Ratio	0.24	0.82	0.82	0.83	0.52	0.54	0.47	0.41	0.77	0.60
Control Delay	54.4	68.0	58.5	59.1	7.3	65.7	32.8	5.6	53.4	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	68.0	58.5	59.1	7.3	65.7	32.8	5.6	53.4	26.8
LOS	D	E	E	E	A	E	C	A	D	C
Approach Delay		66.3		42.1			27.0			35.8
Approach LOS		E		D			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	216	47	540	85	299	73	517	272	450	840	48
Future Volume (veh/h)	38	216	47	540	85	299	73	517	272	450	840	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	227	38	632	0	102	77	544	165	474	884	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	289	48	752	0	334	99	1286	573	554	1628	63
Arrive On Green	0.09	0.09	0.09	0.21	0.00	0.21	0.06	0.36	0.36	0.16	0.47	0.47
Sat Flow, veh/h	1781	3053	503	3563	0	1581	1781	3554	1584	3456	3488	134
Grp Volume(v), veh/h	40	131	134	632	0	102	77	544	165	474	450	468
Grp Sat Flow(s),veh/h/ln	1781	1777	1780	1781	0	1581	1781	1777	1584	1728	1777	1846
Q Serve(g_s), s	2.2	7.6	7.8	18.0	0.0	5.8	4.5	12.2	7.8	14.1	19.1	19.1
Cycle Q Clear(g_c), s	2.2	7.6	7.8	18.0	0.0	5.8	4.5	12.2	7.8	14.1	19.1	19.1
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	169	168	168	752	0	334	99	1286	573	554	829	861
V/C Ratio(X)	0.24	0.78	0.80	0.84	0.00	0.31	0.78	0.42	0.29	0.86	0.54	0.54
Avail Cap(c_a), veh/h	175	175	175	1012	0	449	204	1286	573	1109	829	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	46.7	46.8	40.0	0.0	35.2	49.3	25.4	24.0	43.2	20.1	20.1
Incr Delay (d2), s/veh	0.7	18.9	21.6	4.9	0.0	0.5	4.9	1.0	1.3	1.5	2.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.2	4.4	8.2	0.0	2.2	2.1	5.1	3.0	6.0	8.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	65.7	68.4	44.8	0.0	35.7	54.2	26.4	25.3	44.7	22.7	22.6
LnGrp LOS	D	E	E	D	A	D	D	C	C	D	C	C
Approach Vol, veh/h		305			734			786			1392	
Approach Delay, s/veh		64.2			43.6			28.9			30.1	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	43.1		14.6	10.0	54.2		26.9				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	12.1	49.3		30.0				
Max Q Clear Time (g_c+I1), s	16.1	14.2		9.8	6.5	21.1		20.0				
Green Ext Time (p_c), s	0.8	3.3		0.1	0.0	6.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		36.1	
HCM 6th LOS		D	

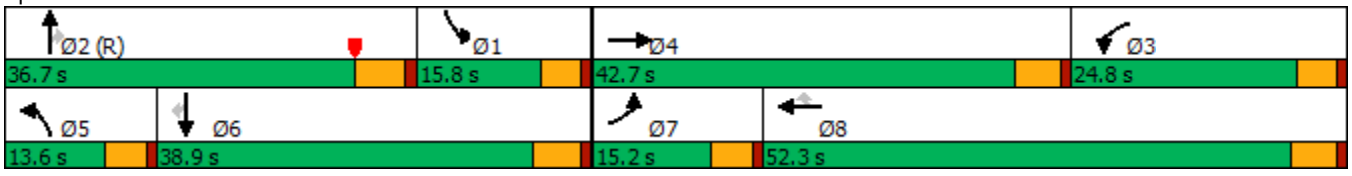
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	241	524	341	606	638	46	750	178	207	505	187
Future Volume (vph)	241	524	341	606	638	46	750	178	207	505	187
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	15.2	42.7	24.8	52.3	52.3	13.6	36.7	36.7	15.8	38.9	38.9
Total Split (%)	12.7%	35.6%	20.7%	43.6%	43.6%	11.3%	30.6%	30.6%	13.2%	32.4%	32.4%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	11.2	38.2	19.2	46.2	46.2	7.5	32.3	32.3	10.6	37.4	37.4
Actuated g/C Ratio	0.09	0.32	0.16	0.38	0.38	0.06	0.27	0.27	0.09	0.31	0.31
v/c Ratio	0.83	0.56	0.68	0.93	0.93	0.46	0.87	0.36	0.75	0.50	0.33
Control Delay	75.7	36.0	49.7	49.0	37.1	67.6	52.8	10.2	84.3	53.5	24.6
Queue Delay	0.0	0.2	0.0	12.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	36.1	49.7	60.9	40.2	67.6	52.8	10.2	84.3	53.5	24.6
LOS	E	D	D	E	D	E	D	B	F	D	C
Approach Delay		47.9		50.2			45.7			54.6	
Approach LOS		D		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 49.7	Intersection LOS: D
Intersection Capacity Utilization 86.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	524	43	341	606	638	46	750	178	207	505	187
Future Volume (veh/h)	241	524	43	341	606	638	46	750	178	207	505	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	576	27	375	666	359	51	824	89	227	555	150
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	1083	51	492	695	588	66	927	407	375	1205	537
Arrive On Green	0.09	0.31	0.31	0.24	0.62	0.62	0.04	0.26	0.26	0.22	0.68	0.68
Sat Flow, veh/h	3456	3456	162	3456	1870	1584	1781	3554	1559	3456	3554	1583
Grp Volume(v), veh/h	265	296	307	375	666	359	51	824	89	227	555	150
Grp Sat Flow(s),veh/h/ln	1728	1777	1841	1728	1870	1584	1781	1777	1559	1728	1777	1583
Q Serve(g_s), s	9.1	16.5	16.5	12.1	40.0	11.4	3.4	26.8	5.4	7.1	8.8	4.5
Cycle Q Clear(g_c), s	9.1	16.5	16.5	12.1	40.0	11.4	3.4	26.8	5.4	7.1	8.8	4.5
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	557	577	492	695	588	66	927	407	375	1205	537
V/C Ratio(X)	0.87	0.53	0.53	0.76	0.96	0.61	0.78	0.89	0.22	0.61	0.46	0.28
Avail Cap(c_a), veh/h	305	557	577	582	736	623	134	927	407	375	1205	537
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	33.9	34.0	43.8	21.9	8.3	57.3	42.7	34.8	44.7	14.2	13.5
Incr Delay (d2), s/veh	26.8	3.6	3.5	2.7	17.6	1.1	7.1	12.4	1.2	2.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	7.6	7.8	4.9	15.7	3.0	1.6	13.0	2.2	2.9	2.8	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.8	37.5	37.5	46.5	39.5	9.3	64.4	55.1	36.0	46.7	14.5	13.8
LnGrp LOS	F	D	D	D	D	A	E	E	D	D	B	B
Approach Vol, veh/h		868			1400			964			932	
Approach Delay, s/veh		50.7			33.6			53.9			22.2	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	36.7	22.2	42.7	9.0	46.1	15.2	49.7
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	11.2	* 31	20.2	* 38	9.0	33.5	10.6	47.2
Max Q Clear Time (g_c+I1), s	9.1	28.8	14.1	18.5	5.4	10.8	11.1	42.0
Green Ext Time (p_c), s	0.1	1.4	0.4	3.4	0.0	4.0	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	50	179	357	88	318	93	835	585	309	666
Future Volume (vph)	50	179	357	88	318	93	835	585	309	666
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	16.2	32.4	32.4	38.0	54.2
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.5%	27.0%	27.0%	31.7%	45.2%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.1	-0.9	-0.9	-0.1	-0.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	11.0	11.0	22.2	22.2	22.2	9.8	45.3	45.3	15.1	50.5
Actuated g/C Ratio	0.10	0.10	0.20	0.20	0.20	0.09	0.41	0.41	0.14	0.46
v/c Ratio	0.30	0.63	0.69	0.68	0.58	0.63	0.61	0.68	0.70	0.46
Control Delay	53.7	54.4	51.8	51.0	8.1	67.3	29.2	11.4	54.0	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	54.4	51.8	51.0	8.1	67.3	29.2	11.4	54.0	22.5
LOS	D	D	D	D	A	E	C	B	D	C
Approach Delay		54.3		33.4			24.6			32.1
Approach LOS		D		C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 109.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	179	35	357	88	318	93	835	585	309	666	36
Future Volume (veh/h)	50	179	35	357	88	318	93	835	585	309	666	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	190	25	237	294	123	99	888	413	329	709	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	319	41	352	370	313	126	1531	673	408	1687	48
Arrive On Green	0.10	0.10	0.10	0.20	0.20	0.20	0.07	0.43	0.43	0.12	0.48	0.48
Sat Flow, veh/h	1781	3162	410	1781	1870	1583	1781	3554	1562	3456	3530	100
Grp Volume(v), veh/h	53	106	109	237	294	123	99	888	413	329	357	372
Grp Sat Flow(s),veh/h/ln	1781	1777	1795	1781	1870	1583	1781	1777	1562	1728	1777	1852
Q Serve(g_s), s	2.9	6.0	6.1	12.9	15.7	7.1	5.7	19.9	21.5	9.7	13.8	13.8
Cycle Q Clear(g_c), s	2.9	6.0	6.1	12.9	15.7	7.1	5.7	19.9	21.5	9.7	13.8	13.8
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	180	179	181	352	370	313	126	1531	673	408	849	885
V/C Ratio(X)	0.29	0.59	0.60	0.67	0.79	0.39	0.78	0.58	0.61	0.81	0.42	0.42
Avail Cap(c_a), veh/h	187	186	188	519	545	461	207	1531	673	1119	849	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	45.1	45.3	39.0	40.1	36.6	48.0	22.7	23.1	45.1	17.9	17.9
Incr Delay (d2), s/veh	0.9	4.5	5.1	2.2	5.0	0.8	4.0	1.6	4.1	1.4	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.8	3.0	5.8	7.6	2.8	2.6	8.2	8.2	4.1	5.7	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	49.6	50.3	41.2	45.1	37.4	52.0	24.3	27.3	46.6	19.4	19.4
LnGrp LOS	D	D	D	D	D	D	D	C	C	D	B	B
Approach Vol, veh/h		268			654			1400			1058	
Approach Delay, s/veh		48.9			42.2			27.1			27.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.4	49.2		14.6	11.4	54.2		24.8				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	12.1	49.3		30.0				
Max Q Clear Time (g_c+I1), s	11.7	23.5		8.1	7.7	15.8		17.7				
Green Ext Time (p_c), s	0.6	2.5		0.3	0.0	4.6		2.3				

Intersection Summary			
HCM 6th Ctrl Delay		32.0	
HCM 6th LOS		C	

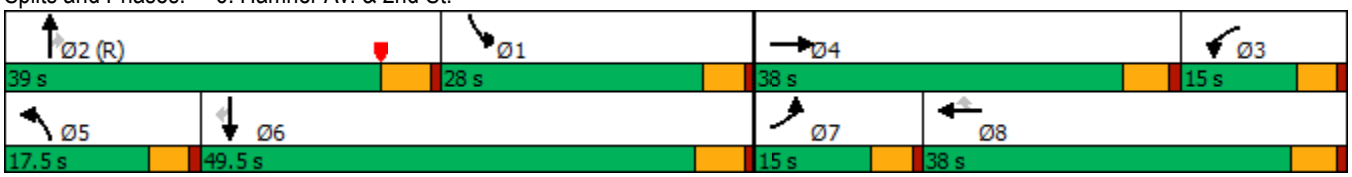
Notes

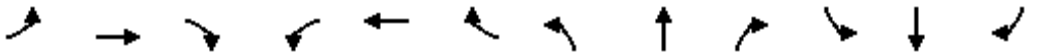
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	212	688	222	397	337	101	768	440	486	870	192
Future Volume (vph)	212	688	222	397	337	101	768	440	486	870	192
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	15.0	38.0	15.0	38.0	38.0	17.5	39.0	39.0	28.0	49.5	49.5
Total Split (%)	12.5%	31.7%	12.5%	31.7%	31.7%	14.6%	32.5%	32.5%	23.3%	41.3%	41.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.1	-1.1	-1.1	-1.1	-1.1	-0.6	-1.4	-1.4	-0.6	-1.4	-1.4
Total Lost Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	14.1	36.6	11.2	33.7	33.7	11.2	35.3	35.3	21.4	45.5	45.5
Actuated g/C Ratio	0.12	0.30	0.09	0.28	0.28	0.09	0.29	0.29	0.18	0.38	0.38
v/c Ratio	0.54	0.75	0.71	0.78	0.59	0.62	0.75	0.74	0.81	0.66	0.28
Control Delay	56.2	42.7	63.1	47.8	20.3	68.5	43.9	28.4	52.0	30.5	9.0
Queue Delay	0.0	0.6	0.0	1.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0
Total Delay	56.2	43.4	63.1	48.8	20.4	68.5	43.9	28.6	52.2	30.5	9.0
LOS	E	D	E	D	C	E	D	C	D	C	A
Approach Delay		46.1		42.1			40.6			34.7	
Approach LOS		D		D			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 83.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	688	94	222	397	337	101	768	440	486	870	192
Future Volume (veh/h)	212	688	94	222	397	337	101	768	440	486	870	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	702	50	227	405	135	103	784	288	496	888	135
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	953	68	313	528	447	136	1036	455	672	1480	658
Arrive On Green	0.10	0.28	0.28	0.06	0.19	0.19	0.08	0.29	0.29	0.39	0.83	0.83
Sat Flow, veh/h	3456	3362	239	3456	1870	1585	1781	3554	1562	3456	3554	1581
Grp Volume(v), veh/h	216	371	381	227	405	135	103	784	288	496	888	135
Grp Sat Flow(s),veh/h/ln	1728	1777	1825	1728	1870	1585	1781	1777	1562	1728	1777	1581
Q Serve(g_s), s	7.2	22.7	22.7	7.7	24.6	5.3	6.8	24.1	19.2	14.8	10.0	2.1
Cycle Q Clear(g_c), s	7.2	22.7	22.7	7.7	24.6	5.3	6.8	24.1	19.2	14.8	10.0	2.1
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	331	503	517	313	528	447	136	1036	455	672	1480	658
V/C Ratio(X)	0.65	0.74	0.74	0.72	0.77	0.30	0.76	0.76	0.63	0.74	0.60	0.21
Avail Cap(c_a), veh/h	331	503	517	331	530	449	200	1036	455	691	1480	658
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	38.9	39.0	54.9	44.9	13.9	54.3	38.6	36.9	34.1	6.7	6.0
Incr Delay (d2), s/veh	9.6	9.3	9.1	5.7	6.2	0.3	4.2	5.2	6.5	3.5	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	11.0	11.3	3.7	12.7	3.4	3.2	10.9	8.1	5.3	2.3	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.9	48.2	48.0	60.6	51.1	14.3	58.6	43.8	43.4	37.6	7.4	6.2
LnGrp LOS	E	D	D	E	D	B	E	D	D	D	A	A
Approach Vol, veh/h		968			767			1175			1519	
Approach Delay, s/veh		51.2			47.4			45.0			17.1	
Approach LOS		D			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.1	39.0	14.9	38.0	13.2	54.0	15.0	37.9
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	23.4	* 34	10.4	* 33	12.9	44.1	10.4	32.9
Max Q Clear Time (g_c+I1), s	16.8	26.1	9.7	24.7	8.8	12.0	9.2	26.6
Green Ext Time (p_c), s	0.6	3.6	0.0	2.9	0.0	7.3	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.10:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	38	216	547	85	299	79	541	276	450	862
Future Volume (vph)	38	216	547	85	299	79	541	276	450	862
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	16.2	32.4	32.4	38.0	54.2
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.5%	27.0%	27.0%	31.7%	45.2%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	10.5	10.5	26.5	26.5	26.5	9.3	36.8	36.8	20.0	49.8
Actuated g/C Ratio	0.09	0.09	0.24	0.24	0.24	0.08	0.33	0.33	0.18	0.44
v/c Ratio	0.24	0.83	0.83	0.84	0.52	0.57	0.49	0.41	0.77	0.61
Control Delay	54.6	69.2	59.4	60.2	7.3	66.8	33.2	5.5	53.6	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	69.2	59.4	60.2	7.3	66.8	33.2	5.5	53.6	27.4
LOS	D	E	E	E	A	E	C	A	D	C
Approach Delay		67.4		42.9			27.6			36.1
Approach LOS		E		D			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 38.5	Intersection LOS: D
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	216	53	547	85	299	79	541	276	450	862	48
Future Volume (veh/h)	38	216	53	547	85	299	79	541	276	450	862	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	227	45	640	0	102	83	569	170	474	907	34
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	283	55	757	0	336	106	1284	572	553	1613	60
Arrive On Green	0.10	0.10	0.10	0.21	0.00	0.21	0.06	0.36	0.36	0.16	0.46	0.46
Sat Flow, veh/h	1781	2966	578	3563	0	1581	1781	3554	1584	3456	3492	131
Grp Volume(v), veh/h	40	134	138	640	0	102	83	569	170	474	461	480
Grp Sat Flow(s),veh/h/ln	1781	1777	1766	1781	0	1581	1781	1777	1584	1728	1777	1846
Q Serve(g_s), s	2.2	7.9	8.2	18.4	0.0	5.8	4.9	13.0	8.2	14.3	20.1	20.2
Cycle Q Clear(g_c), s	2.2	7.9	8.2	18.4	0.0	5.8	4.9	13.0	8.2	14.3	20.1	20.2
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	170	170	169	757	0	336	106	1284	572	553	821	853
V/C Ratio(X)	0.24	0.79	0.82	0.84	0.00	0.30	0.78	0.44	0.30	0.86	0.56	0.56
Avail Cap(c_a), veh/h	174	173	172	1001	0	444	202	1284	572	1098	821	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	47.2	47.3	40.3	0.0	35.4	49.5	25.9	24.4	43.6	20.9	20.9
Incr Delay (d2), s/veh	0.7	21.3	24.9	5.2	0.0	0.5	4.7	1.1	1.3	1.5	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	4.5	4.7	8.4	0.0	2.3	2.3	5.5	3.2	6.0	8.5	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	68.6	72.2	45.6	0.0	35.9	54.2	27.0	25.7	45.2	23.7	23.5
LnGrp LOS	D	E	E	D	A	D	D	C	C	D	C	C
Approach Vol, veh/h		312			742			822			1415	
Approach Delay, s/veh		67.2			44.2			29.5			30.8	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.2	43.5		14.8	10.4	54.2		27.3				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	12.1	49.3		30.0				
Max Q Clear Time (g_c+I1), s	16.3	15.0		10.2	6.9	22.2		20.4				
Green Ext Time (p_c), s	0.8	3.4		0.0	0.0	6.2		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		37.0	
HCM 6th LOS		D	

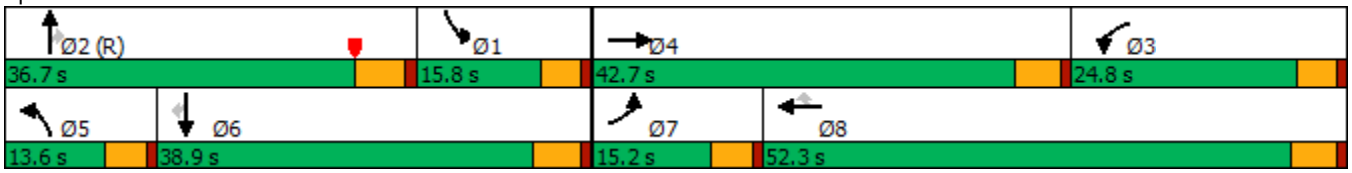
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	254	524	341	606	693	46	765	178	268	522	200
Future Volume (vph)	254	524	341	606	693	46	765	178	268	522	200
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	15.2	42.7	24.8	52.3	52.3	13.6	36.7	36.7	15.8	38.9	38.9
Total Split (%)	12.7%	35.6%	20.7%	43.6%	43.6%	11.3%	30.6%	30.6%	13.2%	32.4%	32.4%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	10.6	37.6	20.2	47.2	47.2	7.5	31.3	31.3	11.2	36.9	36.9
Actuated g/C Ratio	0.09	0.31	0.17	0.39	0.39	0.06	0.26	0.26	0.09	0.31	0.31
v/c Ratio	0.92	0.57	0.65	0.91	1.00	0.46	0.91	0.37	0.92	0.53	0.35
Control Delay	89.4	36.4	48.0	45.4	50.5	67.6	58.0	10.7	100.5	53.4	22.8
Queue Delay	0.0	0.3	0.0	14.2	7.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.4	36.7	48.0	59.6	58.1	67.6	58.0	10.7	100.5	53.4	22.8
LOS	F	D	D	E	E	E	E	B	F	D	C
Approach Delay		53.0		56.6			49.9			60.0	
Approach LOS		D		E			D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 55.2	Intersection LOS: E
Intersection Capacity Utilization 88.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	524	43	341	606	693	46	765	178	268	522	200
Future Volume (veh/h)	254	524	43	341	606	693	46	765	178	268	522	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	576	27	375	666	420	51	841	89	295	574	165
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	1083	51	494	696	589	66	927	407	373	1203	536
Arrive On Green	0.09	0.31	0.31	0.24	0.62	0.62	0.04	0.26	0.26	0.14	0.45	0.45
Sat Flow, veh/h	3456	3456	162	3456	1870	1584	1781	3554	1559	3456	3554	1583
Grp Volume(v), veh/h	279	296	307	375	666	420	51	841	89	295	574	165
Grp Sat Flow(s),veh/h/ln	1728	1777	1841	1728	1870	1584	1781	1777	1559	1728	1777	1583
Q Serve(g_s), s	9.6	16.5	16.5	12.1	39.9	14.9	3.4	27.5	5.4	9.9	13.6	8.0
Cycle Q Clear(g_c), s	9.6	16.5	16.5	12.1	39.9	14.9	3.4	27.5	5.4	9.9	13.6	8.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	557	577	494	696	589	66	927	407	373	1203	536
V/C Ratio(X)	0.91	0.53	0.53	0.76	0.96	0.71	0.78	0.91	0.22	0.79	0.48	0.31
Avail Cap(c_a), veh/h	305	557	577	582	736	623	134	927	407	373	1203	536
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	33.9	34.0	43.8	21.8	8.7	57.3	42.9	34.8	50.1	25.5	24.0
Incr Delay (d2), s/veh	33.6	3.6	3.5	2.5	16.8	2.3	7.1	14.2	1.2	10.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	7.6	7.8	4.9	15.5	3.8	1.6	13.6	2.2	4.6	5.2	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.8	37.5	37.5	46.3	38.7	11.0	64.4	57.1	36.0	60.2	25.8	24.3
LnGrp LOS	F	D	D	D	D	B	E	E	D	E	C	C
Approach Vol, veh/h		882			1461			981			1034	
Approach Delay, s/veh		53.4			32.7			55.6			35.4	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	36.7	22.2	42.7	9.0	46.0	15.2	49.7
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	11.2	* 31	20.2	* 38	9.0	33.5	10.6	47.2
Max Q Clear Time (g_c+I1), s	11.9	29.5	14.1	18.5	5.4	15.6	11.6	41.9
Green Ext Time (p_c), s	0.0	1.0	0.4	3.4	0.0	3.9	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

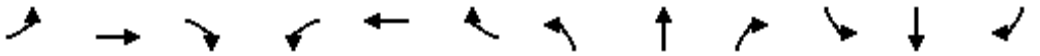
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	50	179	363	88	318	98	857	590	309	694
Future Volume (vph)	50	179	363	88	318	98	857	590	309	694
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	8	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	4	4	8	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9
Total Split (s)	15.0	15.0	34.6	34.6	34.6	16.2	32.4	32.4	38.0	54.2
Total Split (%)	12.5%	12.5%	28.8%	28.8%	28.8%	13.5%	27.0%	27.0%	31.7%	45.2%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.1	-0.9	-0.9	-0.1	-0.9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	11.0	11.0	22.4	22.4	22.4	10.0	45.4	45.4	15.1	50.5
Actuated g/C Ratio	0.10	0.10	0.20	0.20	0.20	0.09	0.41	0.41	0.14	0.46
v/c Ratio	0.30	0.65	0.70	0.69	0.58	0.65	0.62	0.69	0.70	0.48
Control Delay	53.9	54.6	52.1	51.4	8.1	68.7	29.6	12.1	54.0	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	54.6	52.1	51.4	8.1	68.7	29.6	12.1	54.0	23.0
LOS	D	D	D	D	A	E	C	B	D	C
Approach Delay		54.5		33.7			25.4			32.2
Approach LOS		D		C			C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	179	42	363	88	318	98	857	590	309	694	36
Future Volume (veh/h)	50	179	42	363	88	318	98	857	590	309	694	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	190	33	240	298	123	104	912	419	329	738	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	304	52	355	373	316	132	1531	673	408	1678	45
Arrive On Green	0.10	0.10	0.09	0.20	0.20	0.20	0.07	0.43	0.43	0.12	0.47	0.47
Sat Flow, veh/h	1781	3034	518	1781	1870	1583	1781	3554	1562	3456	3534	96
Grp Volume(v), veh/h	53	110	113	240	298	123	104	912	419	329	371	387
Grp Sat Flow(s),veh/h/ln	1781	1777	1775	1781	1870	1583	1781	1777	1562	1728	1777	1853
Q Serve(g_s), s	2.9	6.3	6.5	13.2	16.0	7.1	6.1	20.8	22.1	9.8	14.6	14.7
Cycle Q Clear(g_c), s	2.9	6.3	6.5	13.2	16.0	7.1	6.1	20.8	22.1	9.8	14.6	14.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	179	178	178	355	373	316	132	1531	673	408	844	880
V/C Ratio(X)	0.30	0.62	0.64	0.68	0.80	0.39	0.79	0.60	0.62	0.81	0.44	0.44
Avail Cap(c_a), veh/h	185	185	185	516	541	458	206	1531	673	1111	844	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	45.6	45.8	39.1	40.3	36.7	48.1	23.0	23.4	45.4	18.4	18.4
Incr Delay (d2), s/veh	0.9	5.7	6.7	2.2	5.3	0.8	4.4	1.7	4.3	1.5	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.0	3.2	5.9	7.8	2.8	2.8	8.6	8.5	4.2	6.1	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	51.3	52.5	41.4	45.6	37.5	52.6	24.7	27.7	46.9	20.1	20.0
LnGrp LOS	D	D	D	D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		276			661			1435			1087	
Approach Delay, s/veh		50.6			42.6			27.6			28.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.5	49.5		14.6	11.8	54.2		25.1				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	27.5		10.4	12.1	49.3		30.0				
Max Q Clear Time (g_c+I1), s	11.8	24.1		8.5	8.1	16.7		18.0				
Green Ext Time (p_c), s	0.6	2.3		0.2	0.0	4.8		2.3				

Intersection Summary			
HCM 6th Ctrl Delay		32.5	
HCM 6th LOS		C	

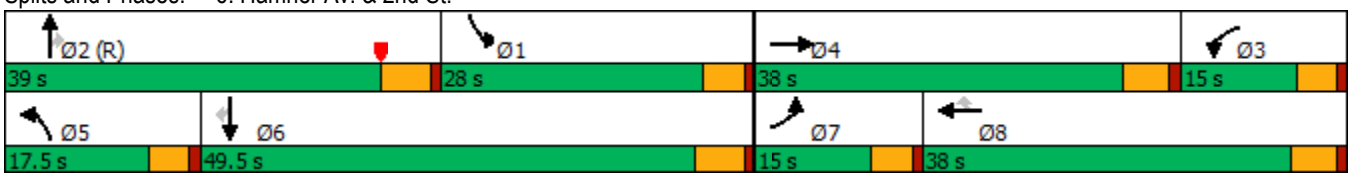
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	227	688	222	397	406	101	787	440	542	884	204
Future Volume (vph)	227	688	222	397	406	101	787	440	542	884	204
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	15.0	38.0	15.0	38.0	38.0	17.5	39.0	39.0	28.0	49.5	49.5
Total Split (%)	12.5%	31.7%	12.5%	31.7%	31.7%	14.6%	32.5%	32.5%	23.3%	41.3%	41.3%
Yellow Time (s)	3.6	4.1	3.6	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.1	-1.1	-1.1	-1.1	-1.1	-0.6	-1.4	-1.4	-0.6	-1.4	-1.4
Total Lost Time (s)	3.5	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	12.9	35.4	11.2	33.7	33.7	11.2	35.3	35.3	22.6	46.7	46.7
Actuated g/C Ratio	0.11	0.30	0.09	0.28	0.28	0.09	0.29	0.29	0.19	0.39	0.39
v/c Ratio	0.63	0.77	0.71	0.78	0.67	0.62	0.77	0.74	0.86	0.66	0.29
Control Delay	60.1	44.4	64.0	48.6	22.8	68.5	44.6	29.1	54.7	30.4	9.3
Queue Delay	0.0	0.9	0.0	1.0	0.1	0.0	0.0	0.2	1.0	0.0	0.0
Total Delay	60.1	45.3	64.0	49.7	22.9	68.5	44.6	29.2	55.7	30.4	9.3
LOS	E	D	E	D	C	E	D	C	E	C	A
Approach Delay		48.6		42.2			41.4			36.1	
Approach LOS		D		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 41.3	Intersection LOS: D
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	688	94	222	397	406	101	787	440	542	884	204
Future Volume (veh/h)	227	688	94	222	397	406	101	787	440	542	884	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	702	50	227	405	205	103	803	288	553	902	147
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	953	68	313	528	447	136	1036	455	672	1480	658
Arrive On Green	0.10	0.28	0.28	0.06	0.19	0.19	0.08	0.29	0.29	0.39	0.83	0.83
Sat Flow, veh/h	3456	3362	239	3456	1870	1585	1781	3554	1562	3456	3554	1581
Grp Volume(v), veh/h	232	371	381	227	405	205	103	803	288	553	902	147
Grp Sat Flow(s),veh/h/ln	1728	1777	1825	1728	1870	1585	1781	1777	1562	1728	1777	1581
Q Serve(g_s), s	7.8	22.7	22.7	7.7	24.6	8.3	6.8	24.8	19.2	17.3	10.3	2.3
Cycle Q Clear(g_c), s	7.8	22.7	22.7	7.7	24.6	8.3	6.8	24.8	19.2	17.3	10.3	2.3
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	331	503	517	313	528	447	136	1036	455	672	1480	658
V/C Ratio(X)	0.70	0.74	0.74	0.72	0.77	0.46	0.76	0.77	0.63	0.82	0.61	0.22
Avail Cap(c_a), veh/h	331	503	517	331	530	449	200	1036	455	691	1480	658
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	38.9	39.0	54.9	44.9	14.7	54.3	38.9	36.9	34.8	6.7	6.0
Incr Delay (d2), s/veh	11.7	9.3	9.1	5.6	6.1	0.7	4.2	5.7	6.5	7.2	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	11.0	11.3	3.7	12.7	3.1	3.2	11.3	8.1	6.3	2.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	48.2	48.0	60.4	51.0	15.3	58.6	44.5	43.4	42.1	7.5	6.2
LnGrp LOS	E	D	D	E	D	B	E	D	D	D	A	A
Approach Vol, veh/h		984			837			1194			1602	
Approach Delay, s/veh		51.9			44.8			45.5			19.3	
Approach LOS		D			D			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.1	39.0	14.9	38.0	13.2	54.0	15.0	37.9
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	23.4	* 34	10.4	* 33	12.9	44.1	10.4	32.9
Max Q Clear Time (g_c+I1), s	19.3	26.8	9.7	24.7	8.8	12.3	9.8	26.6
Green Ext Time (p_c), s	0.5	3.4	0.0	2.9	0.0	7.5	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.11:

OPENING YEAR CUMULATIVE (2023) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4816	7161	0.67	67.2	23.9	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.943	4816	612	7200	2100	0.67	0.29	64.3	60.1	25.0	27.8	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.917	4234	7161	0.59	68.4	20.6	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.917	0.943	5072	838	9600	2100	0.44	0.40	70.0	-	15.1	-	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

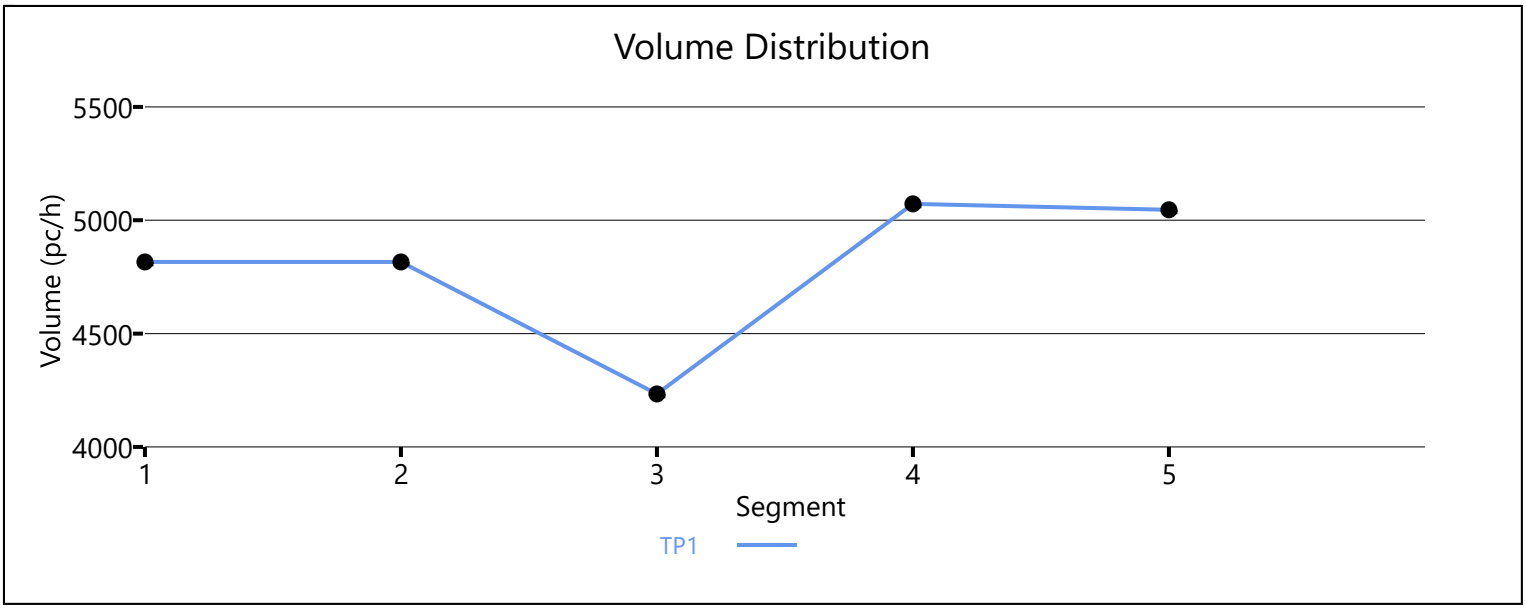
1	0.92	0.926	5046	11935	0.42	68.7	14.7	B

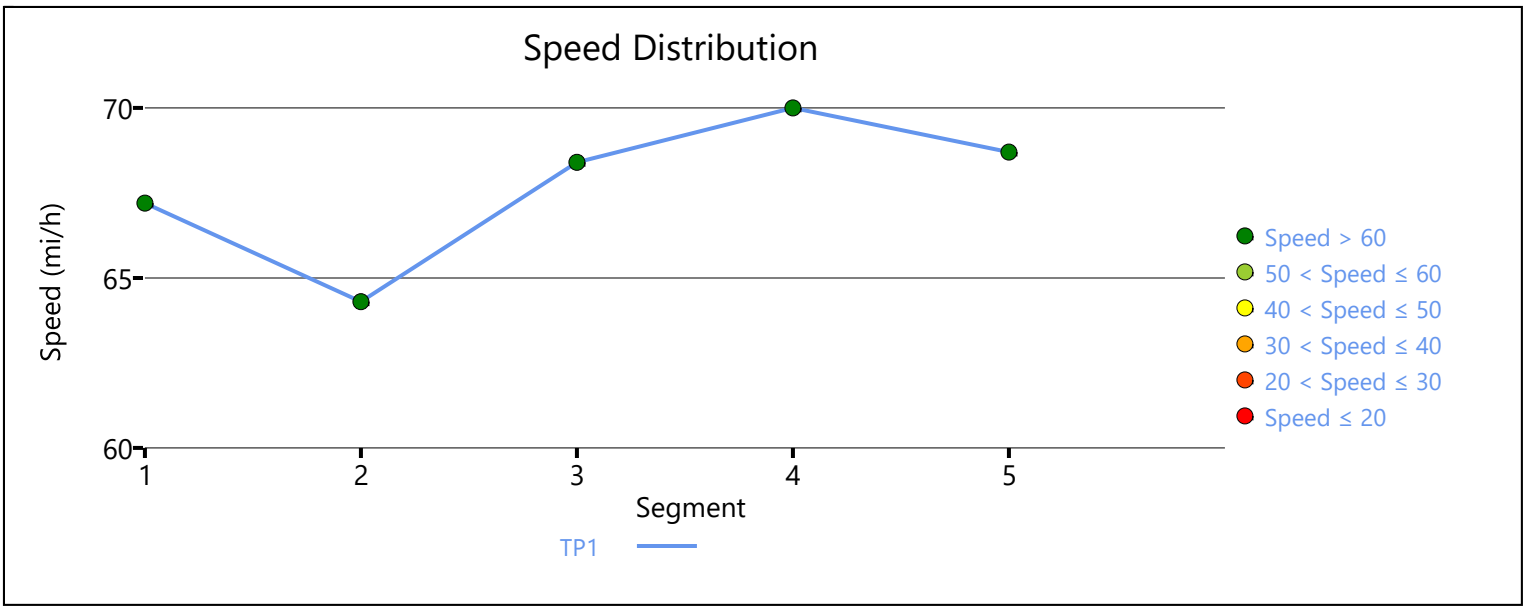
Facility Time Period Results

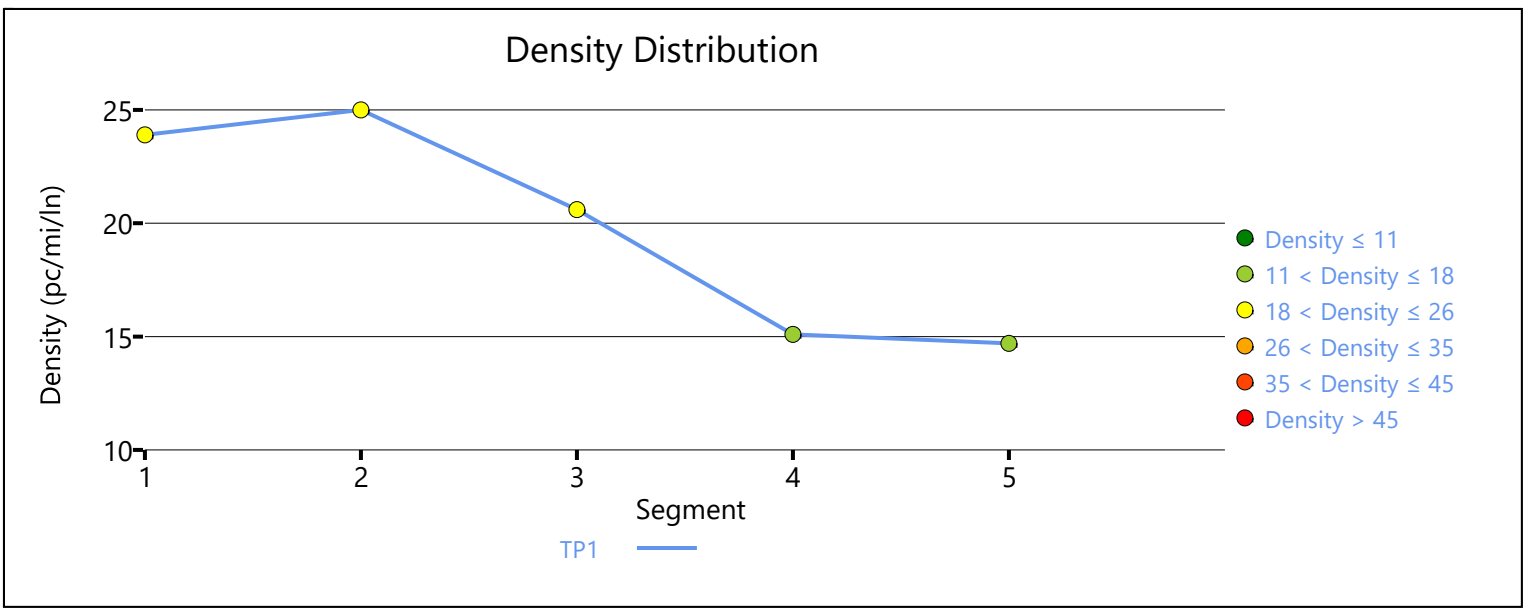
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.5	20.9	19.3	2.3	C

Facility Overall Results

Space Mean Speed, mi/h	67.5	Density, veh/mi/ln	19.3
Average Travel Time, min	2.3	Density, pc/mi/ln	20.9







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7073	11935	0.59	68.4	20.7	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.980	6871	1472	12000	4200	0.57	0.35	69.6	-	19.7	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5611	9548	0.59	68.4	20.5	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.935	5977	366	7200	2100	0.83	0.17	60.1	58.2	33.2	30.3	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

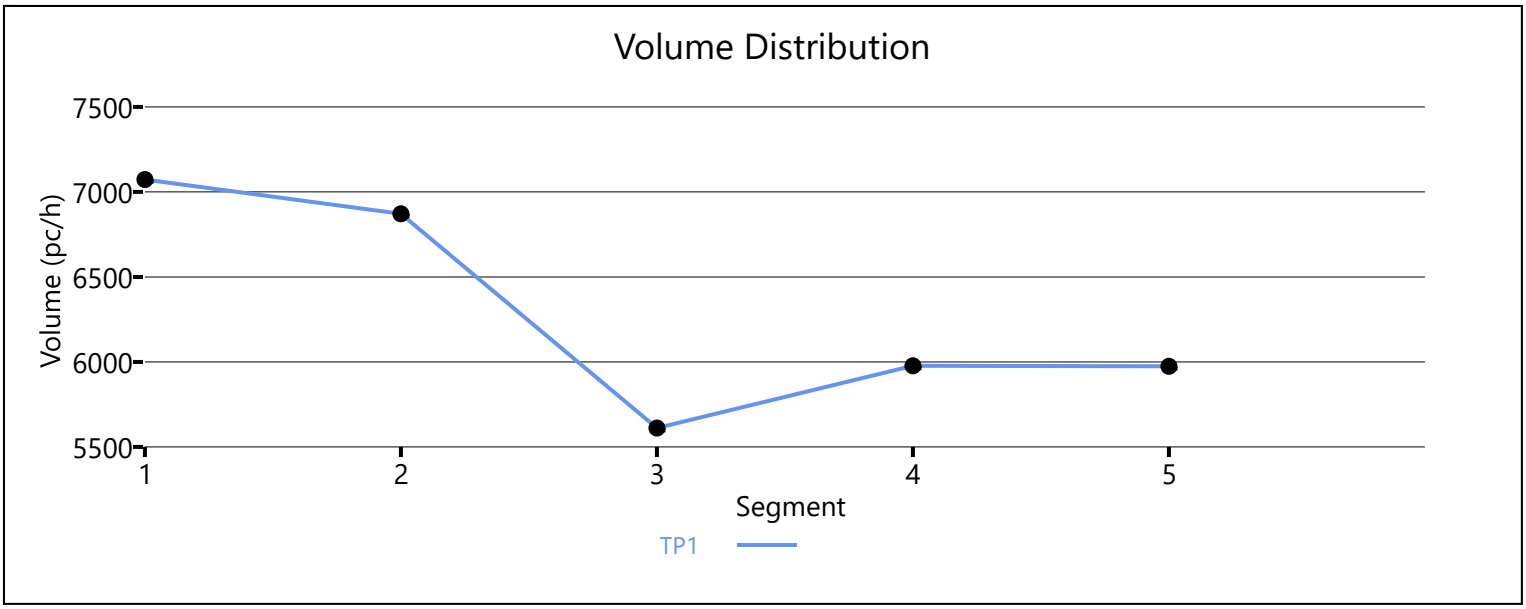
1	0.92	0.943	5974	7161	0.83	62.1	32.1	D

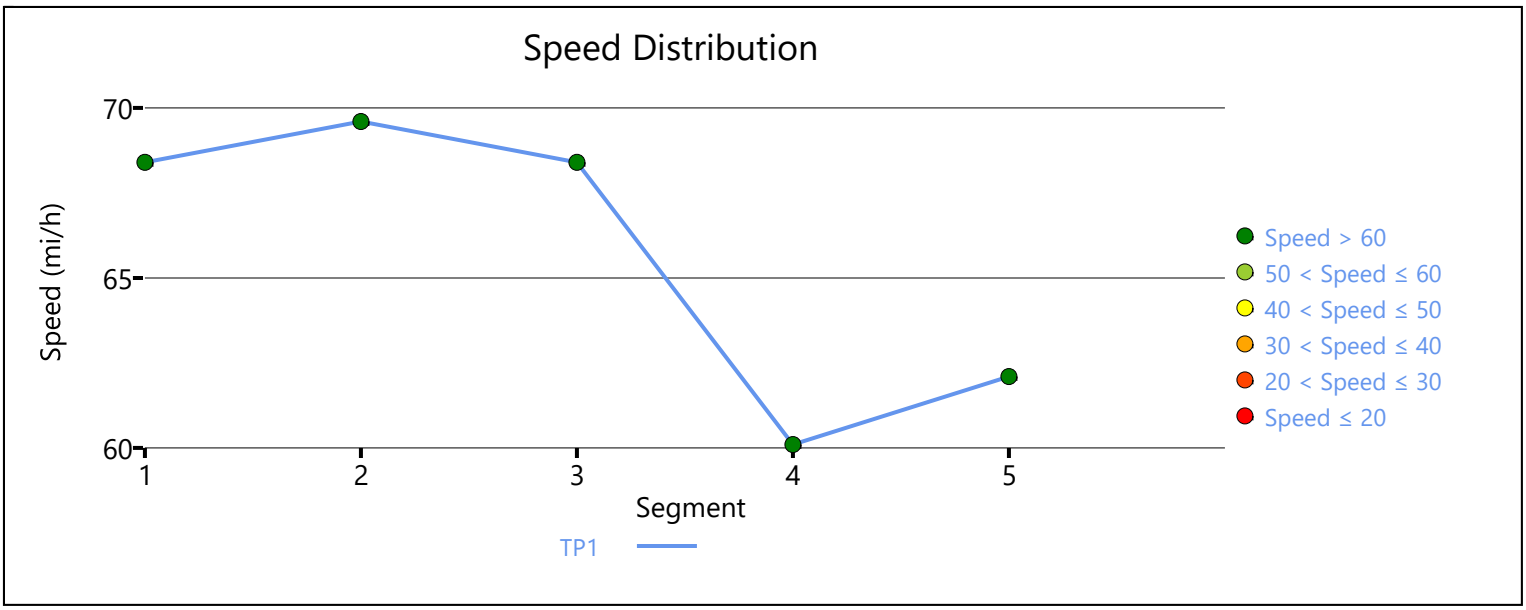
Facility Time Period Results

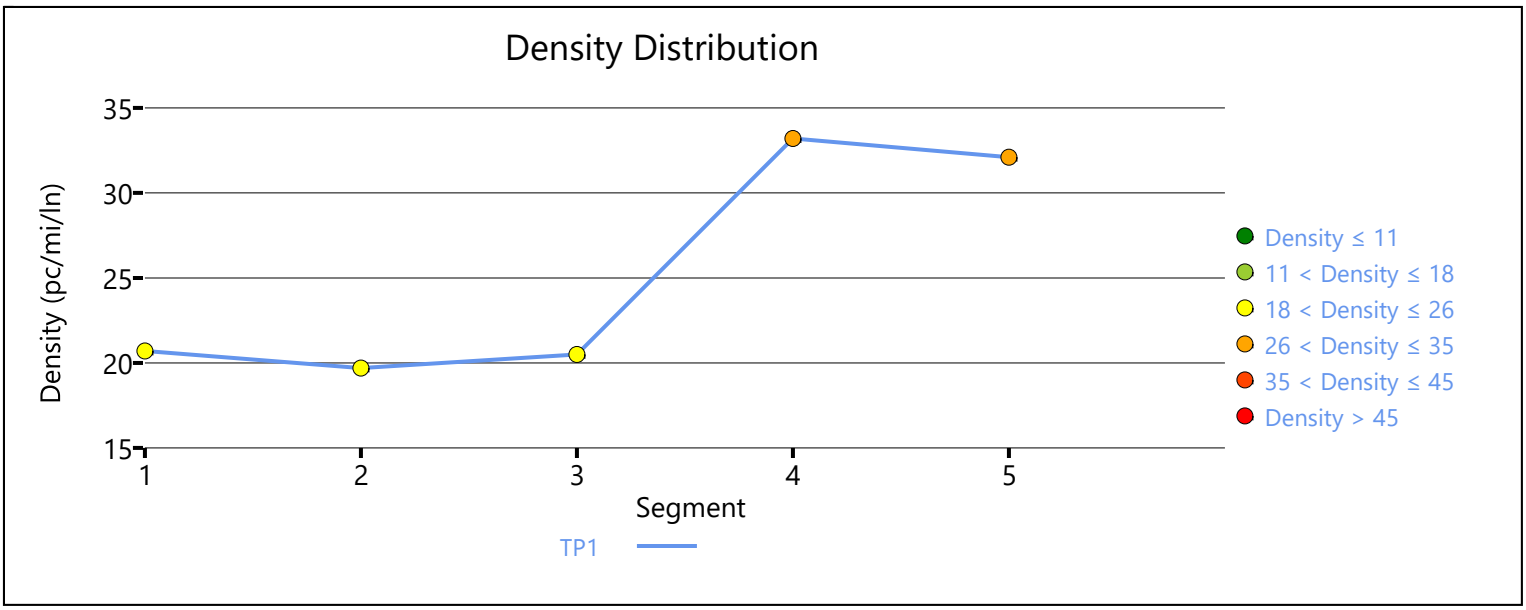
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.6	26.2	24.8	2.5	D

Facility Overall Results

Space Mean Speed, mi/h	64.6	Density, veh/mi/ln	24.8
Average Travel Time, min	2.5	Density, pc/mi/ln	26.2







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	4788	7161	0.67	67.3	23.7	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.952	4788	424	7200	2100	0.67	0.20	64.7	60.6	24.7	27.4	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	4357	7161	0.61	68.2	21.3	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.980	5443	1086	9600	2100	0.45	0.52	70.0	-	15.6	-	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

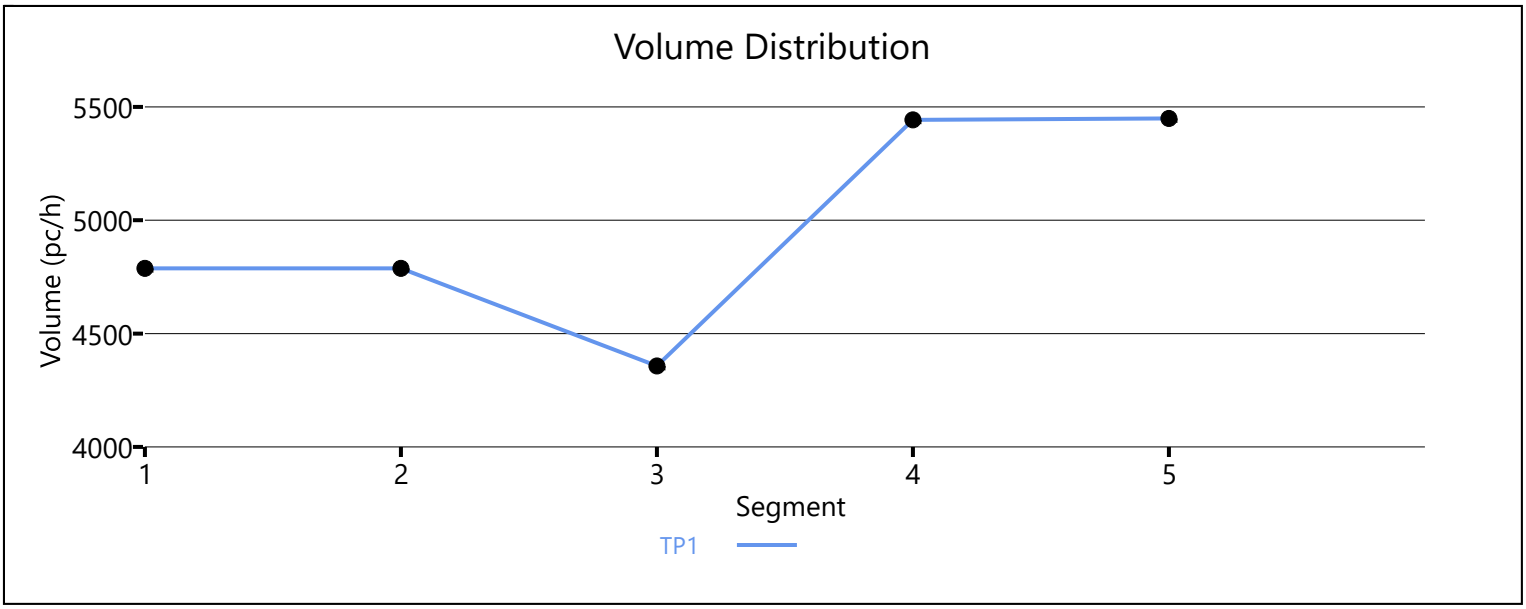
1	0.92	0.943	5449	11935	0.46	68.7	15.9	B

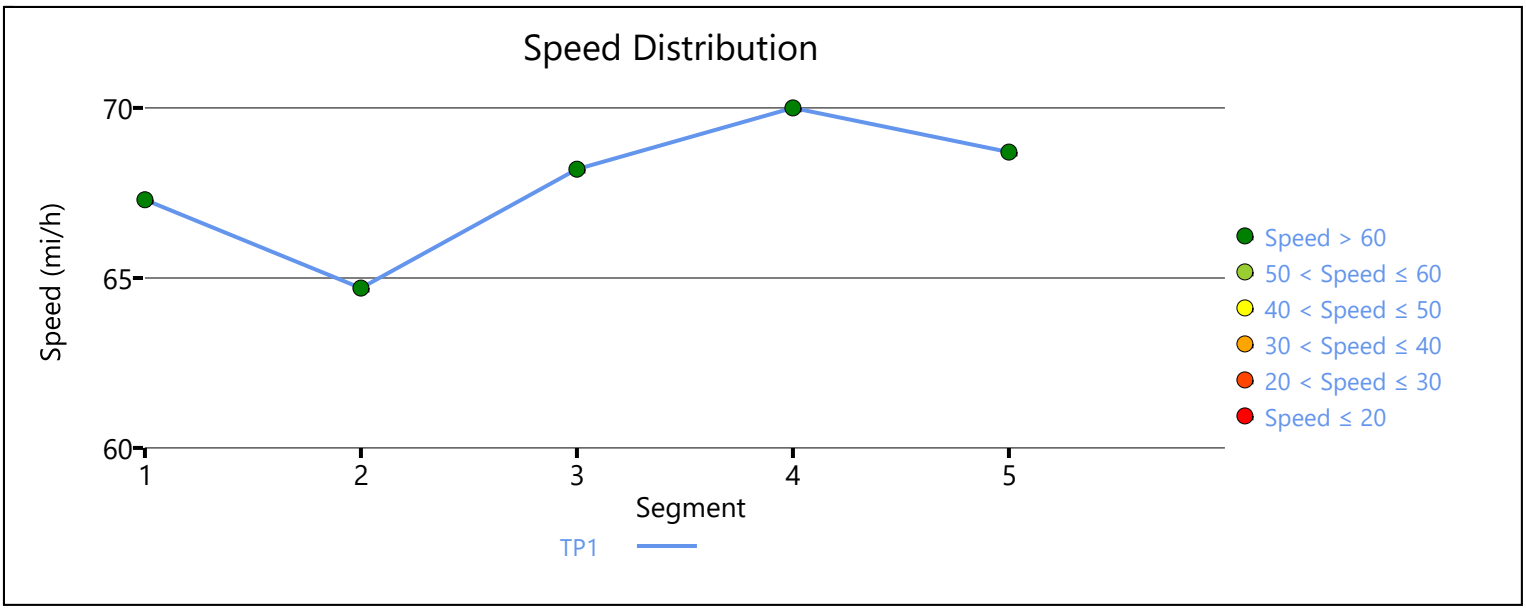
Facility Time Period Results

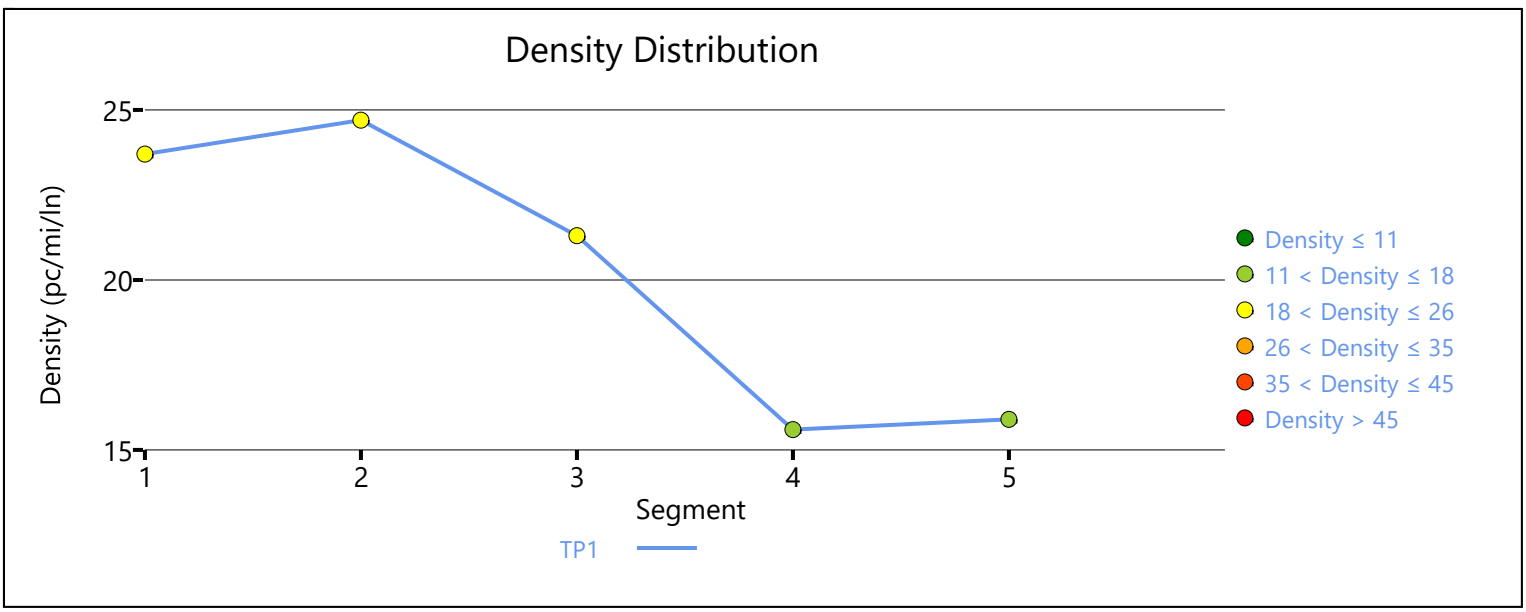
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.6	21.1	19.8	2.3	C

Facility Overall Results

Space Mean Speed, mi/h	67.6	Density, veh/mi/ln	19.8
Average Travel Time, min	2.3	Density, pc/mi/ln	21.1







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year Cumulative (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	5065	11935	0.42	68.7	14.7	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.971	5065	1133	12000	4200	0.42	0.27	70.0	-	14.5	-	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	3926	9548	0.41	68.7	14.3	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.943	4696	770	7200	2100	0.65	0.37	62.1	60.2	25.2	25.5	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.92	0.926	4711	7161	0.66	67.5	23.3	C

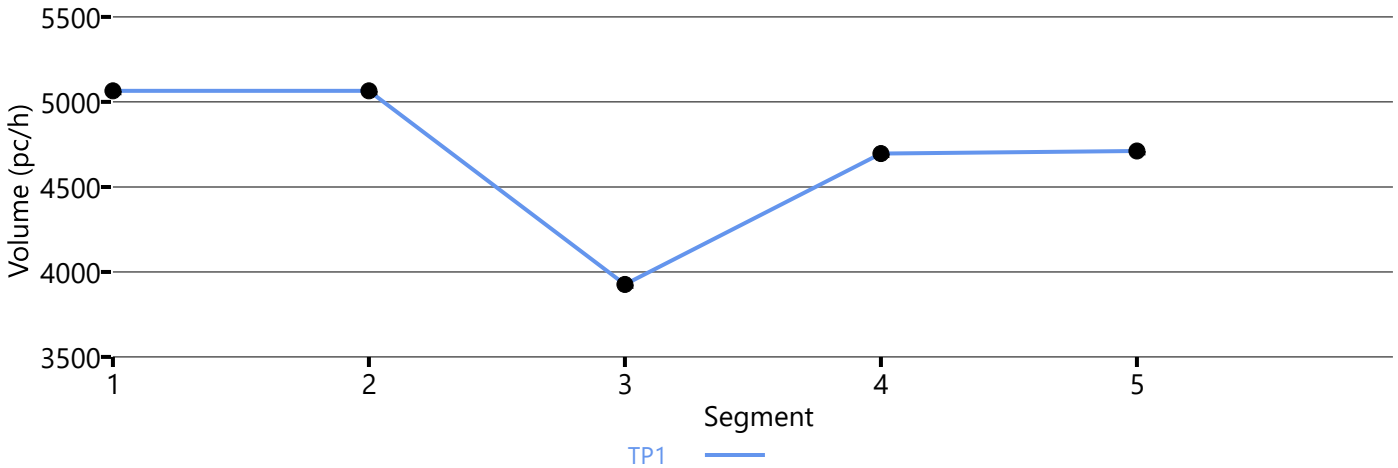
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.5	19.0	17.6	2.4	C

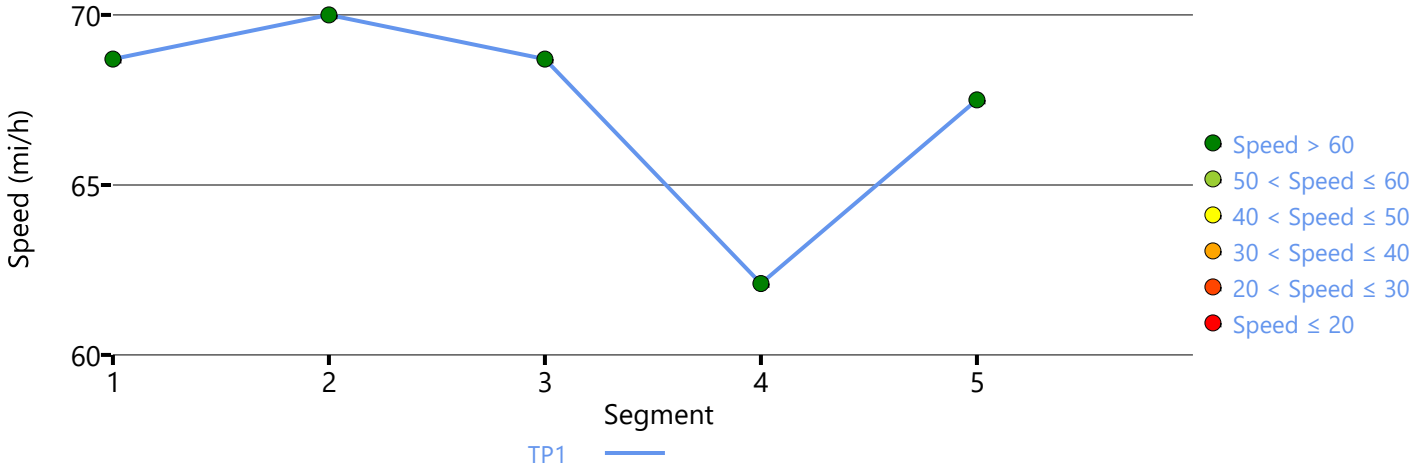
Facility Overall Results

Space Mean Speed, mi/h	67.5	Density, veh/mi/ln	17.6
Average Travel Time, min	2.4	Density, pc/mi/ln	19.0

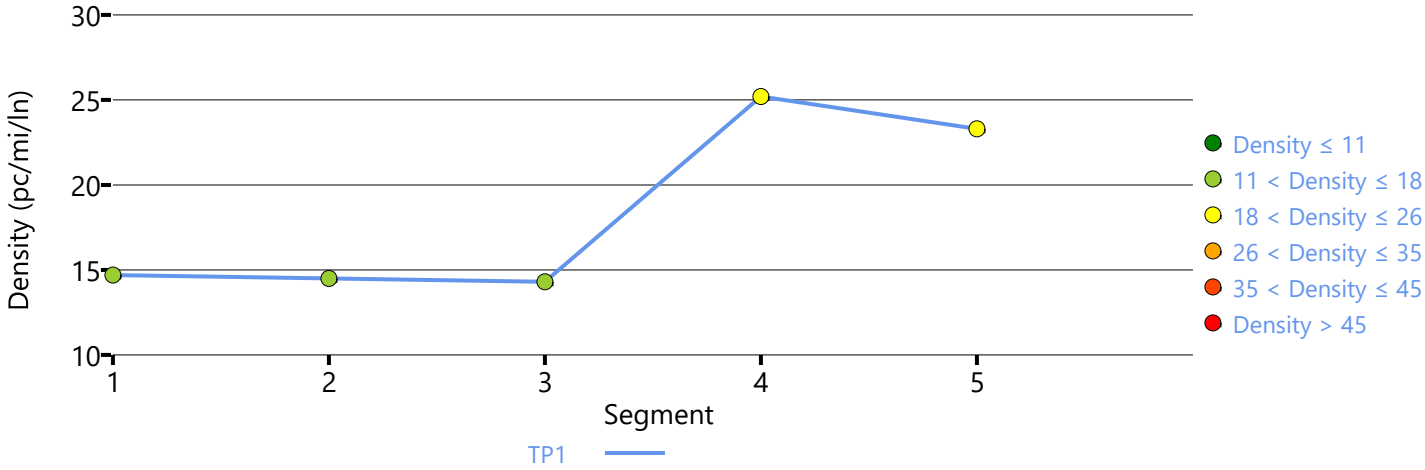
Volume Distribution



Speed Distribution



Density Distribution



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APPENDIX 7.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	485	0	0	1487	37	0	0	0	20	0	0
Future Vol, veh/h	0	485	0	0	1487	37	0	0	0	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	527	0	0	1616	40	0	0	0	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1657	0	0	527	0	0	1335	2184	264	1901	2164	829
Stage 1	-	-	-	-	-	-	527	527	-	1637	1637	-
Stage 2	-	-	-	-	-	-	808	1657	-	264	527	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.6	4.02	3.32
Pot Cap-1 Maneuver	*690	-	-	1036	-	-	*435	*92	734	*217	*98	*461
Stage 1	-	-	-	-	-	-	*502	*527	-	*425	*381	-
Stage 2	-	-	-	-	-	-	*435	*381	-	*704	*527	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*689	-	-	1036	-	-	*435	*92	734	*217	*98	*461
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	*242	-	*331	*245	-
Stage 1	-	-	-	-	-	-	*502	*527	-	*425	*381	-
Stage 2	-	-	-	-	-	-	*435	*381	-	*704	*527	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	16.6
HCM LOS			A	C

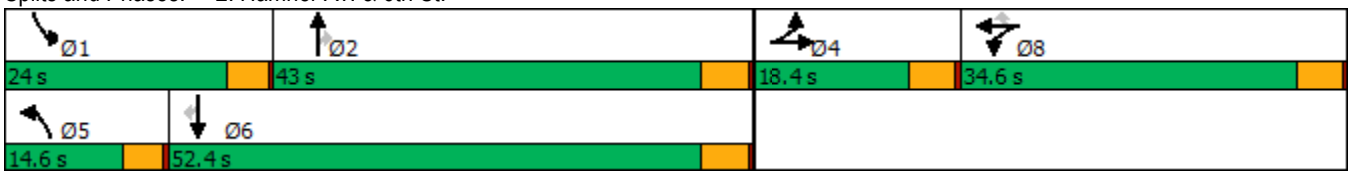
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	* 689	-	-	1036	-	-	331
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.066
HCM Control Delay (s)	0	0	-	-	0	-	-	16.6
HCM Lane LOS	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.2

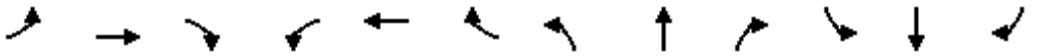
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	49	266	634	125	368	110	569	313	598	1306	145
Future Volume (vph)	49	266	634	125	368	110	569	313	598	1306	145
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	13.5	13.5	29.9	29.9	29.9	10.0	38.1	38.1	19.9	48.1	48.1
Actuated g/C Ratio	0.11	0.11	0.25	0.25	0.25	0.08	0.32	0.32	0.17	0.40	0.40
v/c Ratio	0.26	0.84	0.94	0.95	0.57	0.79	0.53	0.46	2.14	0.97	0.23
Control Delay	52.2	68.3	75.5	77.1	7.2	88.6	35.6	5.4	550.5	53.0	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	68.3	75.5	77.1	7.2	88.6	35.6	5.4	550.5	53.0	10.8
LOS	D	E	E	E	A	F	D	A	F	D	B
Approach Delay		66.1		53.7			32.0			195.1	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.14	
Intersection Signal Delay: 113.8	Intersection LOS: F
Intersection Capacity Utilization 100.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	266	57	634	125	368	110	569	313	598	1306	145
Future Volume (veh/h)	49	266	57	634	125	368	110	569	313	598	1306	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	280	49	761	0	174	116	599	208	629	1375	136
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	336	58	845	0	375	142	1158	516	303	1481	658
Arrive On Green	0.11	0.11	0.11	0.24	0.00	0.24	0.08	0.33	0.33	0.17	0.42	0.42
Sat Flow, veh/h	1781	3030	523	3563	0	1581	1781	3554	1584	1781	3554	1579
Grp Volume(v), veh/h	52	163	166	761	0	174	116	599	208	629	1375	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	0	1581	1781	1777	1584	1781	1777	1579
Q Serve(g_s), s	3.1	10.5	10.7	24.2	0.0	11.0	7.5	16.0	11.9	19.9	43.0	6.4
Cycle Q Clear(g_c), s	3.1	10.5	10.7	24.2	0.0	11.0	7.5	16.0	11.9	19.9	43.0	6.4
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	197	197	845	0	375	142	1158	516	303	1481	658
V/C Ratio(X)	0.26	0.83	0.84	0.90	0.00	0.46	0.82	0.52	0.40	2.07	0.93	0.21
Avail Cap(c_a), veh/h	210	210	210	914	0	406	160	1158	516	303	1481	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	50.9	51.0	43.2	0.0	38.2	53.0	31.9	30.6	48.5	32.4	21.8
Incr Delay (d2), s/veh	0.7	21.9	24.8	11.3	0.0	0.9	22.4	1.7	2.3	494.6	11.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.8	6.1	11.8	0.0	4.3	4.2	6.9	4.8	50.3	19.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	72.8	75.7	54.6	0.0	39.1	75.4	33.6	32.9	543.1	44.0	22.5
LnGrp LOS	D	E	E	D	A	D	E	C	C	F	D	C
Approach Vol, veh/h		381			935			923			2140	
Approach Delay, s/veh		70.7			51.7			38.7			189.3	
Approach LOS		E			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		17.6	13.4	53.6		32.3				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	18.0		12.7	9.5	45.0		26.2				
Green Ext Time (p_c), s	0.0	4.4		0.2	0.0	1.9		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		117.9
HCM 6th LOS		F

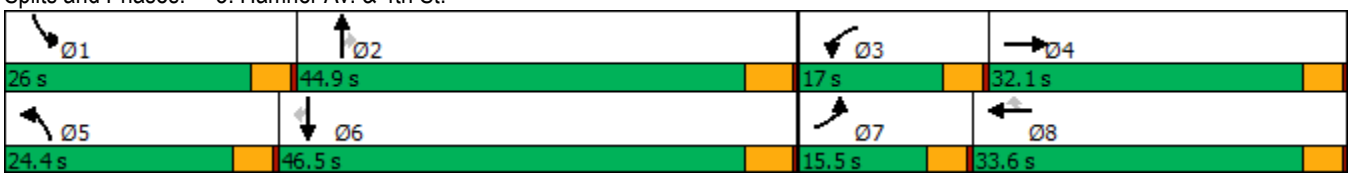
Notes

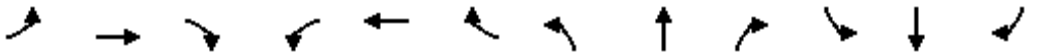
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	108	253	137	151	132	215	954	251	246	953	218
Future Volume (vph)	108	253	137	151	132	215	954	251	246	953	218
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	15.5	32.1	17.0	33.6	33.6	24.4	44.9	44.9	26.0	46.5	46.5
Total Split (%)	12.9%	26.8%	14.2%	28.0%	28.0%	20.3%	37.4%	37.4%	21.7%	38.8%	38.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.2	23.5	11.9	25.2	25.2	17.8	40.3	40.3	19.6	42.1	42.1
Actuated g/C Ratio	0.09	0.21	0.11	0.22	0.22	0.16	0.36	0.36	0.17	0.37	0.37
v/c Ratio	0.73	0.83	0.80	0.40	0.31	0.84	0.82	0.44	0.87	0.78	0.37
Control Delay	77.1	61.5	80.1	40.7	7.7	72.1	40.6	22.6	73.5	37.8	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.1	61.5	80.1	40.7	7.7	72.1	40.6	22.6	73.5	37.8	18.6
LOS	E	E	F	D	A	E	D	C	E	D	B
Approach Delay		65.7		43.3			42.2			41.0	
Approach LOS		E		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.6	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 44.5	Intersection LOS: D
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	253	41	137	151	132	215	954	251	246	953	218
Future Volume (veh/h)	108	253	41	137	151	132	215	954	251	246	953	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	275	35	149	164	60	234	1037	257	267	1036	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	317	40	178	400	339	265	1336	596	298	1402	625
Arrive On Green	0.08	0.20	0.20	0.10	0.21	0.21	0.15	0.38	0.38	0.17	0.39	0.39
Sat Flow, veh/h	1781	1626	207	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	117	0	310	149	164	60	234	1037	257	267	1036	189
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.9	0.0	17.4	8.7	8.0	3.3	13.7	27.3	12.8	15.6	26.5	8.7
Cycle Q Clear(g_c), s	6.9	0.0	17.4	8.7	8.0	3.3	13.7	27.3	12.8	15.6	26.5	8.7
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	357	178	400	339	265	1336	596	298	1402	625
V/C Ratio(X)	0.81	0.00	0.87	0.84	0.41	0.18	0.88	0.78	0.43	0.90	0.74	0.30
Avail Cap(c_a), veh/h	191	0	482	216	519	440	340	1336	596	367	1402	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	41.5	47.0	36.0	34.1	44.4	29.2	24.7	43.4	27.5	22.1
Incr Delay (d2), s/veh	13.3	0.0	12.0	17.8	0.7	0.2	16.7	4.5	2.3	18.7	3.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	9.1	4.8	3.8	1.3	7.1	11.9	5.2	8.2	11.3	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	0.0	53.5	64.8	36.7	34.4	61.0	33.7	27.0	62.1	31.1	23.4
LnGrp LOS	E	A	D	E	D	C	E	C	C	E	C	C
Approach Vol, veh/h		427			373			1528			1492	
Approach Delay, s/veh		55.7			47.5			36.8			35.6	
Approach LOS		E			D			D			D	

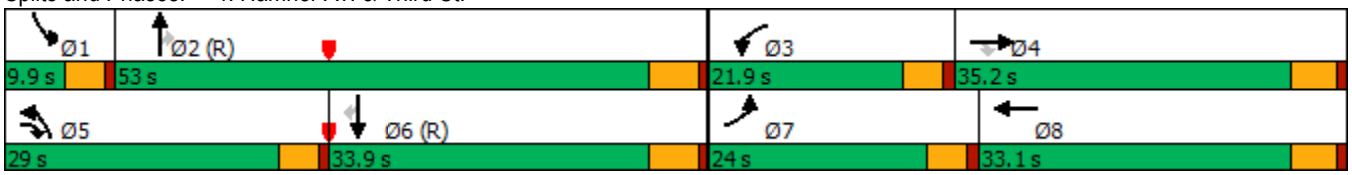
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	44.9	14.7	24.8	19.9	46.9	12.7	26.9
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	21.9	40.0	12.9	28.0	20.3	41.6	11.4	29.5
Max Q Clear Time (g_c+I1), s	17.6	29.3	10.7	19.4	15.7	28.5	8.9	10.0
Green Ext Time (p_c), s	0.2	5.6	0.0	1.2	0.1	6.2	0.0	1.1

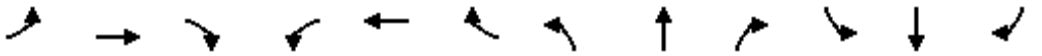
Intersection Summary	
HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	148	39	317	117	368	630	1389	64	31	844	552
Future Volume (vph)	148	39	317	117	368	630	1389	64	31	844	552
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	24.0	35.2	29.0	21.9	33.1	29.0	53.0	53.0	9.9	33.9	33.9
Total Split (%)	20.0%	29.3%	24.2%	18.3%	27.6%	24.2%	44.2%	44.2%	8.3%	28.3%	28.3%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	14.9	29.2	55.7	21.2	32.5	24.4	51.6	51.6	5.2	28.5	28.5
Actuated g/C Ratio	0.12	0.24	0.46	0.18	0.27	0.20	0.43	0.43	0.04	0.24	0.24
v/c Ratio	0.74	0.09	0.43	0.41	0.93	0.98	0.99	0.09	0.44	1.09	0.95
Control Delay	69.8	33.5	13.1	52.6	68.8	57.4	51.1	7.4	73.8	102.1	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	33.5	13.1	52.6	68.8	57.4	51.1	7.4	73.8	102.1	45.8
LOS	E	C	B	D	E	E	D	A	E	F	D
Approach Delay		31.3			65.3		51.7			79.7	
Approach LOS		C			E		D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 59.8	Intersection LOS: E
Intersection Capacity Utilization 90.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	39	317	117	368	56	630	1389	64	31	844	552
Future Volume (veh/h)	148	39	317	117	368	56	630	1389	64	31	844	552
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	42	206	127	400	45	685	1510	60	34	917	451
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	473	723	154	385	43	703	1664	742	50	1042	458
Arrive On Green	0.11	0.25	0.25	0.09	0.23	0.23	0.14	0.31	0.31	0.03	0.29	0.29
Sat Flow, veh/h	1781	1870	1585	1781	1651	186	3456	3554	1585	1781	3554	1563
Grp Volume(v), veh/h	161	42	206	127	0	445	685	1510	60	34	917	451
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1836	1728	1777	1585	1781	1777	1563
Q Serve(g_s), s	10.7	2.1	9.7	8.4	0.0	28.0	23.7	48.9	3.2	2.3	29.5	34.4
Cycle Q Clear(g_c), s	10.7	2.1	9.7	8.4	0.0	28.0	23.7	48.9	3.2	2.3	29.5	34.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	189	473	723	154	0	428	703	1664	742	50	1042	458
V/C Ratio(X)	0.85	0.09	0.28	0.83	0.00	1.04	0.97	0.91	0.08	0.68	0.88	0.98
Avail Cap(c_a), veh/h	288	473	723	257	0	428	703	1664	742	79	1042	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	52.7	34.2	20.4	53.9	0.0	46.0	51.5	38.7	23.0	57.8	40.4	42.1
Incr Delay (d2), s/veh	9.2	0.1	0.2	4.3	0.0	53.8	27.6	8.8	0.2	3.0	5.9	26.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.9	3.6	3.9	0.0	18.9	13.2	23.8	1.2	1.1	13.4	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.9	34.3	20.6	58.2	0.0	99.8	79.1	47.4	23.2	60.8	46.3	68.8
LnGrp LOS	E	C	C	E	A	F	E	D	C	E	D	E
Approach Vol, veh/h		409			572			2255			1402	
Approach Delay, s/veh		38.3			90.6			56.4			53.9	
Approach LOS		D			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	61.6	14.9	35.5	29.0	40.6	17.3	33.1
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	47.6	17.3	30.1	24.4	28.5	19.4	28.0
Max Q Clear Time (g_c+I1), s	4.3	50.9	10.4	11.7	25.7	36.4	12.7	30.0
Green Ext Time (p_c), s	0.0	0.0	0.1	0.8	0.0	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.3
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	0	0	0	1	0	0	0	2067	4	0	1279	0
Future Vol, veh/h	0	0	0	1	0	0	0	2067	4	0	1279	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	1	0	0	0	2247	4	0	1390	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2518	3645	699	2944	3643	1126	1394	0	0	2251	0	0
Stage 1	1394	1394	-	2249	2249	-	-	-	-	-	-	-
Stage 2	1124	2251	-	695	1394	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*0	*0	*567	*~ 0	*0	*236	*849	-	-	*353	-	-
Stage 1	*535	*469	-	*222	*195	-	-	-	-	-	-	-
Stage 2	*222	*195	-	*535	*469	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*0	*0	*566	*0	*0	*236	*846	-	-	*353	-	-
Mov Cap-2 Maneuver	*188	*165	-	*188	*165	-	-	-	-	-	-	-
Stage 1	*533	*468	-	*222	*195	-	-	-	-	-	-	-
Stage 2	*222	*195	-	*535	*468	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	24.3	0	0
HCM LOS	A	C		

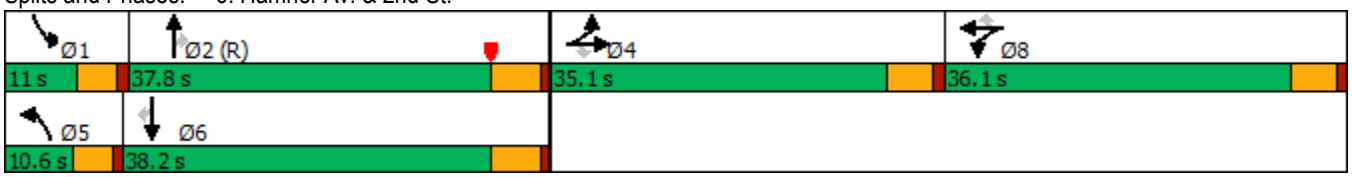
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 846	-	-	-	188	* 353	-	-
HCM Lane V/C Ratio	-	-	-	-	0.006	-	-	-
HCM Control Delay (s)	0	-	-	0	24.3	0	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

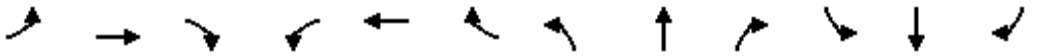
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	277	672	49	587	655	806	92	994	235	334	831	246
Future Volume (vph)	277	672	49	587	655	806	92	994	235	334	831	246
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.0	32.4	32.4	6.4	32.8	32.8
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.27	0.27
v/c Ratio	0.67	0.90	0.11	1.06	1.05	1.60	1.14	1.13	0.47	3.86	0.93	0.46
Control Delay	50.1	58.4	0.5	86.0	72.2	295.3	188.1	112.6	16.1	1317.6	60.0	22.7
Queue Delay	0.0	49.8	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	50.1	108.2	0.5	86.0	72.2	295.4	188.1	112.6	16.1	1317.6	60.0	22.7
LOS	D	F	A	F	E	F	F	F	B	F	E	C
Approach Delay		88.4			162.8			100.7			351.3	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.86	
Intersection Signal Delay: 181.8	Intersection LOS: F
Intersection Capacity Utilization 115.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	672	49	587	655	806	92	994	235	334	831	246
Future Volume (veh/h)	277	672	49	587	655	806	92	994	235	334	831	246
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	730	33	450	975	538	100	1080	150	363	903	213
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	460	966	409	89	959	421	95	971	433
Arrive On Green	0.25	0.25	0.25	0.43	0.43	0.43	0.05	0.27	0.27	0.02	0.09	0.09
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1583
Grp Volume(v), veh/h	301	730	33	450	975	538	100	1080	150	363	903	213
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1583
Q Serve(g_s), s	18.3	21.8	1.9	29.8	31.0	31.0	6.0	32.4	9.3	6.4	30.3	15.4
Cycle Q Clear(g_c), s	18.3	21.8	1.9	29.8	31.0	31.0	6.0	32.4	9.3	6.4	30.3	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	460	966	409	89	959	421	95	971	433
V/C Ratio(X)	0.68	0.78	0.08	0.98	1.01	1.32	1.12	1.13	0.36	3.82	0.93	0.49
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	959	421	95	971	433
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	41.9	34.5	33.8	34.1	34.1	57.0	43.8	35.4	58.9	53.4	46.7
Incr Delay (d2), s/veh	8.0	6.4	0.4	23.7	22.3	150.3	132.4	70.1	2.3	1294.6	14.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	10.8	0.8	13.7	14.7	27.0	5.9	23.1	3.8	37.1	16.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	48.4	34.9	57.5	56.4	184.4	189.4	113.9	37.7	1353.5	68.3	47.5
LnGrp LOS	D	D	C	E	F	F	F	F	D	F	E	D
Approach Vol, veh/h		1064			1963			1330			1479	
Approach Delay, s/veh		48.0			91.7			111.0			380.7	
Approach LOS		D			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	37.8		35.1	10.6	38.2		36.1				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	34.4		23.8	8.0	32.3		33.0				
Green Ext Time (p_c), s	0.0	0.0		3.0	0.0	0.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		161.4	
HCM 6th LOS		F	

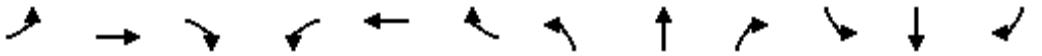
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	616	342	1352	2	603
Future Volume (vph)	616	342	1352	2	603
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	39.4	24.5	68.4	41.7	41.7
Actuated g/C Ratio	0.33	0.20	0.57	0.35	0.35
v/c Ratio	1.08	0.99	0.70	0.13	1.07
Control Delay	75.5	63.4	9.9	27.6	93.3
Queue Delay	10.5	0.0	1.3	0.0	1.4
Total Delay	86.0	63.4	11.2	27.6	94.7
LOS	F	E	B	C	F
Approach Delay	86.0		21.7	86.9	
Approach LOS	F		C	F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 56.3	Intersection LOS: E
Intersection Capacity Utilization 140.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	616	657	342	1352	0	0	0	0	78	2	603
Future Volume (veh/h)	0	616	657	342	1352	0	0	0	0	78	2	603
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	642	604	356	1408	0				81	2	561
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	583	520	364	2026	0				605	15	551
Arrive On Green	0.00	0.55	0.55	0.14	0.38	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	1870	1585	1781	3647	0				1740	43	1585
Grp Volume(v), veh/h	0	642	604	356	1408	0				83	0	561
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	39.4	39.4	23.9	40.0	0.0				3.8	0.0	41.7
Cycle Q Clear(g_c), s	0.0	39.4	39.4	23.9	40.0	0.0				3.8	0.0	41.7
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	583	520	364	2026	0				620	0	551
V/C Ratio(X)	0.00	1.10	1.16	0.98	0.70	0.00				0.13	0.00	1.02
Avail Cap(c_a), veh/h	0	583	520	364	2026	0				620	0	551
HCM Platoon Ratio	1.00	1.67	1.67	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.48	0.48	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.1	27.1	51.5	28.3	0.0				26.8	0.0	39.2
Incr Delay (d2), s/veh	0.0	48.1	74.4	27.3	1.0	0.0				0.0	0.0	43.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.5	22.1	13.7	18.0	0.0				1.6	0.0	21.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	75.2	101.6	78.9	29.3	0.0				26.8	0.0	82.2
LnGrp LOS	A	F	F	E	C	A				C	A	F
Approach Vol, veh/h		1246			1764						644	
Approach Delay, s/veh		88.0			39.3						75.1	
Approach LOS		F			D						E	

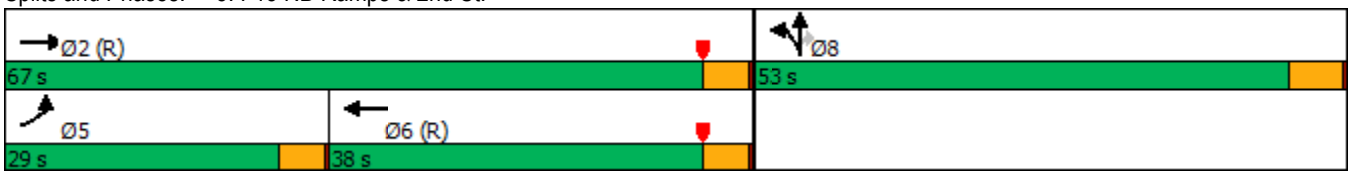
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	29.0	44.0		47.0		73.0
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6
Max Green Setting (Gmax), s	24.5	39.4		41.7		68.4
Max Q Clear Time (g_c+I1), s	25.9	41.4		43.7		42.0
Green Ext Time (p_c), s	0.0	0.0		0.0		8.1

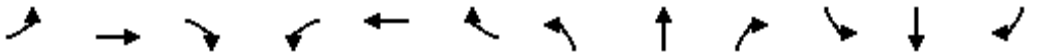
Intersection Summary			
HCM 6th Ctrl Delay		62.2	
HCM 6th LOS		E	

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	229	465	744	950	5	683
Future Volume (vph)	229	465	744	950	5	683
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	29.0	67.0	38.0	53.0	53.0	53.0
Total Split (%)	24.2%	55.8%	31.7%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	20.7	65.2	40.0	44.9	44.9	44.9
Actuated g/C Ratio	0.17	0.54	0.33	0.37	0.37	0.37
v/c Ratio	0.82	0.26	0.80	0.82	0.83	0.95
Control Delay	31.5	5.9	43.7	45.5	46.0	42.4
Queue Delay	0.0	0.0	0.0	0.6	0.6	0.0
Total Delay	31.5	5.9	43.7	46.1	46.6	42.4
LOS	C	A	D	D	D	D
Approach Delay		14.4	43.7		44.7	
Approach LOS		B	D		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 140.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	465	0	0	744	114	950	5	683	0	0	0
Future Volume (veh/h)	229	465	0	0	744	114	950	5	683	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	249	505	0	0	809	90	1037	0	613			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	281	1849	0	0	1048	117	1415	0	630			
Arrive On Green	0.05	0.17	0.00	0.00	0.32	0.32	0.40	0.00	0.40			
Sat Flow, veh/h	1781	3647	0	0	3317	359	3563	0	1585			
Grp Volume(v), veh/h	249	505	0	0	446	453	1037	0	613			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1805	1781	0	1585			
Q Serve(g_s), s	16.7	14.8	0.0	0.0	27.1	27.1	29.7	0.0	45.6			
Cycle Q Clear(g_c), s	16.7	14.8	0.0	0.0	27.1	27.1	29.7	0.0	45.6			
Prop In Lane	1.00		0.00	0.00		0.20	1.00		1.00			
Lane Grp Cap(c), veh/h	281	1849	0	0	577	587	1415	0	630			
V/C Ratio(X)	0.89	0.27	0.00	0.00	0.77	0.77	0.73	0.00	0.97			
Avail Cap(c_a), veh/h	364	1849	0	0	577	587	1416	0	630			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.8	30.0	0.0	0.0	36.5	36.5	30.7	0.0	35.5			
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.0	9.7	9.5	1.9	0.0	29.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.1	7.1	0.0	0.0	13.1	13.3	12.5	0.0	21.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	30.0	0.0	0.0	46.2	46.0	32.6	0.0	64.7			
LnGrp LOS	E	C	A	A	D	D	C	A	E			
Approach Vol, veh/h		754			899			1650				
Approach Delay, s/veh		39.2			46.1			44.5				
Approach LOS		D			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.0			23.4	43.6		53.0				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			24.5	33.4		47.7				
Max Q Clear Time (g_c+I1), s		16.8			18.7	29.1		47.6				
Green Ext Time (p_c), s		2.3			0.3	1.6		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			43.7									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	670	0	14	649	5	0	0	0	69	0	0
Future Vol, veh/h	3	670	0	14	649	5	0	0	0	69	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	728	0	15	705	5	0	0	0	75	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	711	0	0	728	0	0	1117	1475	364	1109	1473	356
Stage 1	-	-	-	-	-	-	734	734	-	739	739	-
Stage 2	-	-	-	-	-	-	383	741	-	370	734	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	*1227	-	-	871	-	-	*336	186	633	342	187	*820
Stage 1	-	-	-	-	-	-	*378	424	-	760	669	-
Stage 2	-	-	-	-	-	-	*773	667	-	622	424	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*1226	-	-	871	-	-	*331	183	633	337	183	*819
Mov Cap-2 Maneuver	-	-	-	-	-	-	*340	312	-	457	306	-
Stage 1	-	-	-	-	-	-	*377	423	-	757	657	-
Stage 2	-	-	-	-	-	-	*760	655	-	620	423	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	0	14.4
HCM LOS			A	B

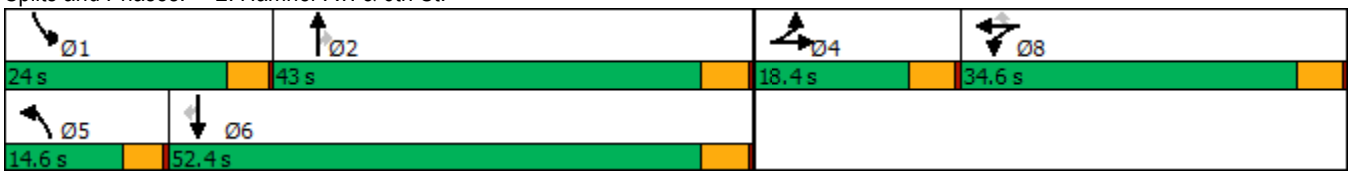
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	* 1226	-	-	871	-	-	457
HCM Lane V/C Ratio	-	0.003	-	-	0.017	-	-	0.164
HCM Control Delay (s)	0	7.9	-	-	9.2	-	-	14.4
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	-	0.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	188	272	407	108	449	115	1453	688	380	681	47
Future Volume (vph)	188	272	407	108	449	115	1453	688	380	681	47
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	13.8	13.8	25.0	25.0	25.0	10.0	38.2	38.2	19.9	48.1	48.1
Actuated g/C Ratio	0.12	0.12	0.22	0.22	0.22	0.09	0.33	0.33	0.17	0.42	0.42
v/c Ratio	0.94	0.83	0.75	0.74	0.86	0.80	1.32	0.97	1.32	0.49	0.07
Control Delay	100.7	65.0	55.3	54.3	33.9	87.0	182.7	47.1	204.1	26.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.7	65.0	55.3	54.3	33.9	87.0	182.7	47.1	204.1	26.8	0.7
LOS	F	E	E	D	C	F	F	D	F	C	A
Approach Delay		77.8		45.1			136.5			86.5	
Approach LOS		E		D			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.2	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.32	
Intersection Signal Delay: 100.6	Intersection LOS: F
Intersection Capacity Utilization 101.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	272	63	407	108	449	115	1453	688	380	681	47
Future Volume (veh/h)	188	272	63	407	108	449	115	1453	688	380	681	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	289	55	274	338	263	122	1546	523	404	724	32
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	360	68	381	400	338	148	1183	520	310	1505	670
Arrive On Green	0.12	0.12	0.12	0.21	0.21	0.21	0.08	0.33	0.33	0.17	0.42	0.42
Sat Flow, veh/h	1781	2984	560	1781	1870	1583	1781	3554	1561	1781	3554	1581
Grp Volume(v), veh/h	200	170	174	274	338	263	122	1546	523	404	724	32
Grp Sat Flow(s),veh/h/ln	1781	1777	1768	1781	1870	1583	1781	1777	1561	1781	1777	1581
Q Serve(g_s), s	12.7	10.7	11.0	16.4	19.9	17.9	7.7	38.1	38.1	19.9	16.9	1.4
Cycle Q Clear(g_c), s	12.7	10.7	11.0	16.4	19.9	17.9	7.7	38.1	38.1	19.9	16.9	1.4
Prop In Lane	1.00		0.32	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	215	214	213	381	400	338	148	1183	520	310	1505	670
V/C Ratio(X)	0.93	0.80	0.81	0.72	0.85	0.78	0.82	1.31	1.01	1.30	0.48	0.05
Avail Cap(c_a), veh/h	215	214	213	467	490	415	163	1183	520	310	1505	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	49.0	49.1	41.8	43.2	42.4	51.6	38.2	38.2	47.3	23.9	19.4
Incr Delay (d2), s/veh	42.6	18.5	21.0	4.1	11.0	7.4	23.3	144.3	41.1	158.5	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	5.8	6.0	7.5	10.3	7.6	4.3	39.5	19.8	22.2	7.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.4	67.4	70.0	46.0	54.1	49.8	74.9	182.5	79.2	205.8	25.0	19.5
LnGrp LOS	F	E	E	D	D	D	E	F	F	F	C	B
Approach Vol, veh/h		544			875			2191			1160	
Approach Delay, s/veh		77.5			50.3			151.8			87.8	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		18.4	13.6	53.4		29.1				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	40.1		14.7	9.7	18.9		21.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	5.2		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		109.2
HCM 6th LOS		F

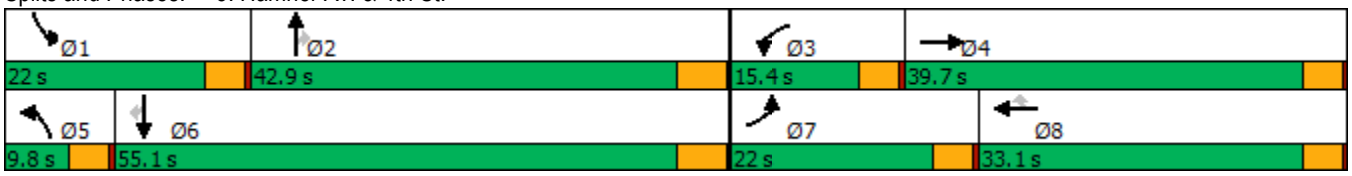
Notes

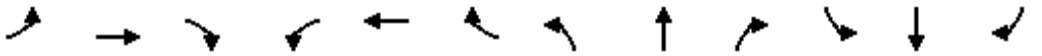
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	304	207	109	22	56	21	1201	483	302	1079	244
Future Volume (vph)	304	207	109	22	56	21	1201	483	302	1079	244
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	22.0	39.7	15.4	33.1	33.1	9.8	42.9	42.9	22.0	55.1	55.1
Total Split (%)	18.3%	33.1%	12.8%	27.6%	27.6%	8.2%	35.8%	35.8%	18.3%	45.9%	45.9%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.0	25.0	9.9	18.2	18.2	5.4	38.3	38.3	18.0	56.8	56.8
Actuated g/C Ratio	0.18	0.23	0.09	0.17	0.17	0.05	0.35	0.35	0.17	0.52	0.52
v/c Ratio	0.95	0.82	0.69	0.07	0.14	0.24	0.98	0.76	1.05	0.59	0.29
Control Delay	86.3	52.2	71.2	37.2	0.8	59.5	57.9	30.9	111.3	22.2	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	52.2	71.2	37.2	0.8	59.5	57.9	30.9	111.3	22.2	10.3
LOS	F	D	E	D	A	E	E	C	F	C	B
Approach Delay		68.3		46.1			50.3			36.9	
Approach LOS		E		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 47.7	Intersection LOS: D
Intersection Capacity Utilization 89.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	207	132	109	22	56	21	1201	483	302	1079	244
Future Volume (veh/h)	304	207	132	109	22	56	21	1201	483	302	1079	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	211	86	111	22	23	21	1226	449	308	1101	221
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	251	102	139	185	155	39	1337	596	316	1889	824
Arrive On Green	0.18	0.20	0.20	0.08	0.10	0.10	0.02	0.38	0.38	0.18	0.53	0.53
Sat Flow, veh/h	1781	1263	515	1781	1870	1562	1781	3554	1583	1781	3554	1550
Grp Volume(v), veh/h	310	0	297	111	22	23	21	1226	449	308	1101	221
Grp Sat Flow(s),veh/h/ln	1781	0	1778	1781	1870	1562	1781	1777	1583	1781	1777	1550
Q Serve(g_s), s	17.5	0.0	16.2	6.2	1.1	1.4	1.2	33.2	24.9	17.4	21.2	7.9
Cycle Q Clear(g_c), s	17.5	0.0	16.2	6.2	1.1	1.4	1.2	33.2	24.9	17.4	21.2	7.9
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	316	0	353	139	185	155	39	1337	596	316	1889	824
V/C Ratio(X)	0.98	0.00	0.84	0.80	0.12	0.15	0.53	0.92	0.75	0.98	0.58	0.27
Avail Cap(c_a), veh/h	316	0	627	199	537	449	101	1337	596	316	1889	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	0.0	39.0	45.8	41.5	41.6	48.9	30.0	27.4	41.3	16.1	12.9
Incr Delay (d2), s/veh	45.5	0.0	5.5	8.8	0.3	0.4	4.1	11.4	8.6	43.7	1.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	0.0	7.6	3.1	0.5	0.5	0.6	15.4	10.7	11.2	8.2	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	0.0	44.4	54.6	41.8	42.0	53.0	41.4	36.0	85.1	17.4	13.7
LnGrp LOS	F	A	D	D	D	D	D	D	D	F	B	B
Approach Vol, veh/h		607			156			1696			1630	
Approach Delay, s/veh		66.1			50.9			40.1			29.7	
Approach LOS		E			D			D			C	

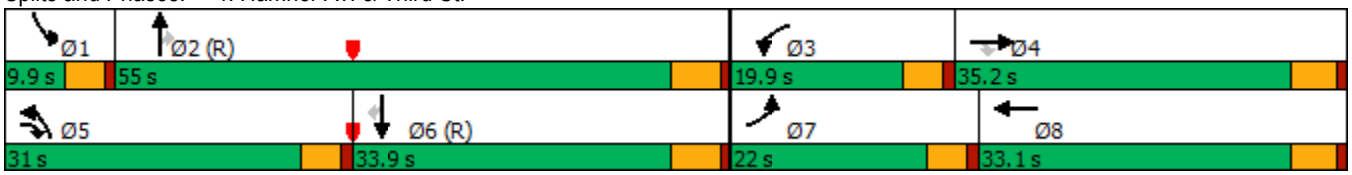
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	42.9	12.0	24.1	6.3	58.6	22.0	14.1
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	17.9	38.0	11.3	35.6	5.7	50.2	17.9	29.0
Max Q Clear Time (g_c+I1), s	19.4	35.2	8.2	18.2	3.2	23.2	19.5	3.4
Green Ext Time (p_c), s	0.0	2.2	0.0	1.7	0.0	9.6	0.0	0.1

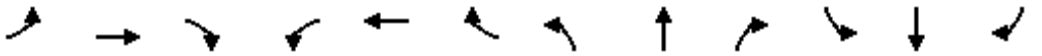
Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	163	81	494	55	122	432	1205	82	71	1408	220
Future Volume (vph)	163	81	494	55	122	432	1205	82	71	1408	220
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	22.0	35.2	31.0	19.9	33.1	31.0	55.0	55.0	9.9	33.9	33.9
Total Split (%)	18.3%	29.3%	25.8%	16.6%	27.6%	25.8%	45.8%	45.8%	8.3%	28.3%	28.3%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.1	26.9	53.0	8.5	18.4	21.0	56.9	56.9	9.9	45.8	45.8
Actuated g/C Ratio	0.13	0.22	0.44	0.07	0.15	0.18	0.47	0.47	0.08	0.38	0.38
v/c Ratio	0.80	0.21	0.66	0.48	0.70	0.78	0.78	0.11	0.53	1.13	0.35
Control Delay	75.6	38.3	18.7	65.5	55.6	49.5	42.0	10.7	67.1	105.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	38.3	18.7	65.5	55.6	49.5	42.0	10.7	67.1	105.0	14.6
LOS	E	D	B	E	E	D	D	B	E	F	B
Approach Delay		33.4			57.9		42.4			91.7	
Approach LOS		C			E		D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 60.8	Intersection LOS: E
Intersection Capacity Utilization 89.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	81	494	55	122	61	432	1205	82	71	1408	220
Future Volume (veh/h)	163	81	494	55	122	61	432	1205	82	71	1408	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	177	88	412	60	133	41	470	1310	72	77	1530	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	442	620	77	226	70	536	1819	793	79	1425	634
Arrive On Green	0.11	0.24	0.24	0.04	0.17	0.17	0.16	0.51	0.51	0.04	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	1781	1367	422	3456	3554	1549	1781	3554	1580
Grp Volume(v), veh/h	177	88	412	60	0	174	470	1310	72	77	1530	226
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1789	1728	1777	1549	1781	1777	1580
Q Serve(g_s), s	11.7	4.5	25.6	4.0	0.0	10.8	16.0	34.2	2.9	5.2	48.1	12.0
Cycle Q Clear(g_c), s	11.7	4.5	25.6	4.0	0.0	10.8	16.0	34.2	2.9	5.2	48.1	12.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	442	620	77	0	295	536	1819	793	79	1425	634
V/C Ratio(X)	0.87	0.20	0.66	0.77	0.00	0.59	0.88	0.72	0.09	0.98	1.07	0.36
Avail Cap(c_a), veh/h	258	469	643	227	0	417	760	1819	793	79	1425	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	52.2	36.7	30.0	56.8	0.0	46.3	49.6	22.6	15.0	57.3	35.9	25.1
Incr Delay (d2), s/veh	18.4	0.2	2.5	6.1	0.0	1.9	6.4	2.5	0.2	81.1	43.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	2.1	10.0	1.9	0.0	4.9	7.2	14.0	1.0	4.1	28.4	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	36.9	32.5	62.9	0.0	48.2	56.0	25.1	15.2	138.4	79.8	26.3
LnGrp LOS	E	D	C	E	A	D	E	C	B	F	F	C
Approach Vol, veh/h		677			234			1852			1833	
Approach Delay, s/veh		43.0			52.0			32.6			75.6	
Approach LOS		D			D			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	66.8	9.8	33.5	23.2	53.5	18.4	24.9
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	49.6	15.3	30.1	26.4	28.5	17.4	28.0
Max Q Clear Time (g_c+I1), s	7.2	36.2	6.0	27.6	18.0	50.1	13.7	12.8
Green Ext Time (p_c), s	0.0	7.5	0.0	0.5	0.6	0.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	0	0	0	4	1	0	0	1668	7	1	1957	0
Future Vol, veh/h	0	0	0	4	1	0	0	1668	7	1	1957	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	1	0	0	1702	7	1	1997	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2851	3708	999	2707	3705	855	1997	0	0	1709	0	0
Stage 1	1999	1999	-	1706	1706	-	-	-	-	-	-	-
Stage 2	852	1709	-	1001	1999	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	-	-	*261	-	-	*389	*391	-	-	*582	-	-
Stage 1	*247	*216	-	*367	*321	-	-	-	-	-	-	-
Stage 2	*367	*321	-	*247	*216	-	-	-	-	-	-	-
Platoon blocked, %	2	2	1	2	2	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*261	-	-	*389	*391	-	-	*582	-	-
Mov Cap-2 Maneuver	*184	*161	-	*184	*161	-	-	-	-	-	-	-
Stage 1	*247	*216	-	*367	*321	-	-	-	-	-	-	-
Stage 2	*366	*321	-	*246	*216	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0		0	0
HCM LOS	A	-		

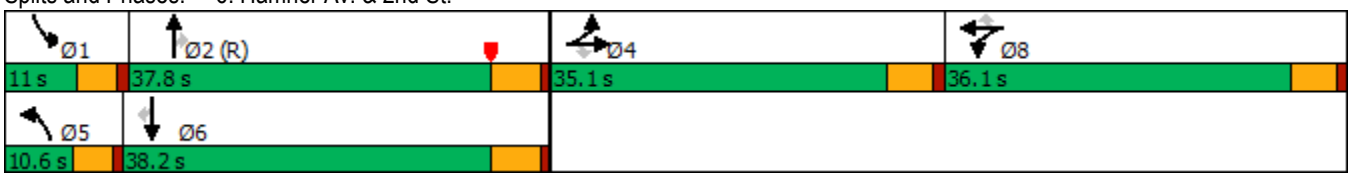
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 391	-	-	-	-	* 582	-	-
HCM Lane V/C Ratio	-	-	-	-	-	0.002	-	-
HCM Control Delay (s)	0	-	-	0	-	11.2	-	-
HCM Lane LOS	A	-	-	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	-	-

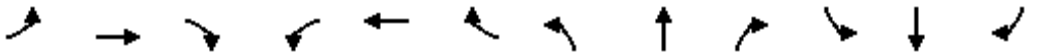
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	875	99	293	507	587	112	970	573	645	1229	287
Future Volume (vph)	357	875	99	293	507	587	112	970	573	645	1229	287
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.0	32.4	32.4	6.4	32.8	32.8
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.27	0.27
v/c Ratio	0.82	1.10	0.22	0.63	0.63	1.12	1.30	1.04	0.81	7.00	1.30	0.54
Control Delay	59.8	104.0	6.7	34.5	30.9	98.6	238.9	82.0	21.5	2718.2	180.3	29.1
Queue Delay	0.0	68.6	0.0	0.0	0.0	0.1	0.0	0.0	39.4	0.0	0.0	0.0
Total Delay	59.8	172.6	6.7	34.5	30.9	98.7	238.9	82.0	60.9	2718.2	180.3	29.1
LOS	E	F	A	C	C	F	F	F	E	F	F	C
Approach Delay		133.0			60.3			85.2			917.5	
Approach LOS		F			E			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 7.00	
Intersection Signal Delay: 364.9	Intersection LOS: F
Intersection Capacity Utilization 119.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	875	99	293	507	587	112	970	573	645	1229	287
Future Volume (veh/h)	357	875	99	293	507	587	112	970	573	645	1229	287
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	364	893	55	272	555	390	114	990	424	658	1254	232
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	460	966	409	89	959	422	95	971	432
Arrive On Green	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.02	0.09	0.09
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1561	1781	3554	1582
Grp Volume(v), veh/h	364	893	55	272	555	390	114	990	424	658	1254	232
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1561	1781	1777	1582
Q Serve(g_s), s	23.1	28.2	3.3	16.0	15.5	29.0	6.0	32.4	32.4	6.4	32.8	16.8
Cycle Q Clear(g_c), s	23.1	28.2	3.3	16.0	15.5	29.0	6.0	32.4	32.4	6.4	32.8	16.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	460	966	409	89	959	422	95	971	432
V/C Ratio(X)	0.82	0.95	0.14	0.59	0.57	0.95	1.28	1.03	1.01	6.93	1.29	0.54
Avail Cap(c_a), veh/h	445	935	392	460	966	409	89	959	422	95	971	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	44.3	35.0	39.0	38.8	43.8	57.0	43.8	43.8	58.9	54.6	47.3
Incr Delay (d2), s/veh	15.3	20.3	0.7	1.6	0.7	28.6	187.9	37.5	45.3	2688.7	138.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	15.5	1.3	7.1	7.1	14.4	7.3	18.8	17.4	73.9	34.3	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	64.7	35.7	40.6	39.4	72.4	244.9	81.3	89.1	2747.7	193.3	48.6
LnGrp LOS	E	E	D	D	D	E	F	F	F	F	F	D
Approach Vol, veh/h		1312			1217			1528			2144	
Approach Delay, s/veh		61.5			50.3			95.7			961.6	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	37.8		35.1	10.6	38.2		36.1				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	34.4		30.2	8.0	34.8		31.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			378.9									
HCM 6th LOS			F									

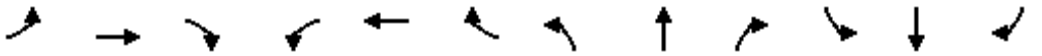
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	1065	238	976	5	395
Future Volume (vph)	1065	238	976	5	395
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	64.6	19.6	88.6	21.5	21.5
Actuated g/C Ratio	0.54	0.16	0.74	0.18	0.18
v/c Ratio	1.15	0.84	0.38	0.38	0.94
Control Delay	102.8	25.2	0.5	46.4	59.1
Queue Delay	1.2	0.0	0.3	0.0	0.8
Total Delay	104.0	25.2	0.9	46.4	59.9
LOS	F	C	A	D	E
Approach Delay	104.0		5.6	56.8	
Approach LOS	F		A	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 66.9	Intersection LOS: E
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1065	1084	238	976	0	0	0	0	115	5	395
Future Volume (veh/h)	0	1065	1084	238	976	0	0	0	0	115	5	395
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1087	951	243	996	0				117	5	311
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1024	780	266	2559	0				338	14	313
Arrive On Green	0.00	0.89	0.89	0.30	1.00	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	2015	1462	1781	3647	0				1712	73	1585
Grp Volume(v), veh/h	0	993	1045	243	996	0				122	0	311
Grp Sat Flow(s),veh/h/ln	0	1777	1607	1781	1777	0				1785	0	1585
Q Serve(g_s), s	0.0	64.0	64.0	15.8	0.0	0.0				7.1	0.0	23.5
Cycle Q Clear(g_c), s	0.0	64.0	64.0	15.8	0.0	0.0				7.1	0.0	23.5
Prop In Lane	0.00		0.91	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	947	857	266	2559	0				352	0	313
V/C Ratio(X)	0.00	1.05	1.22	0.91	0.39	0.00				0.35	0.00	0.99
Avail Cap(c_a), veh/h	0	947	857	334	2559	0				352	0	313
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.6	6.6	41.3	0.0	0.0				41.5	0.0	48.1
Incr Delay (d2), s/veh	0.0	25.0	100.0	11.5	0.2	0.0				0.2	0.0	48.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.7	26.7	6.6	0.1	0.0				3.1	0.0	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.5	106.6	52.8	0.2	0.0				41.7	0.0	97.0
LnGrp LOS	A	F	F	D	A	A				D	A	F
Approach Vol, veh/h		2038			1239						433	
Approach Delay, s/veh		70.0			10.5						81.4	
Approach LOS		E			B						F	

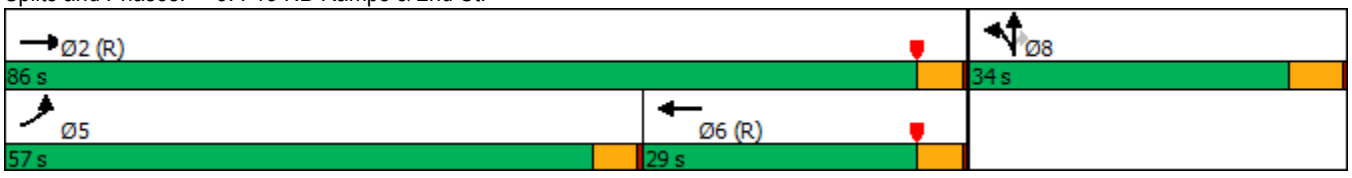
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	22.4	68.6		29.0		91.0						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	17.8	66.0		25.5		2.0						
Green Ext Time (p_c), s	0.2	0.0		0.0		5.4						

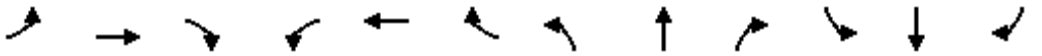
Intersection Summary												
HCM 6th Ctrl Delay			51.5									
HCM 6th LOS			D									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	707	473	458	756	38	476
Future Volume (vph)	707	473	458	756	38	476
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	57.0	86.0	29.0	34.0	34.0	34.0
Total Split (%)	47.5%	71.7%	24.2%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	51.3	81.4	25.6	28.7	28.7	28.7
Actuated g/C Ratio	0.43	0.68	0.21	0.24	0.24	0.24
v/c Ratio	0.96	0.20	0.72	1.01	1.02	0.70
Control Delay	21.7	3.3	49.7	92.6	95.3	12.4
Queue Delay	44.5	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	3.3	49.7	92.6	95.3	12.4
LOS	E	A	D	F	F	B
Approach Delay		41.0	49.7		63.4	
Approach LOS		D	D		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 52.1	Intersection LOS: D
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	707	473	0	0	458	64	756	38	476	0	0	0
Future Volume (veh/h)	707	473	0	0	458	64	756	38	476	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	729	488	0	0	472	54	807	0	312			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	752	2411	0	0	701	80	852	0	379			
Arrive On Green	0.42	0.68	0.00	0.00	0.22	0.22	0.24	0.00	0.24			
Sat Flow, veh/h	1781	3647	0	0	3299	365	3563	0	1585			
Grp Volume(v), veh/h	729	488	0	0	261	265	807	0	312			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1794	1781	0	1585			
Q Serve(g_s), s	48.0	6.1	0.0	0.0	16.1	16.3	26.7	0.0	22.4			
Cycle Q Clear(g_c), s	48.0	6.1	0.0	0.0	16.1	16.3	26.7	0.0	22.4			
Prop In Lane	1.00		0.00	0.00		0.20	1.00		1.00			
Lane Grp Cap(c), veh/h	752	2411	0	0	389	392	852	0	379			
V/C Ratio(X)	0.97	0.20	0.00	0.00	0.67	0.68	0.95	0.00	0.82			
Avail Cap(c_a), veh/h	779	2411	0	0	389	392	852	0	379			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	33.9	7.2	0.0	0.0	42.9	43.0	44.9	0.0	43.2			
Incr Delay (d2), s/veh	4.6	0.0	0.0	0.0	8.9	9.0	19.1	0.0	13.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	20.9	2.2	0.0	0.0	8.0	8.1	13.6	0.0	9.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	7.2	0.0	0.0	51.8	52.0	64.0	0.0	56.5			
LnGrp LOS	D	A	A	A	D	D	E	A	E			
Approach Vol, veh/h		1217			526			1119				
Approach Delay, s/veh		26.0			51.9			61.9				
Approach LOS		C			D			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		86.0			55.2	30.8		34.0				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		81.4			52.5	24.4		28.7				
Max Q Clear Time (g_c+I1), s		8.1			50.0	18.3		28.7				
Green Ext Time (p_c), s		2.2			0.6	1.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	481	4	37	1487	37	0	0	81	20	0	0
Future Vol, veh/h	0	481	4	37	1487	37	0	0	81	20	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	523	4	40	1616	40	0	0	88	22	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1657	0	0	527	0	0	1413	2262	264	1979	2244	829
Stage 1	-	-	-	-	-	-	525	525	-	1717	1717	-
Stage 2	-	-	-	-	-	-	888	1737	-	262	527	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	6.5	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	*690	-	-	1036	-	-	*435	72	734	*194	*76	*461
Stage 1	-	-	-	-	-	-	*504	528	-	*435	*381	-
Stage 2	-	-	-	-	-	-	*435	369	-	*720	*527	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*689	-	-	1036	-	-	*422	69	734	*166	*73	*461
Mov Cap-2 Maneuver	-	-	-	-	-	-	*381	223	-	*302	*223	-
Stage 1	-	-	-	-	-	-	*504	528	-	*434	*366	-
Stage 2	-	-	-	-	-	-	*418	354	-	*634	*527	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	10.6	17.8
HCM LOS			B	C

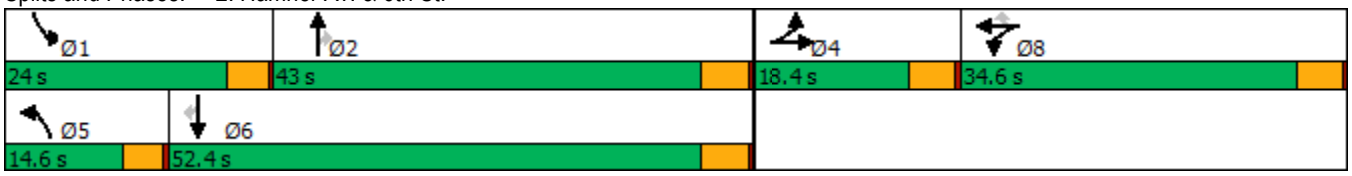
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	734	* 689	-	-	1036	-	-	302
HCM Lane V/C Ratio	0.12	-	-	-	0.039	-	-	0.072
HCM Control Delay (s)	10.6	0	-	-	8.6	-	-	17.8
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.2

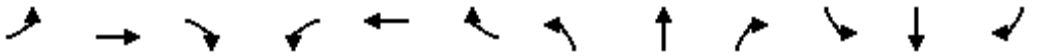
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	49	266	641	125	368	116	593	317	598	1328	145
Future Volume (vph)	49	266	641	125	368	116	593	317	598	1328	145
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	13.6	13.6	30.0	30.0	30.0	10.1	38.1	38.1	19.9	47.9	47.9
Actuated g/C Ratio	0.11	0.11	0.25	0.25	0.25	0.08	0.32	0.32	0.17	0.40	0.40
v/c Ratio	0.26	0.85	0.95	0.96	0.57	0.82	0.55	0.46	2.14	0.99	0.23
Control Delay	52.2	69.1	77.0	78.7	7.2	92.6	36.1	5.4	551.1	57.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	69.1	77.0	78.7	7.2	92.6	36.1	5.4	551.1	57.3	10.8
LOS	D	E	E	E	A	F	D	A	F	E	B
Approach Delay		66.9		54.9			33.0			196.5	
Approach LOS		E		D			C			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.14	
Intersection Signal Delay: 114.6	Intersection LOS: F
Intersection Capacity Utilization 100.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	266	63	641	125	368	116	593	317	598	1328	145
Future Volume (veh/h)	49	266	63	641	125	368	116	593	317	598	1328	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	280	55	769	0	174	122	624	213	629	1398	136
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	334	65	850	0	377	148	1153	514	302	1461	649
Arrive On Green	0.11	0.11	0.11	0.24	0.00	0.24	0.08	0.32	0.32	0.17	0.41	0.41
Sat Flow, veh/h	1781	2969	575	3563	0	1581	1781	3554	1584	1781	3554	1579
Grp Volume(v), veh/h	52	166	169	769	0	174	122	624	213	629	1398	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1767	1781	0	1581	1781	1777	1584	1781	1777	1579
Q Serve(g_s), s	3.1	10.7	11.0	24.6	0.0	11.1	7.9	16.9	12.3	19.9	44.8	6.5
Cycle Q Clear(g_c), s	3.1	10.7	11.0	24.6	0.0	11.1	7.9	16.9	12.3	19.9	44.8	6.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	200	199	850	0	377	148	1153	514	302	1461	649
V/C Ratio(X)	0.26	0.83	0.85	0.90	0.00	0.46	0.83	0.54	0.41	2.08	0.96	0.21
Avail Cap(c_a), veh/h	209	209	208	910	0	404	159	1153	514	302	1461	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	51.0	51.1	43.4	0.0	38.2	53.0	32.5	30.9	48.7	33.6	22.3
Incr Delay (d2), s/veh	0.7	23.1	26.4	11.9	0.0	0.9	24.9	1.8	2.5	498.6	15.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.0	6.3	12.1	0.0	4.3	4.5	7.4	4.9	50.5	21.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	74.1	77.5	55.3	0.0	39.1	77.9	34.3	33.4	547.4	48.9	23.0
LnGrp LOS	D	E	E	E	A	D	E	C	C	F	D	C
Approach Vol, veh/h		387			943			959			2163	
Approach Delay, s/veh		72.1			52.3			39.7			192.2	
Approach LOS		E			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		17.8	13.8	53.2		32.6				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	18.9		13.0	9.9	46.8		26.6				
Green Ext Time (p_c), s	0.0	4.6		0.2	0.0	0.5		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		119.3	
HCM 6th LOS		F	

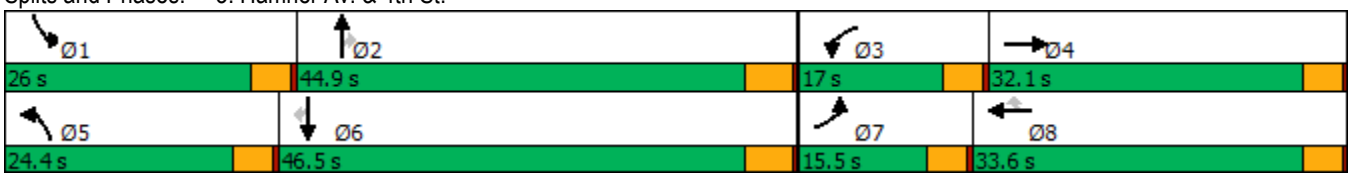
Notes

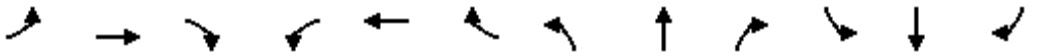
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	108	253	141	151	132	215	988	253	246	988	218
Future Volume (vph)	108	253	141	151	132	215	988	253	246	988	218
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	15.5	32.1	17.0	33.6	33.6	24.4	44.9	44.9	26.0	46.5	46.5
Total Split (%)	12.9%	26.8%	14.2%	28.0%	28.0%	20.3%	37.4%	37.4%	21.7%	38.8%	38.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.2	23.5	12.1	25.3	25.3	17.8	40.3	40.3	19.6	42.1	42.1
Actuated g/C Ratio	0.09	0.21	0.11	0.22	0.22	0.16	0.36	0.36	0.17	0.37	0.37
v/c Ratio	0.73	0.84	0.81	0.39	0.31	0.84	0.85	0.44	0.87	0.81	0.37
Control Delay	77.3	61.6	81.2	40.6	7.7	72.3	42.5	22.8	73.5	39.3	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.3	61.6	81.2	40.6	7.7	72.3	42.5	22.8	73.5	39.3	19.0
LOS	E	E	F	D	A	E	D	C	E	D	B
Approach Delay		65.8		43.9			43.5			42.0	
Approach LOS		E		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 45.4	Intersection LOS: D
Intersection Capacity Utilization 79.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	253	41	141	151	132	215	988	253	246	988	218
Future Volume (veh/h)	108	253	41	141	151	132	215	988	253	246	988	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	275	35	153	164	60	234	1074	259	267	1074	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	317	40	182	404	343	265	1331	594	298	1397	623
Arrive On Green	0.08	0.19	0.19	0.10	0.22	0.22	0.15	0.37	0.37	0.17	0.39	0.39
Sat Flow, veh/h	1781	1626	207	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	117	0	310	153	164	60	234	1074	259	267	1074	189
Grp Sat Flow(s),veh/h/ln	1781	0	1833	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.9	0.0	17.5	9.0	8.0	3.3	13.7	28.9	13.0	15.7	28.1	8.8
Cycle Q Clear(g_c), s	6.9	0.0	17.5	9.0	8.0	3.3	13.7	28.9	13.0	15.7	28.1	8.8
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	0	357	182	404	343	265	1331	594	298	1397	623
V/C Ratio(X)	0.81	0.00	0.87	0.84	0.41	0.18	0.88	0.81	0.44	0.90	0.77	0.30
Avail Cap(c_a), veh/h	190	0	481	215	517	438	339	1331	594	365	1397	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	41.6	47.1	36.0	34.1	44.5	29.9	25.0	43.6	28.2	22.3
Incr Delay (d2), s/veh	13.5	0.0	12.2	19.1	0.7	0.2	16.9	5.3	2.3	18.9	4.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	9.1	5.0	3.8	1.3	7.1	12.7	5.3	8.3	12.1	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	0.0	53.8	66.2	36.6	34.3	61.4	35.2	27.3	62.5	32.3	23.6
LnGrp LOS	E	A	D	E	D	C	E	D	C	E	C	C
Approach Vol, veh/h		427			377			1567			1530	
Approach Delay, s/veh		56.0			48.2			37.8			36.5	
Approach LOS		E			D			D			D	

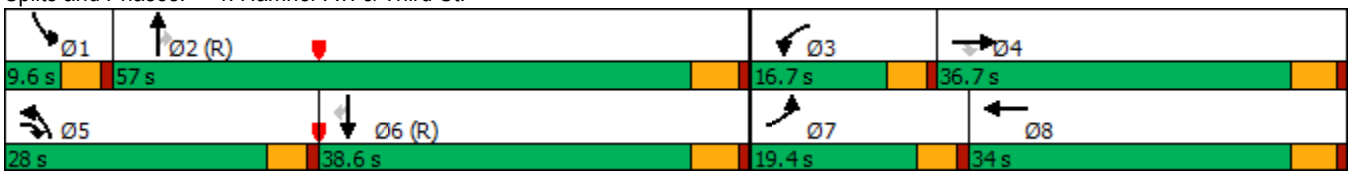
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	44.9	15.0	24.9	20.0	46.9	12.8	27.2
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	21.9	40.0	12.9	28.0	20.3	41.6	11.4	29.5
Max Q Clear Time (g_c+I1), s	17.7	30.9	11.0	19.5	15.7	30.1	8.9	10.0
Green Ext Time (p_c), s	0.2	5.2	0.0	1.2	0.1	5.9	0.0	1.1

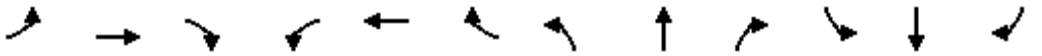
Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	207	45	329	117	379	638	1367	64	31	864	570
Future Volume (vph)	207	45	329	117	379	638	1367	64	31	864	570
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	19.4	36.7	28.0	16.7	34.0	28.0	57.0	57.0	9.6	38.6	38.6
Total Split (%)	16.2%	30.6%	23.3%	13.9%	28.3%	23.3%	47.5%	47.5%	8.0%	32.2%	32.2%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	14.8	27.4	52.9	19.3	28.9	23.4	55.4	55.4	5.0	33.2	33.2
Actuated g/C Ratio	0.12	0.23	0.44	0.16	0.24	0.20	0.46	0.46	0.04	0.28	0.28
v/c Ratio	1.03	0.12	0.49	0.45	1.07	1.04	0.91	0.09	0.47	0.96	0.98
Control Delay	121.1	34.3	20.3	56.0	105.2	72.2	44.6	7.8	76.7	63.5	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.1	34.3	20.3	56.0	105.2	72.2	44.6	7.8	76.7	63.5	55.9
LOS	F	C	C	E	F	E	D	A	E	E	E
Approach Delay		57.3			94.8		52.0			60.8	
Approach LOS		E			F		D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 21.4 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 60.5	Intersection LOS: E
Intersection Capacity Utilization 93.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	45	329	117	379	56	638	1367	64	31	864	570
Future Volume (veh/h)	207	45	329	117	379	56	638	1367	64	31	864	570
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	49	219	127	412	45	693	1486	60	34	939	362
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	521	750	153	399	44	674	1576	703	50	983	432
Arrive On Green	0.12	0.28	0.28	0.09	0.24	0.24	0.13	0.30	0.30	0.03	0.28	0.28
Sat Flow, veh/h	1781	1870	1585	1781	1656	181	3456	3554	1585	1781	3554	1563
Grp Volume(v), veh/h	225	49	219	127	0	457	693	1486	60	34	939	362
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1837	1728	1777	1585	1781	1777	1563
Q Serve(g_s), s	14.8	2.3	10.1	8.4	0.0	28.9	23.4	49.0	3.3	2.3	31.2	26.2
Cycle Q Clear(g_c), s	14.8	2.3	10.1	8.4	0.0	28.9	23.4	49.0	3.3	2.3	31.2	26.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	521	750	153	0	442	674	1576	703	50	983	432
V/C Ratio(X)	1.02	0.09	0.29	0.83	0.00	1.03	1.03	0.94	0.09	0.68	0.96	0.84
Avail Cap(c_a), veh/h	220	521	750	180	0	442	674	1576	703	74	983	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	52.6	32.1	19.3	54.0	0.0	45.6	52.2	40.7	24.6	57.8	42.7	40.9
Incr Delay (d2), s/veh	67.1	0.1	0.2	20.9	0.0	51.5	42.1	12.7	0.2	2.8	11.8	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	1.1	3.7	4.6	0.0	19.3	14.3	24.6	1.3	1.0	14.8	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.7	32.2	19.5	74.9	0.0	97.0	94.3	53.4	24.9	60.6	54.5	50.0
LnGrp LOS	F	C	B	E	A	F	F	D	C	E	D	D
Approach Vol, veh/h		493			584			2239			1335	
Approach Delay, s/veh		66.5			92.2			65.3			53.4	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	58.6	14.9	38.5	28.0	38.6	19.4	34.0
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.0	51.6	12.1	31.6	23.4	33.2	14.8	28.9
Max Q Clear Time (g_c+I1), s	4.3	51.0	10.4	12.1	25.4	33.2	16.8	30.9
Green Ext Time (p_c), s	0.0	0.5	0.0	0.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	65.4
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	94	1	0	0	98	2053	4	0	1276	35
Future Vol, veh/h	0	0	94	1	0	0	98	2053	4	0	1276	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	102	1	0	0	107	2232	4	0	1387	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	717	3142	3877	1118	1429	0	0	2236	0	0
Stage 1	-	-	-	2448	2448	-	-	-	-	-	-	-
Stage 2	-	-	-	694	1429	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*567	*0	0	*236	848	-	-	*353	-	-
Stage 1	0	0	-	*119	122	-	-	-	-	-	-	-
Stage 2	0	0	-	*535	468	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*566	*0	0	*236	845	-	-	*353	-	-
Mov Cap-2 Maneuver	-	-	-	*92	95	-	-	-	-	-	-	-
Stage 1	-	-	-	*104	107	-	-	-	-	-	-	-
Stage 2	-	-	-	*438	467	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	44.6	0.4	0
HCM LOS	B	E		

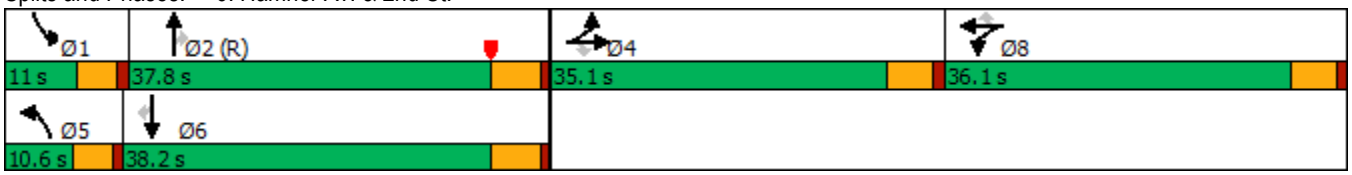
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	845	-	-	566	92	* 353	-	-
HCM Lane V/C Ratio	0.126	-	-	0.181	0.012	-	-	-
HCM Control Delay (s)	9.9	-	-	12.8	44.6	0	-	-
HCM Lane LOS	A	-	-	B	E	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.7	0	0	-	-

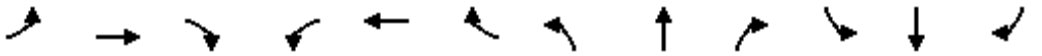
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	672	49	587	655	861	92	1009	235	395	848	259
Future Volume (vph)	290	672	49	587	655	861	92	1009	235	395	848	259
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.0	32.4	32.4	6.4	32.8	32.8
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.27	0.27
v/c Ratio	0.70	0.90	0.11	1.06	1.05	1.72	1.14	1.15	0.47	4.56	0.95	0.48
Control Delay	51.7	58.6	0.5	85.1	71.5	351.7	188.1	119.2	16.5	1633.1	63.4	21.0
Queue Delay	0.0	51.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	51.7	109.7	0.5	85.1	71.5	351.8	188.1	119.2	16.5	1633.1	63.4	21.0
LOS	D	F	A	F	E	F	F	F	B	F	E	C
Approach Delay		89.5			188.9			105.9			468.4	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 4.56	
Intersection Signal Delay: 223.9	Intersection LOS: F
Intersection Capacity Utilization 119.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	672	49	587	655	861	92	1009	235	395	848	259
Future Volume (veh/h)	290	672	49	587	655	861	92	1009	235	395	848	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	315	730	33	450	975	598	100	1097	150	429	922	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	395	460	966	409	89	959	421	95	971	433
Arrive On Green	0.25	0.25	0.25	0.43	0.43	0.43	0.05	0.27	0.27	0.02	0.09	0.09
Sat Flow, veh/h	1781	3741	1581	1781	3741	1583	1781	3554	1560	1781	3554	1583
Grp Volume(v), veh/h	315	730	33	450	975	598	100	1097	150	429	922	228
Grp Sat Flow(s),veh/h/ln	1781	1870	1581	1781	1870	1583	1781	1777	1560	1781	1777	1583
Q Serve(g_s), s	19.3	21.8	1.9	29.8	31.0	31.0	6.0	32.4	9.3	6.4	31.0	16.5
Cycle Q Clear(g_c), s	19.3	21.8	1.9	29.8	31.0	31.0	6.0	32.4	9.3	6.4	31.0	16.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	395	460	966	409	89	959	421	95	971	433
V/C Ratio(X)	0.71	0.78	0.08	0.98	1.01	1.46	1.12	1.14	0.36	4.52	0.95	0.53
Avail Cap(c_a), veh/h	445	935	395	460	966	409	89	959	421	95	971	433
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	41.9	34.5	33.8	34.1	34.1	57.0	43.8	35.4	58.9	53.8	47.2
Incr Delay (d2), s/veh	9.1	6.4	0.4	22.2	21.2	213.8	132.4	77.0	2.3	1606.0	17.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	10.8	0.8	13.5	14.5	34.2	5.9	24.1	3.8	45.3	17.1	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	48.4	34.9	56.0	55.3	247.9	189.4	120.8	37.7	1665.0	71.6	48.4
LnGrp LOS	D	D	C	E	F	F	F	F	D	F	E	D
Approach Vol, veh/h		1078			2023			1347			1579	
Approach Delay, s/veh		48.5			112.4			116.7			501.2	
Approach LOS		D			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	37.8		35.1	10.6	38.2		36.1				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	34.4		23.8	8.0	33.0		33.0				
Green Ext Time (p_c), s	0.0	0.0		3.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		203.8	
HCM 6th LOS		F	

Notes

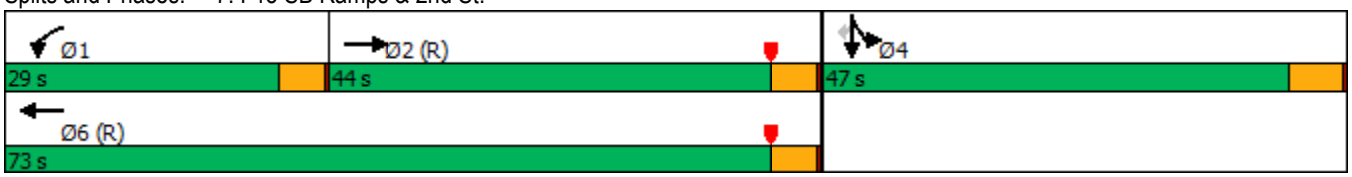
User approved volume balancing among the lanes for turning movement.

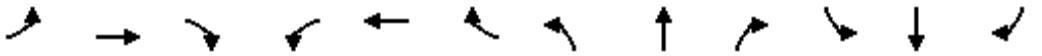
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	654	342	1388	2	622
Future Volume (vph)	654	342	1388	2	622
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	44.0	29.0	73.0	47.0	47.0
Total Split (%)	36.7%	24.2%	60.8%	39.2%	39.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	39.4	24.5	68.4	41.7	41.7
Actuated g/C Ratio	0.33	0.20	0.57	0.35	0.35
v/c Ratio	1.13	0.99	0.72	0.13	1.11
Control Delay	99.6	59.6	10.1	27.6	104.6
Queue Delay	0.4	0.0	1.7	0.0	0.0
Total Delay	100.0	59.6	11.7	27.6	104.6
LOS	F	E	B	C	F
Approach Delay	100.0		21.2	95.9	
Approach LOS	F		C	F	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 63.0 — Intersection LOS: E
Intersection Capacity Utilization 144.1% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 7: I-15 SB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	654	680	342	1388	0	0	0	0	78	2	622
Future Volume (veh/h)	0	654	680	342	1388	0	0	0	0	78	2	622
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	681	628	356	1446	0				81	2	581
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	583	520	364	2026	0				605	15	551
Arrive On Green	0.00	0.55	0.55	0.14	0.38	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	1870	1585	1781	3647	0				1740	43	1585
Grp Volume(v), veh/h	0	681	628	356	1446	0				83	0	581
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	39.4	39.4	23.9	41.5	0.0				3.8	0.0	41.7
Cycle Q Clear(g_c), s	0.0	39.4	39.4	23.9	41.5	0.0				3.8	0.0	41.7
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	583	520	364	2026	0				620	0	551
V/C Ratio(X)	0.00	1.17	1.21	0.98	0.71	0.00				0.13	0.00	1.05
Avail Cap(c_a), veh/h	0	583	520	364	2026	0				620	0	551
HCM Platoon Ratio	1.00	1.67	1.67	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.1	27.1	51.5	28.8	0.0				26.8	0.0	39.2
Incr Delay (d2), s/veh	0.0	77.2	94.8	25.3	0.9	0.0				0.0	0.0	53.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	25.2	25.1	13.5	18.7	0.0				1.6	0.0	23.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	104.3	121.9	76.8	29.7	0.0				26.8	0.0	92.8
LnGrp LOS	A	F	F	E	C	A				C	A	F
Approach Vol, veh/h		1309			1802						664	
Approach Delay, s/veh		112.7			39.0						84.5	
Approach LOS		F			D						F	

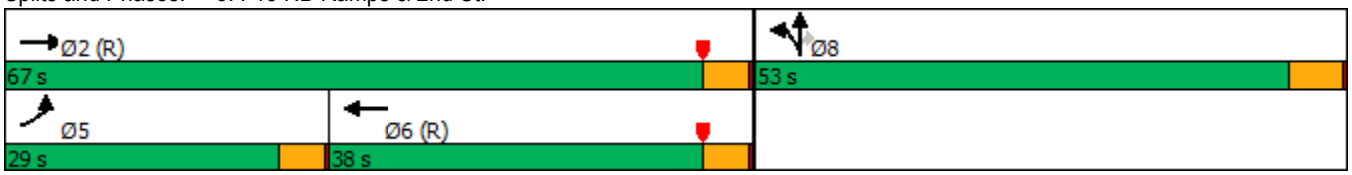
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	29.0	44.0		47.0		73.0						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	24.5	39.4		41.7		68.4						
Max Q Clear Time (g_c+I1), s	25.9	41.4		43.7		43.5						
Green Ext Time (p_c), s	0.0	0.0		0.0		8.3						

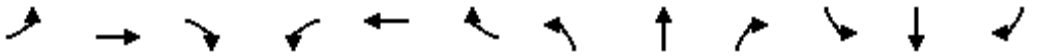
Intersection Summary												
HCM 6th Ctrl Delay			72.6									
HCM 6th LOS			E									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	252	480	761	969	5	683
Future Volume (vph)	252	480	761	969	5	683
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	29.0	67.0	38.0	53.0	53.0	53.0
Total Split (%)	24.2%	55.8%	31.7%	44.2%	44.2%	44.2%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	21.8	64.6	38.3	45.5	45.5	45.5
Actuated g/C Ratio	0.18	0.54	0.32	0.38	0.38	0.38
v/c Ratio	0.85	0.27	0.85	0.83	0.83	0.95
Control Delay	26.2	6.0	47.8	45.6	46.2	43.4
Queue Delay	0.0	0.0	0.0	1.1	1.1	0.0
Total Delay	26.2	6.0	47.8	46.7	47.3	43.4
LOS	C	A	D	D	D	D
Approach Delay		13.0	47.8		45.5	
Approach LOS		B	D		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 38.8	Intersection LOS: D
Intersection Capacity Utilization 144.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	480	0	0	761	114	969	5	683	0	0	0
Future Volume (veh/h)	252	480	0	0	761	114	969	5	683	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	274	522	0	0	827	90	1057	0	613			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	306	1849	0	0	1006	109	1415	0	630			
Arrive On Green	0.06	0.17	0.00	0.00	0.31	0.31	0.40	0.00	0.40			
Sat Flow, veh/h	1781	3647	0	0	3325	352	3563	0	1585			
Grp Volume(v), veh/h	274	522	0	0	455	462	1057	0	613			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1806	1781	0	1585			
Q Serve(g_s), s	18.3	15.3	0.0	0.0	28.4	28.4	30.5	0.0	45.6			
Cycle Q Clear(g_c), s	18.3	15.3	0.0	0.0	28.4	28.4	30.5	0.0	45.6			
Prop In Lane	1.00		0.00	0.00		0.19	1.00		1.00			
Lane Grp Cap(c), veh/h	306	1849	0	0	553	562	1415	0	630			
V/C Ratio(X)	0.90	0.28	0.00	0.00	0.82	0.82	0.75	0.00	0.97			
Avail Cap(c_a), veh/h	364	1849	0	0	553	562	1416	0	630			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.5	30.2	0.0	0.0	38.3	38.3	31.0	0.0	35.5			
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.0	13.0	12.8	2.1	0.0	29.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.0	7.3	0.0	0.0	14.1	14.3	12.9	0.0	21.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.1	30.2	0.0	0.0	51.2	51.0	33.1	0.0	64.7			
LnGrp LOS	E	C	A	A	D	D	C	A	E			
Approach Vol, veh/h		796			917			1670				
Approach Delay, s/veh		39.8			51.1			44.7				
Approach LOS		D			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.0			25.1	41.9		53.0				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		62.4			24.5	33.4		47.7				
Max Q Clear Time (g_c+I1), s		17.3			20.3	30.4		47.6				
Green Ext Time (p_c), s		2.4			0.2	1.2		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	666	4	58	649	5	0	0	77	69	0	0
Future Vol, veh/h	3	666	4	58	649	5	0	0	77	69	0	0
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	724	4	63	705	5	0	0	84	75	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	711	0	0	728	0	0	1211	1569	364	1203	1569	356
Stage 1	-	-	-	-	-	-	732	732	-	835	835	-
Stage 2	-	-	-	-	-	-	479	837	-	368	734	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	*1227	-	-	871	-	-	*274	158	633	279	158	*820
Stage 1	-	-	-	-	-	-	*379	425	-	641	590	-
Stage 2	-	-	-	-	-	-	*773	588	-	624	424	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	*1226	-	-	871	-	-	*259	146	633	228	146	*819
Mov Cap-2 Maneuver	-	-	-	-	-	-	*323	282	-	350	261	-
Stage 1	-	-	-	-	-	-	*378	424	-	640	547	-
Stage 2	-	-	-	-	-	-	*717	545	-	540	423	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	11.6	18.1
HCM LOS			B	C

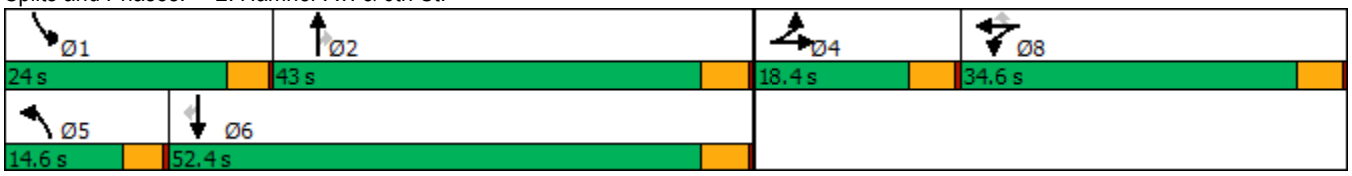
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	633	* 1226	-	-	871	-	-	350
HCM Lane V/C Ratio	0.132	0.003	-	-	0.072	-	-	0.214
HCM Control Delay (s)	11.6	7.9	-	-	9.5	-	-	18.1
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-	-	0.8

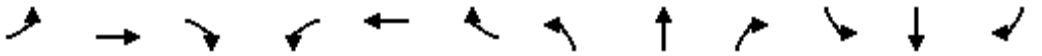
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	188	272	413	108	449	120	1475	693	380	709	47
Future Volume (vph)	188	272	413	108	449	120	1475	693	380	709	47
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4	8	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	30.9	9.1	29.9	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	14.6	43.0	43.0	24.0	52.4	52.4
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	12.2%	35.8%	35.8%	20.0%	43.7%	43.7%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	13.8	13.8	25.2	25.2	25.2	10.1	38.2	38.2	19.9	48.0	48.0
Actuated g/C Ratio	0.12	0.12	0.22	0.22	0.22	0.09	0.33	0.33	0.17	0.42	0.42
v/c Ratio	0.94	0.85	0.74	0.75	0.86	0.83	1.34	0.98	1.32	0.51	0.07
Control Delay	100.7	66.5	54.9	55.4	33.7	90.6	191.6	49.6	204.9	27.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.7	66.5	54.9	55.4	33.7	90.6	191.6	49.6	204.9	27.3	0.7
LOS	F	E	D	E	C	F	F	D	F	C	A
Approach Delay		78.6		45.2			143.3			85.6	
Approach LOS		E		D			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.4	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 103.7	Intersection LOS: F
Intersection Capacity Utilization 102.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	272	70	413	108	449	120	1475	693	380	709	47
Future Volume (veh/h)	188	272	70	413	108	449	120	1475	693	380	709	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	289	62	277	342	263	128	1569	528	404	754	32
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	351	74	384	403	341	154	1180	519	309	1489	662
Arrive On Green	0.12	0.12	0.12	0.22	0.22	0.22	0.09	0.33	0.33	0.17	0.42	0.42
Sat Flow, veh/h	1781	2918	617	1781	1870	1583	1781	3554	1561	1781	3554	1581
Grp Volume(v), veh/h	200	174	177	277	342	263	128	1569	528	404	754	32
Grp Sat Flow(s),veh/h/ln	1781	1777	1758	1781	1870	1583	1781	1777	1561	1781	1777	1581
Q Serve(g_s), s	12.8	11.0	11.3	16.6	20.1	17.9	8.1	38.1	38.1	19.9	17.9	1.4
Cycle Q Clear(g_c), s	12.8	11.0	11.3	16.6	20.1	17.9	8.1	38.1	38.1	19.9	17.9	1.4
Prop In Lane	1.00		0.35	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	214	211	384	403	341	154	1180	519	309	1489	662
V/C Ratio(X)	0.93	0.82	0.84	0.72	0.85	0.77	0.83	1.33	1.02	1.31	0.51	0.05
Avail Cap(c_a), veh/h	214	214	211	466	489	414	163	1180	519	309	1489	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	49.2	49.3	41.8	43.2	42.3	51.5	38.3	38.3	47.4	24.6	19.8
Incr Delay (d2), s/veh	43.1	21.1	24.2	4.3	11.4	7.1	25.6	154.1	44.2	159.7	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	6.1	6.3	7.6	10.4	7.6	4.6	41.1	20.3	22.3	7.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.1	70.3	73.6	46.1	54.6	49.5	77.1	192.4	82.5	207.1	25.8	19.9
LnGrp LOS	F	E	E	D	D	D	E	F	F	F	C	B
Approach Vol, veh/h		551			882			2225			1190	
Approach Delay, s/veh		79.6			50.4			159.7			87.2	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	24.0	43.0		18.4	14.0	53.0		29.3				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	19.9	38.1		13.8	10.5	47.5		30.0				
Max Q Clear Time (g_c+I1), s	21.9	40.1		14.8	10.1	19.9		22.1				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	5.4		2.5				

Intersection Summary			
HCM 6th Ctrl Delay		112.9	
HCM 6th LOS		F	

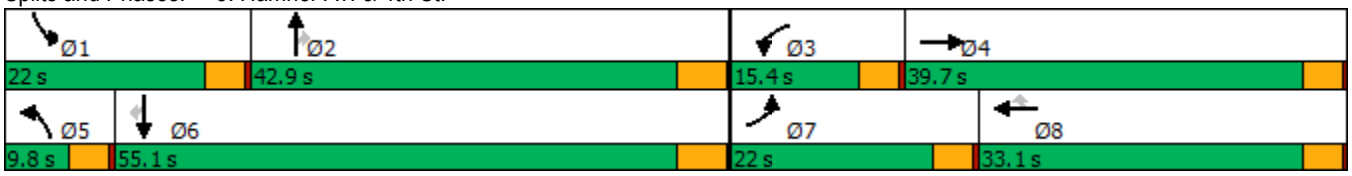
Notes

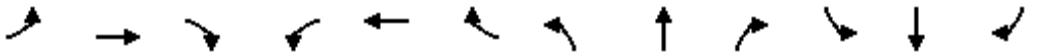
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	304	207	112	22	56	21	1233	486	302	1119	244
Future Volume (vph)	304	207	112	22	56	21	1233	486	302	1119	244
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.1	32.1	9.1	33.1	33.1	9.1	24.9	24.9	9.1	19.9	19.9
Total Split (s)	22.0	39.7	15.4	33.1	33.1	9.8	42.9	42.9	22.0	55.1	55.1
Total Split (%)	18.3%	33.1%	12.8%	27.6%	27.6%	8.2%	35.8%	35.8%	18.3%	45.9%	45.9%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.0	25.0	10.0	18.2	18.2	5.4	38.2	38.2	18.0	56.7	56.7
Actuated g/C Ratio	0.18	0.23	0.09	0.17	0.17	0.05	0.35	0.35	0.17	0.52	0.52
v/c Ratio	0.95	0.82	0.70	0.07	0.14	0.24	1.01	0.77	1.05	0.62	0.29
Control Delay	85.9	52.3	72.2	37.2	0.8	59.5	64.2	31.2	111.6	22.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.9	52.3	72.2	37.2	0.8	59.5	64.2	31.2	111.6	22.7	10.3
LOS	F	D	E	D	A	E	E	C	F	C	B
Approach Delay		68.2		47.1			54.9			37.0	
Approach LOS		E		D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 49.5	Intersection LOS: D
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Hamner Av. & 4th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	207	132	112	22	56	21	1233	486	302	1119	244
Future Volume (veh/h)	304	207	132	112	22	56	21	1233	486	302	1119	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	211	86	114	22	23	21	1258	452	308	1142	221
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	250	102	142	188	157	39	1335	595	315	1886	822
Arrive On Green	0.18	0.20	0.20	0.08	0.10	0.10	0.02	0.38	0.38	0.18	0.53	0.53
Sat Flow, veh/h	1781	1263	515	1781	1870	1563	1781	3554	1583	1781	3554	1550
Grp Volume(v), veh/h	310	0	297	114	22	23	21	1258	452	308	1142	221
Grp Sat Flow(s),veh/h/ln	1781	0	1778	1781	1870	1563	1781	1777	1583	1781	1777	1550
Q Serve(g_s), s	17.5	0.0	16.3	6.4	1.1	1.4	1.2	34.6	25.2	17.4	22.5	7.9
Cycle Q Clear(g_c), s	17.5	0.0	16.3	6.4	1.1	1.4	1.2	34.6	25.2	17.4	22.5	7.9
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	351	142	188	157	39	1335	595	315	1886	822
V/C Ratio(X)	0.98	0.00	0.85	0.80	0.12	0.15	0.54	0.94	0.76	0.98	0.61	0.27
Avail Cap(c_a), veh/h	315	0	626	199	536	448	100	1335	595	315	1886	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	39.1	45.8	41.4	41.5	48.9	30.5	27.6	41.4	16.4	13.0
Incr Delay (d2), s/veh	45.9	0.0	5.6	10.0	0.3	0.4	4.2	14.2	8.9	44.2	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	0.0	7.6	3.2	0.5	0.5	0.6	16.5	10.9	11.2	8.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.4	0.0	44.7	55.7	41.7	42.0	53.1	44.7	36.5	85.6	17.9	13.8
LnGrp LOS	F	A	D	E	D	D	D	D	D	F	B	B
Approach Vol, veh/h		607			159			1731			1671	
Approach Delay, s/veh		66.5			51.8			42.7			29.8	
Approach LOS		E			D			D			C	

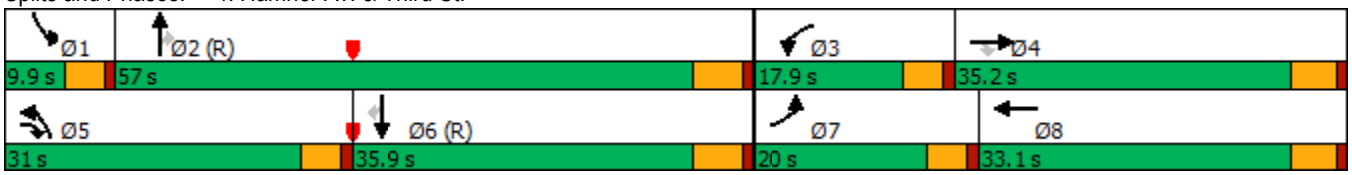
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.0	42.9	12.2	24.1	6.3	58.6	22.0	14.3
Change Period (Y+Rc), s	4.1	4.9	4.1	4.1	4.1	4.9	4.1	4.1
Max Green Setting (Gmax), s	17.9	38.0	11.3	35.6	5.7	50.2	17.9	29.0
Max Q Clear Time (g_c+I1), s	19.4	36.6	8.4	18.3	3.2	24.5	19.5	3.4
Green Ext Time (p_c), s	0.0	1.1	0.0	1.7	0.0	9.8	0.0	0.1

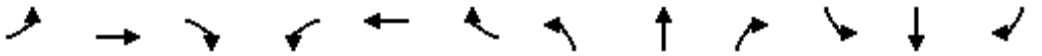
Intersection Summary	
HCM 6th Ctrl Delay	41.3
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	220	89	503	55	130	446	1182	82	71	1429	242
Future Volume (vph)	220	89	503	55	130	446	1182	82	71	1429	242
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	5	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	35.4	9.6	33.4	33.4
Total Split (s)	20.0	35.2	31.0	17.9	33.1	31.0	57.0	57.0	9.9	35.9	35.9
Total Split (%)	16.7%	29.3%	25.8%	14.9%	27.6%	25.8%	47.5%	47.5%	8.3%	29.9%	29.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	15.4	27.7	54.2	8.5	18.9	21.4	56.2	56.2	9.8	44.7	44.7
Actuated g/C Ratio	0.13	0.23	0.45	0.07	0.16	0.18	0.47	0.47	0.08	0.37	0.37
v/c Ratio	1.05	0.23	0.68	0.48	0.71	0.79	0.78	0.11	0.53	1.18	0.39
Control Delay	124.6	39.1	21.8	65.5	56.3	49.9	39.1	9.1	67.2	123.7	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.6	39.1	21.8	65.5	56.3	49.9	39.1	9.1	67.2	123.7	16.1
LOS	F	D	C	E	E	D	D	A	E	F	B
Approach Delay		51.6			58.4		40.5			106.4	
Approach LOS		D			E		D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 68.9	Intersection LOS: E
Intersection Capacity Utilization 93.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	89	503	55	130	61	446	1182	82	71	1429	242
Future Volume (veh/h)	220	89	503	55	130	61	446	1182	82	71	1429	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	97	446	60	141	41	485	1285	72	77	1553	250
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	466	647	77	228	66	551	1774	773	79	1364	607
Arrive On Green	0.13	0.25	0.25	0.04	0.16	0.16	0.16	0.50	0.50	0.04	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1389	404	3456	3554	1549	1781	3554	1580
Grp Volume(v), veh/h	239	97	446	60	0	182	485	1285	72	77	1553	250
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1792	1728	1777	1549	1781	1777	1580
Q Serve(g_s), s	15.4	4.9	27.8	4.0	0.0	11.3	16.5	34.0	2.9	5.2	46.1	13.9
Cycle Q Clear(g_c), s	15.4	4.9	27.8	4.0	0.0	11.3	16.5	34.0	2.9	5.2	46.1	13.9
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	466	647	77	0	294	551	1774	773	79	1364	607
V/C Ratio(X)	1.05	0.21	0.69	0.78	0.00	0.62	0.88	0.72	0.09	0.98	1.14	0.41
Avail Cap(c_a), veh/h	229	469	650	197	0	418	760	1774	773	79	1364	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	52.3	35.7	29.2	56.8	0.0	46.7	49.3	23.6	15.8	57.3	37.0	27.1
Incr Delay (d2), s/veh	72.0	0.2	3.1	6.1	0.0	2.1	7.1	2.6	0.2	80.0	69.4	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	2.3	10.9	1.9	0.0	5.2	7.5	14.1	1.1	4.0	32.2	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	124.3	35.9	32.3	62.9	0.0	48.8	56.4	26.2	16.0	137.3	106.4	28.6
LnGrp LOS	F	D	C	E	A	D	E	C	B	F	F	C
Approach Vol, veh/h		782			242			1842			1880	
Approach Delay, s/veh		60.8			52.3			33.8			97.3	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	65.3	9.8	35.0	23.7	51.5	20.0	24.8
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	5.3	51.6	13.3	30.1	26.4	30.5	15.4	28.0
Max Q Clear Time (g_c+I1), s	7.2	36.0	6.0	29.8	18.5	48.1	17.4	13.3
Green Ext Time (p_c), s	0.0	8.1	0.0	0.1	0.7	0.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	64.3
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	96	4	1	0	113	1659	7	1	1943	44
Future Vol, veh/h	0	0	96	4	1	0	113	1659	7	1	1943	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	4	1	0	115	1693	7	1	1983	45

Major/Minor	Minor2		Minor1			Major1				Major2		
Conflicting Flow All	-	-	1014	2921	3957	850	2028	0	0	1700	0	0
Stage 1	-	-	-	1927	1927	-	-	-	-	-	-	-
Stage 2	-	-	-	994	2030	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*287	-	-	*389	*429	-	-	*582	-	-
Stage 1	0	0	-	*361	*318	-	-	-	-	-	-	-
Stage 2	0	0	-	*271	*237	-	-	-	-	-	-	-
Platoon blocked, %			1	2	2	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*287	-	-	*389	*429	-	-	*582	-	-
Mov Cap-2 Maneuver	-	-	-	*57	*98	-	-	-	-	-	-	-
Stage 1	-	-	-	*264	*233	-	-	-	-	-	-	-
Stage 2	-	-	-	*178	*237	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.9		1	0
HCM LOS	C	-		

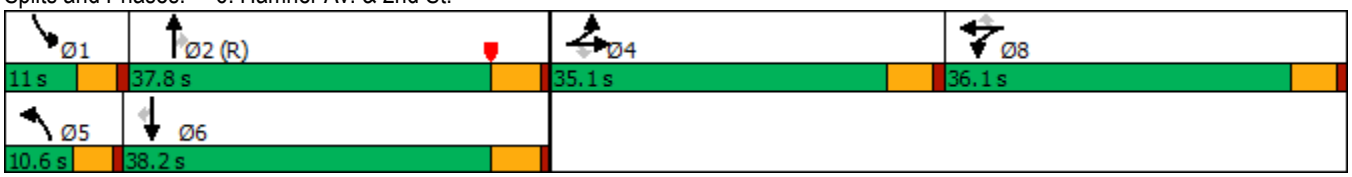
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 429	-	-	287	-	* 582	-	-
HCM Lane V/C Ratio	0.269	-	-	0.341	-	0.002	-	-
HCM Control Delay (s)	16.4	-	-	23.9	-	11.2	-	-
HCM Lane LOS	C	-	-	C	-	B	-	-
HCM 95th %tile Q(veh)	1.1	-	-	1.5	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	875	99	293	507	656	112	989	573	701	1243	299
Future Volume (vph)	372	875	99	293	507	656	112	989	573	701	1243	299
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	9.6	35.4	35.4	9.6	31.4	31.4
Total Split (s)	35.1	35.1	35.1	36.1	36.1	36.1	10.6	37.8	37.8	11.0	38.2	38.2
Total Split (%)	29.3%	29.3%	29.3%	30.1%	30.1%	30.1%	8.8%	31.5%	31.5%	9.2%	31.8%	31.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	3.6	4.4	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	4.6	5.4	5.4	4.6	5.4	5.4
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	30.0	30.0	30.0	31.0	31.0	31.0	6.0	32.4	32.4	6.4	32.8	32.8
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.05	0.27	0.27
v/c Ratio	0.85	1.10	0.22	0.63	0.63	1.26	1.30	1.06	0.81	7.61	1.31	0.56
Control Delay	63.4	104.8	6.7	34.7	31.2	155.9	238.9	87.6	22.4	2990.4	185.0	27.5
Queue Delay	0.0	270.7	0.0	0.0	0.0	0.1	0.0	0.0	51.6	0.0	0.0	0.0
Total Delay	63.4	375.5	6.7	34.7	31.2	156.0	238.9	87.6	74.0	2990.4	185.0	27.5
LOS	E	F	A	C	C	F	F	F	E	F	F	C
Approach Delay		270.7			88.0			93.1			1040.7	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 7.61	
Intersection Signal Delay: 443.9	Intersection LOS: F
Intersection Capacity Utilization 123.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	875	99	293	507	656	112	989	573	701	1243	299
Future Volume (veh/h)	372	875	99	293	507	656	112	989	573	701	1243	299
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	380	893	55	272	555	460	114	1009	424	715	1268	244
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	935	392	460	966	409	89	959	422	95	971	432
Arrive On Green	0.25	0.25	0.25	0.26	0.26	0.26	0.05	0.27	0.27	0.02	0.09	0.09
Sat Flow, veh/h	1781	3741	1570	1781	3741	1585	1781	3554	1561	1781	3554	1582
Grp Volume(v), veh/h	380	893	55	272	555	460	114	1009	424	715	1268	244
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1781	1870	1585	1781	1777	1561	1781	1777	1582
Q Serve(g_s), s	24.4	28.2	3.3	16.0	15.5	31.0	6.0	32.4	32.4	6.4	32.8	17.7
Cycle Q Clear(g_c), s	24.4	28.2	3.3	16.0	15.5	31.0	6.0	32.4	32.4	6.4	32.8	17.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	445	935	392	460	966	409	89	959	422	95	971	432
V/C Ratio(X)	0.85	0.95	0.14	0.59	0.57	1.12	1.28	1.05	1.01	7.53	1.31	0.56
Avail Cap(c_a), veh/h	445	935	392	460	966	409	89	959	422	95	971	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	44.3	35.0	39.0	38.8	44.5	57.0	43.8	43.8	58.9	54.6	47.7
Incr Delay (d2), s/veh	18.4	20.3	0.7	1.6	0.7	78.0	187.9	43.6	45.3	2958.4	144.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	15.5	1.3	7.1	7.1	20.8	7.3	19.6	17.4	81.0	35.1	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	64.7	35.7	40.5	39.4	122.5	244.9	87.4	89.1	3017.4	199.5	49.4
LnGrp LOS	E	E	D	D	D	F	F	F	F	F	F	D
Approach Vol, veh/h		1328			1287			1547			2227	
Approach Delay, s/veh		62.5			69.4			99.5			1087.8	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	37.8		35.1	10.6	38.2		36.1				
Change Period (Y+Rc), s	4.6	5.4		5.1	4.6	5.4		5.1				
Max Green Setting (Gmax), s	6.4	32.4		30.0	6.0	32.8		31.0				
Max Q Clear Time (g_c+I1), s	8.4	34.4		30.2	8.0	34.8		33.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		430.2	
HCM 6th LOS		F	

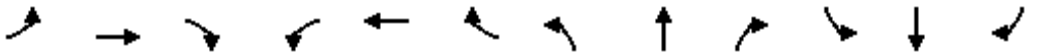
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Traffic Volume (vph)	1100	238	1020	5	421
Future Volume (vph)	1100	238	1020	5	421
Turn Type	NA	Prot	NA	NA	Perm
Protected Phases	2	1	6	4	
Permitted Phases					4
Detector Phase	2	1	6	4	4
Switch Phase					
Minimum Initial (s)	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	9.5	23.6	20.0	20.0
Total Split (s)	64.0	27.0	91.0	29.0	29.0
Total Split (%)	53.3%	22.5%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	62.4	19.6	86.5	23.6	23.6
Actuated g/C Ratio	0.52	0.16	0.72	0.20	0.20
v/c Ratio	1.22	0.84	0.41	0.35	0.98
Control Delay	132.2	23.5	0.7	44.9	68.0
Queue Delay	1.3	0.0	0.5	0.0	3.3
Total Delay	133.5	23.5	1.2	44.9	71.3
LOS	F	C	A	D	E
Approach Delay	133.5		5.4	65.5	
Approach LOS	F		A	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 84.1	Intersection LOS: F
Intersection Capacity Utilization 97.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1100	1105	238	1020	0	0	0	0	115	5	421
Future Volume (veh/h)	0	1100	1105	238	1020	0	0	0	0	115	5	421
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1122	973	243	1041	0				117	5	338
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1023	773	270	2559	0				338	14	313
Arrive On Green	0.00	0.53	0.53	0.15	0.72	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	2022	1456	1781	3647	0				1712	73	1585
Grp Volume(v), veh/h	0	1021	1074	243	1041	0				122	0	338
Grp Sat Flow(s),veh/h/ln	0	1777	1608	1781	1777	0				1785	0	1585
Q Serve(g_s), s	0.0	63.7	63.7	16.1	13.9	0.0				7.1	0.0	23.7
Cycle Q Clear(g_c), s	0.0	63.7	63.7	16.1	13.9	0.0				7.1	0.0	23.7
Prop In Lane	0.00		0.91	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	943	853	270	2559	0				352	0	313
V/C Ratio(X)	0.00	1.08	1.26	0.90	0.41	0.00				0.35	0.00	1.08
Avail Cap(c_a), veh/h	0	943	853	334	2559	0				352	0	313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.35	0.35	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	28.2	28.2	50.0	6.7	0.0				41.5	0.0	48.1
Incr Delay (d2), s/veh	0.0	39.2	117.4	8.6	0.2	0.0				0.2	0.0	73.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	35.5	50.7	7.7	4.6	0.0				3.1	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	67.4	145.6	58.6	6.8	0.0				41.7	0.0	121.9
LnGrp LOS	A	F	F	E	A	A				D	A	F
Approach Vol, veh/h		2095			1284						460	
Approach Delay, s/veh		107.5			16.6						100.6	
Approach LOS		F			B						F	

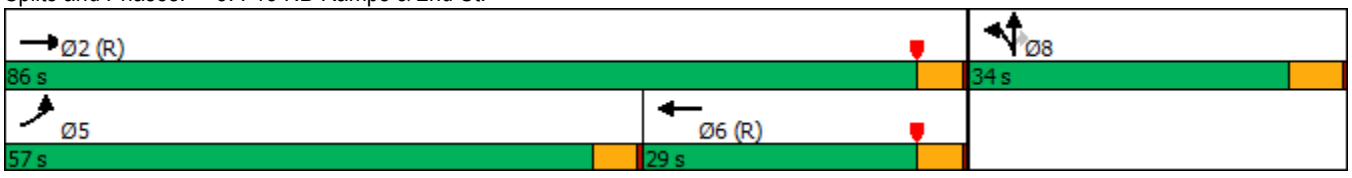
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	22.7	68.3		29.0		91.0						
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6						
Max Green Setting (Gmax), s	22.5	59.4		23.7		86.4						
Max Q Clear Time (g_c+I1), s	18.1	65.7		25.7		15.9						
Green Ext Time (p_c), s	0.1	0.0		0.0		5.7						

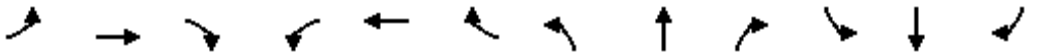
Intersection Summary												
HCM 6th Ctrl Delay			76.3									
HCM 6th LOS			E									

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Configurations						
Traffic Volume (vph)	728	487	476	782	38	476
Future Volume (vph)	728	487	476	782	38	476
Turn Type	Prot	NA	NA	Split	NA	Perm
Protected Phases	5	2	6	8	8	
Permitted Phases						8
Detector Phase	5	2	6	8	8	8
Switch Phase						
Minimum Initial (s)	5.0	12.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	20.0	27.6	20.0	20.0	20.0
Total Split (s)	57.0	86.0	29.0	34.0	34.0	34.0
Total Split (%)	47.5%	71.7%	24.2%	28.3%	28.3%	28.3%
Yellow Time (s)	4.0	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.6	5.3	5.3	5.3
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	51.9	81.4	25.0	28.7	28.7	28.7
Actuated g/C Ratio	0.43	0.68	0.21	0.24	0.24	0.24
v/c Ratio	0.98	0.21	0.76	1.04	1.05	0.71
Control Delay	22.9	2.9	51.9	101.0	103.4	13.5
Queue Delay	41.1	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	2.9	51.9	101.0	103.4	13.5
LOS	E	A	D	F	F	B
Approach Delay		39.5	51.9		69.6	
Approach LOS		D	D		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 47 (39%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 54.5	Intersection LOS: D
Intersection Capacity Utilization 97.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: I-15 NB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	728	487	0	0	476	64	782	38	476	0	0	0
Future Volume (veh/h)	728	487	0	0	476	64	782	38	476	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	751	502	0	0	491	54	834	0	312			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	776	2411	0	0	661	72	852	0	379			
Arrive On Green	0.22	0.34	0.00	0.00	0.21	0.21	0.24	0.00	0.24			
Sat Flow, veh/h	1781	3647	0	0	3314	353	3563	0	1585			
Grp Volume(v), veh/h	751	502	0	0	270	275	834	0	312			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1797	1781	0	1585			
Q Serve(g_s), s	50.1	12.1	0.0	0.0	17.1	17.2	27.9	0.0	22.4			
Cycle Q Clear(g_c), s	50.1	12.1	0.0	0.0	17.1	17.2	27.9	0.0	22.4			
Prop In Lane	1.00		0.00	0.00		0.20	1.00		1.00			
Lane Grp Cap(c), veh/h	776	2411	0	0	365	369	852	0	379			
V/C Ratio(X)	0.97	0.21	0.00	0.00	0.74	0.75	0.98	0.00	0.82			
Avail Cap(c_a), veh/h	779	2411	0	0	365	369	852	0	379			
HCM Platoon Ratio	0.50	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.1	16.7	0.0	0.0	44.7	44.7	45.3	0.0	43.2			
Incr Delay (d2), s/veh	4.5	0.0	0.0	0.0	12.7	12.8	25.6	0.0	13.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	24.3	5.5	0.0	0.0	8.7	8.9	14.9	0.0	9.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	16.8	0.0	0.0	57.3	57.6	70.9	0.0	56.5			
LnGrp LOS	D	B	A	A	E	E	E	A	E			
Approach Vol, veh/h		1253			545			1146				
Approach Delay, s/veh		37.1			57.5			67.0				
Approach LOS		D			E			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		86.0			56.8	29.2		34.0				
Change Period (Y+Rc), s		4.6			4.5	4.6		5.3				
Max Green Setting (Gmax), s		81.4			52.5	24.4		28.7				
Max Q Clear Time (g_c+I1), s		14.1			52.1	19.2		29.9				
Green Ext Time (p_c), s		2.3			0.1	1.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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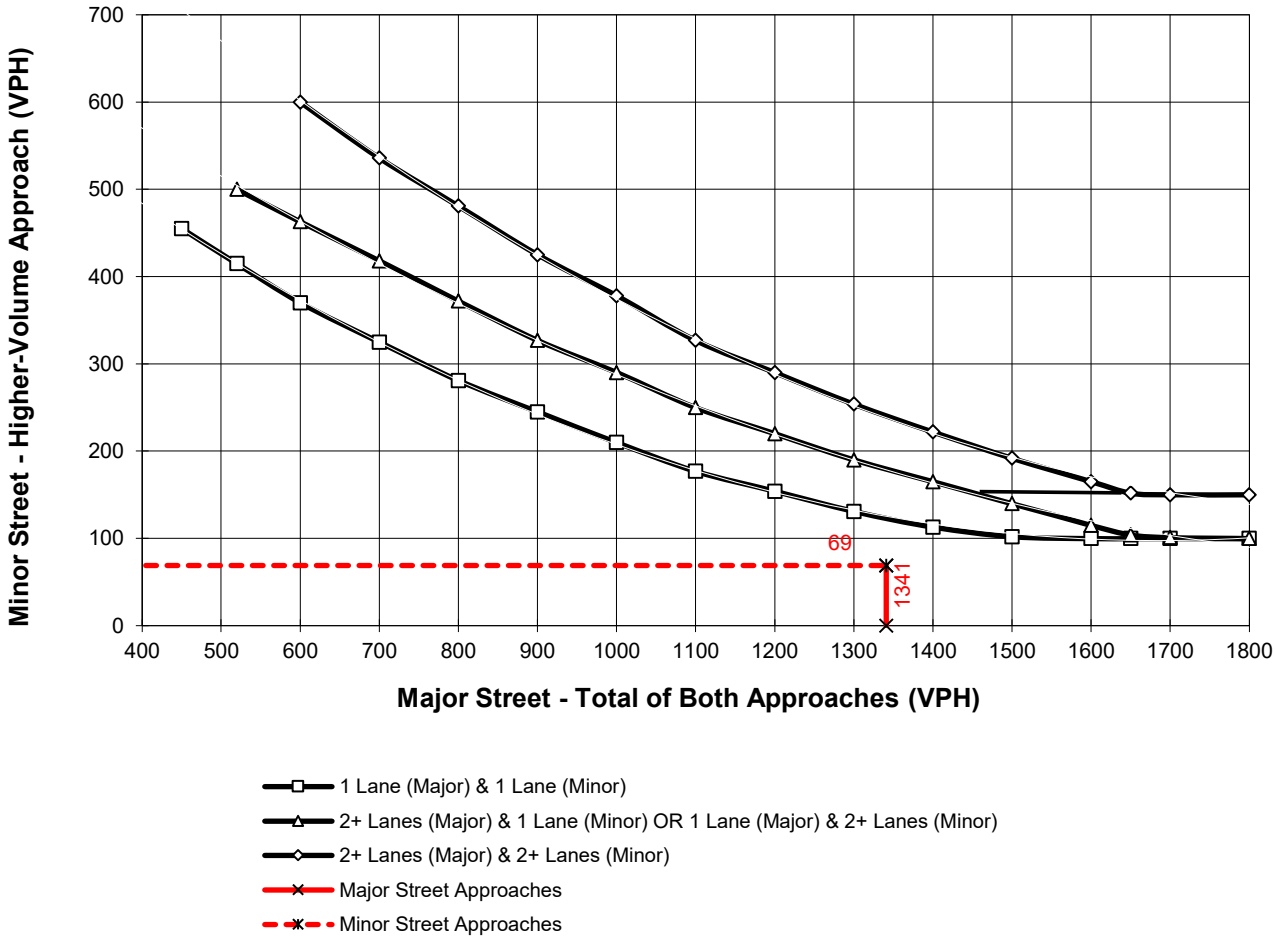
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Horizon Year Cumulative (2040) Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **1341**
Number of Approach Lanes on Major Street = **3**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **69**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.4:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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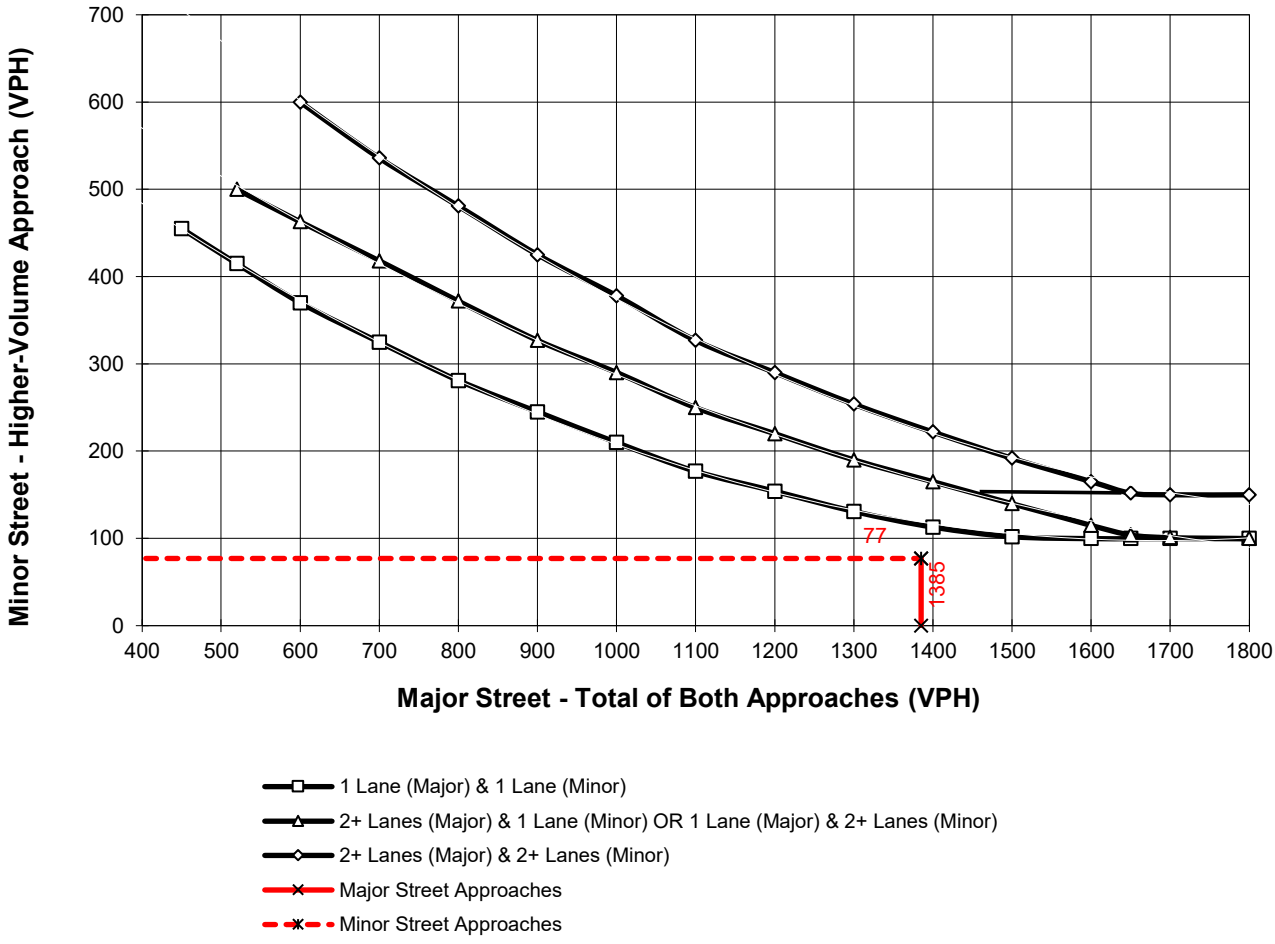
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Horizon Year Cumulative (2040) With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Third Street**
Total of Both Approaches (VPH) = **1385**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Driveway 1**
High Volume Approach (VPH) = **77**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.5:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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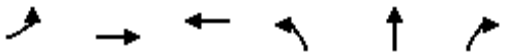
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1326	356	1408	83	628
v/c Ratio	1.08	0.99	0.70	0.13	1.07
Control Delay	80.6	63.4	9.9	27.6	93.3
Queue Delay	10.3	0.0	1.3	0.0	0.0
Total Delay	90.9	63.4	11.2	27.6	93.3
Queue Length 50th (ft)	~532	295	187	44	~511
Queue Length 95th (ft)	#673	m#430	208	82	#742
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1233	361	2017	616	585
Starvation Cap Reductn	64	0	377	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	0.99	0.86	0.13	1.07

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	NBL	NBT	NBR
Lane Group Flow (vph)	249	505	933	516	522	742
v/c Ratio	0.82	0.26	0.80	0.82	0.83	0.95
Control Delay	31.4	5.9	43.7	45.5	46.0	42.4
Queue Delay	0.0	0.0	0.0	0.6	0.6	0.0
Total Delay	31.4	5.9	43.7	46.1	46.6	42.4
Queue Length 50th (ft)	124	66	356	361	366	352
Queue Length 95th (ft)	m91	m62	#506	512	518	#621
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	361	1923	1162	668	670	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	23	23	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.26	0.80	0.80	0.81	0.91

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.

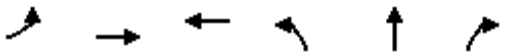
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	2193	243	996	122	403
v/c Ratio	1.15	0.84	0.38	0.38	0.94
Control Delay	100.8	25.2	0.5	46.4	59.1
Queue Delay	0.3	0.0	0.3	0.0	0.0
Total Delay	101.2	25.2	0.9	46.4	59.1
Queue Length 50th (ft)	~1033	8	0	82	182
Queue Length 95th (ft)	#1186	m#16	m0	141	#368
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1899	331	2614	350	453
Starvation Cap Reductn	204	0	933	0	0
Spillback Cap Reductn	145	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.29	0.73	0.59	0.35	0.89

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	NBL	NBT	NBR
Lane Group Flow (vph)	729	488	538	405	413	491
v/c Ratio	0.96	0.20	0.72	1.01	1.02	0.70
Control Delay	21.5	3.3	49.7	92.6	95.3	12.4
Queue Delay	44.5	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	3.3	49.7	92.6	95.3	12.4
Queue Length 50th (ft)	500	35	204	~335	~356	39
Queue Length 95th (ft)	m299	m31	268	#552	#565	160
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	774	2400	747	402	405	704
Starvation Cap Reductn	149	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	1.17	0.20	0.72	1.01	1.02	0.70

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 7.6:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS

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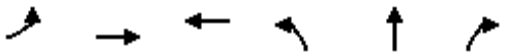
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1389	356	1446	83	648
v/c Ratio	1.13	0.99	0.72	0.13	1.11
Control Delay	99.6	59.6	10.1	27.6	104.6
Queue Delay	0.4	0.0	1.7	0.0	0.0
Total Delay	100.0	59.6	11.7	27.6	104.6
Queue Length 50th (ft)	~623	295	195	44	~544
Queue Length 95th (ft)	m447	m#386	224	82	#775
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1230	361	2017	616	585
Starvation Cap Reductn	123	0	376	0	0
Spillback Cap Reductn	0	0	210	0	2
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.25	0.99	0.88	0.13	1.11

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	NBL	NBT	NBR
Lane Group Flow (vph)	274	522	951	526	532	742
v/c Ratio	0.85	0.27	0.85	0.83	0.83	0.95
Control Delay	26.2	6.0	47.8	45.6	46.2	43.4
Queue Delay	0.0	0.0	0.0	1.1	1.1	0.0
Total Delay	26.2	6.0	47.8	46.7	47.3	43.4
Queue Length 50th (ft)	128	69	376	371	376	364
Queue Length 95th (ft)	m98	m61	#523	527	533	#634
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	361	1906	1113	668	670	807
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	35	35	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.27	0.85	0.83	0.84	0.92

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.

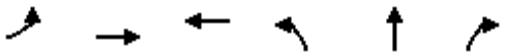
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	2250	243	1041	122	430
v/c Ratio	1.22	0.84	0.41	0.35	0.98
Control Delay	132.2	23.5	0.7	44.9	68.0
Queue Delay	1.3	0.0	0.5	0.0	3.3
Total Delay	133.5	23.5	1.2	44.9	71.3
Queue Length 50th (ft)	~1113	8	0	82	222
Queue Length 95th (ft)	m622	m19	m0	141	#434
Internal Link Dist (ft)	402		467	1725	
Turn Bay Length (ft)		100			230
Base Capacity (vph)	1845	331	2550	350	441
Starvation Cap Reductn	592	0	933	0	0
Spillback Cap Reductn	163	0	187	0	7
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.80	0.73	0.64	0.35	0.99

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	NBL	NBT	NBR
Lane Group Flow (vph)	751	502	557	419	426	491
v/c Ratio	0.98	0.21	0.76	1.04	1.05	0.71
Control Delay	22.9	2.9	51.9	101.0	103.4	13.5
Queue Delay	41.1	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	2.9	51.9	101.0	103.4	13.5
Queue Length 50th (ft)	560	37	212	~369	~378	46
Queue Length 95th (ft)	m281	m31	278	#580	#591	172
Internal Link Dist (ft)		467	542		1439	
Turn Bay Length (ft)	100			500		
Base Capacity (vph)	774	2400	729	402	405	695
Starvation Cap Reductn	149	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	1.20	0.21	0.76	1.04	1.05	0.71

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 7.7:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year Cumulative (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6985	7161	0.98	54.6	42.6	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.980	6985	758	7200	2100	0.97	0.36	63.4	59.8	36.7	37.3	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6198	7161	0.87	60.6	34.1	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.952	7341	1143	9600	2100	0.65	0.54	68.6	-	22.6	-	C

Segment 5: Basic

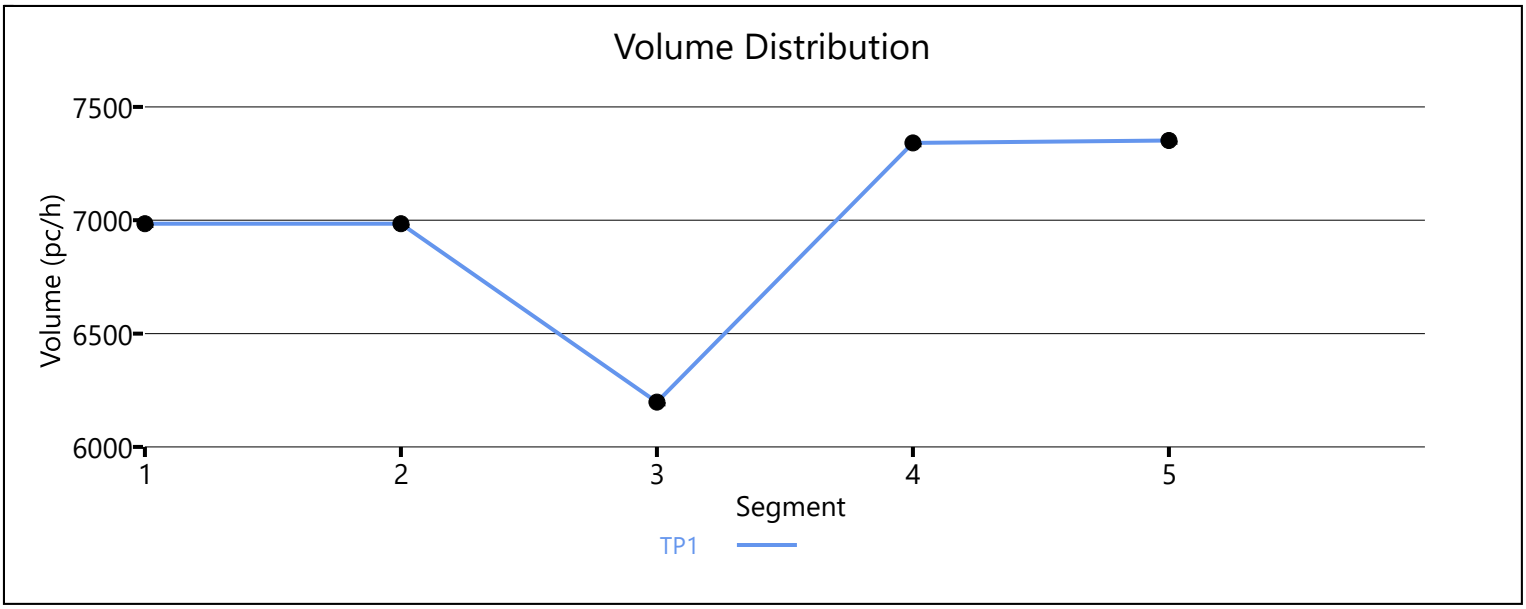
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	7352	11935	0.62	68.1	21.6	C

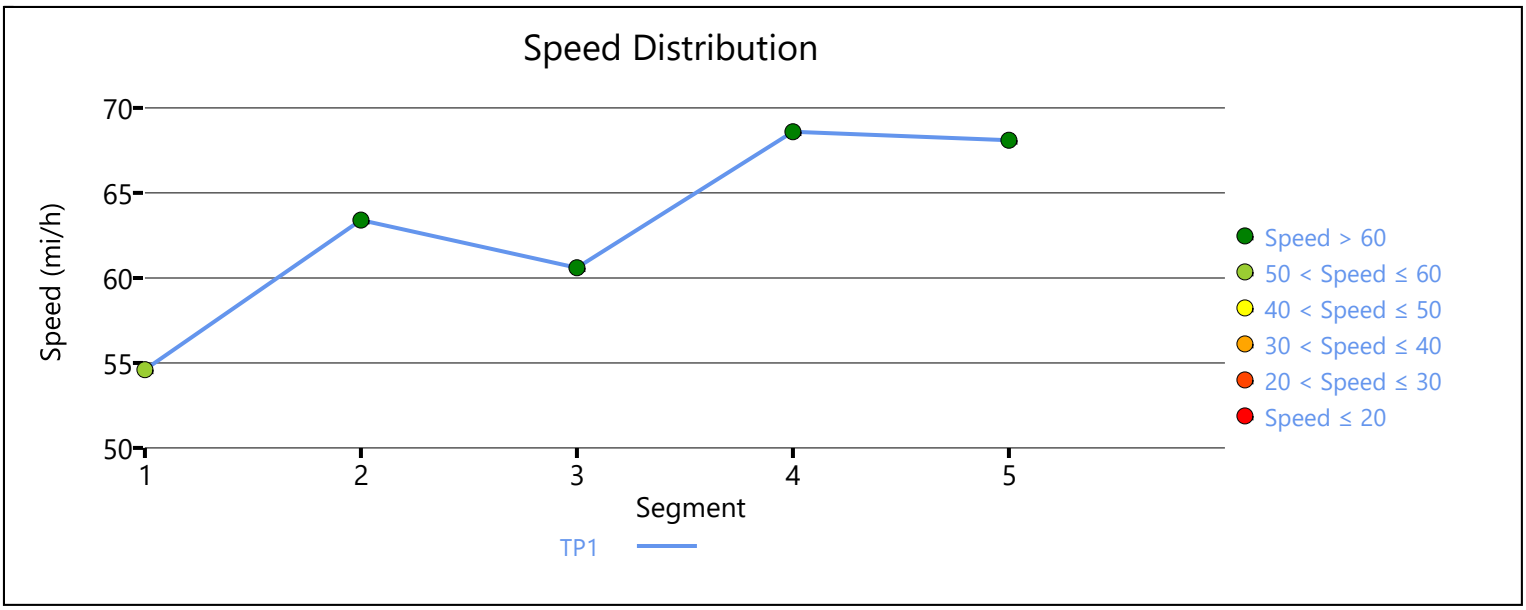
Facility Time Period Results

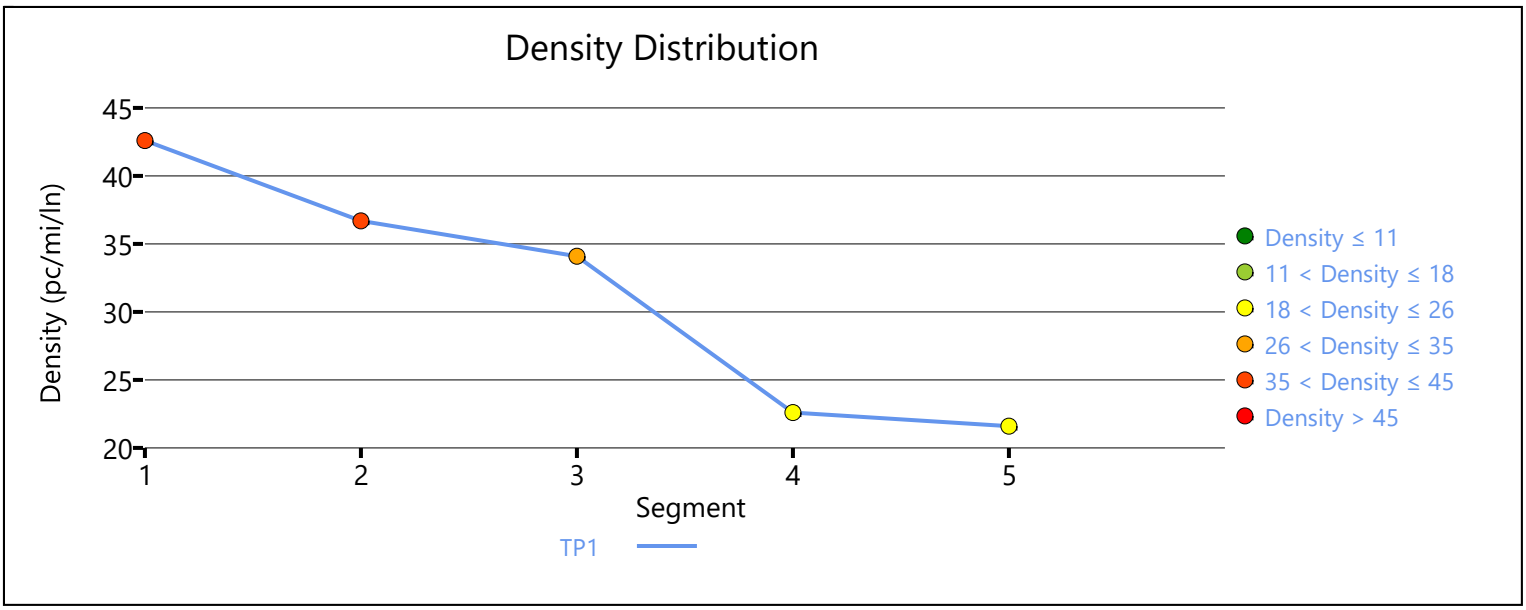
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	59.1	34.8	32.8	2.6	D

Facility Overall Results

Space Mean Speed, mi/h	59.1	Density, veh/mi/ln	32.8
Average Travel Time, min	2.6	Density, pc/mi/ln	34.8







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	10377	11935	0.87	60.5	34.3	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8550	1817	12000	4200	0.86	0.43	22.5	-	76.1	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6304	9548	0.89	17.7	89.0	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.943	6668	401	7200	2100	1.24	0.19	40.1	7.3	55.4	50.0	F

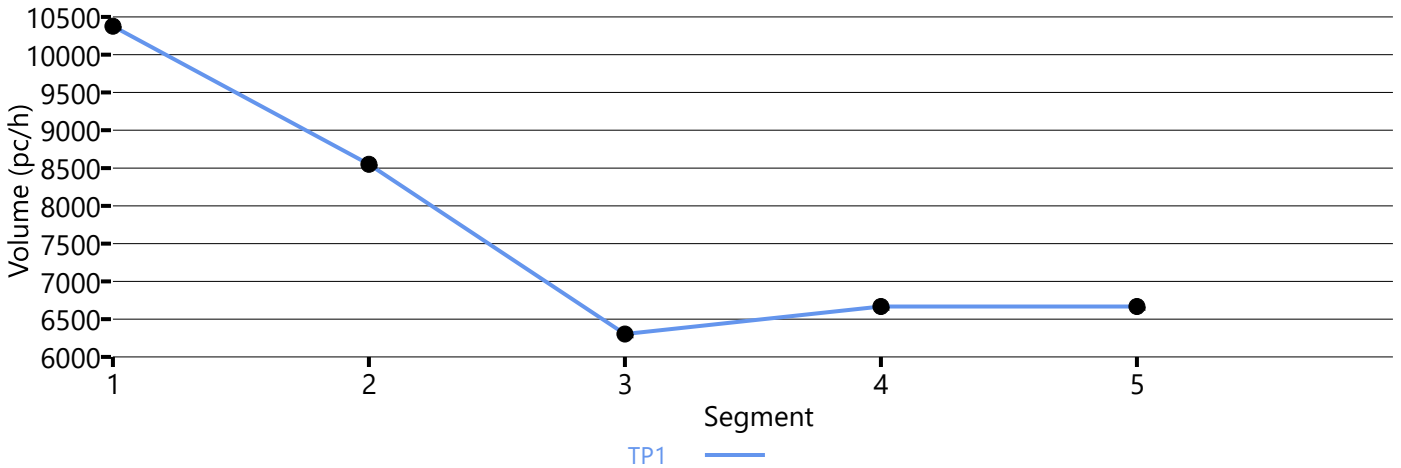
Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.25	57.9	38.4	F

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	31.2	62.4	60.0	5.2	F

Facility Overall Results			
Space Mean Speed, mi/h	31.2	Density, veh/mi/ln	60.0
Average Travel Time, min	5.2	Density, pc/mi/ln	62.4

Volume Distribution



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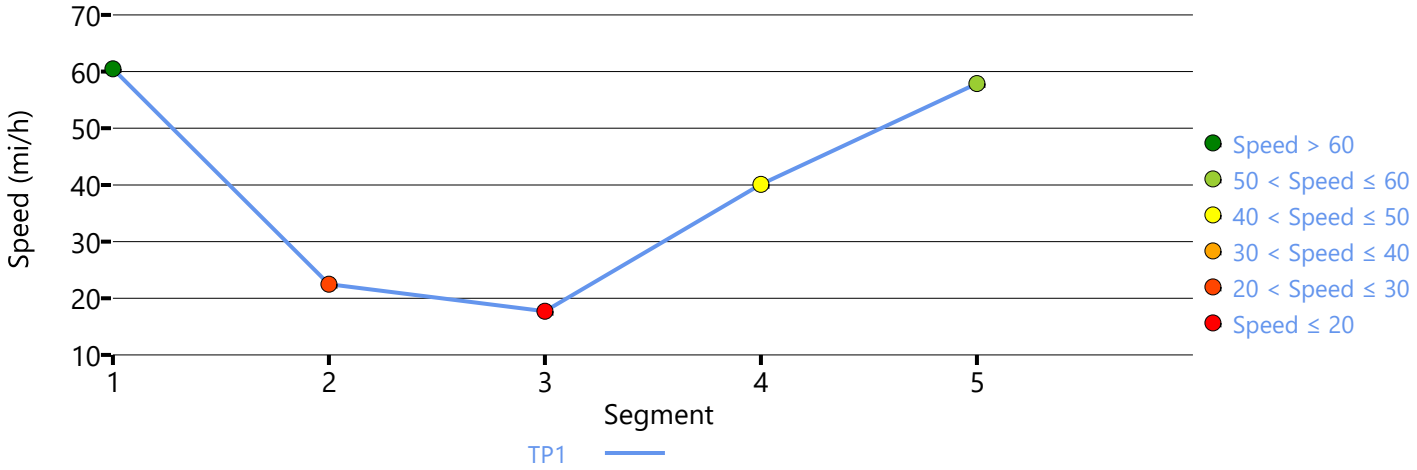
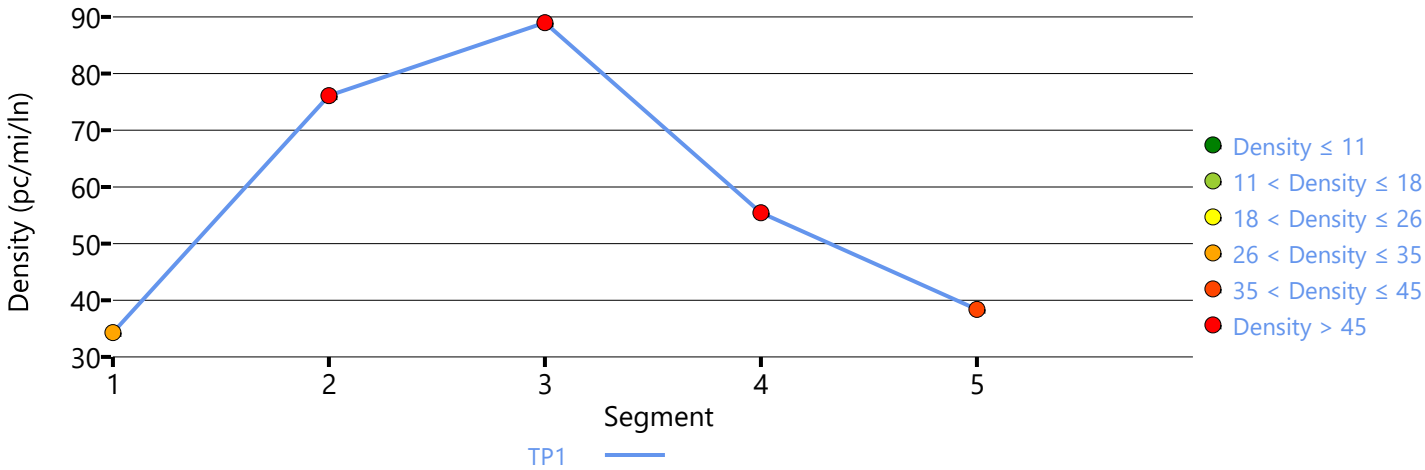


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7387	7161	1.03	53.0	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	7161	577	7200	2100	1.03	0.27	63.6	60.2	37.5	38.8	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6584	7161	0.95	58.5	37.5	E

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.990	8041	1457	9600	2100	0.71	0.69	59.1	-	34.0	-	D

Segment 5: Basic

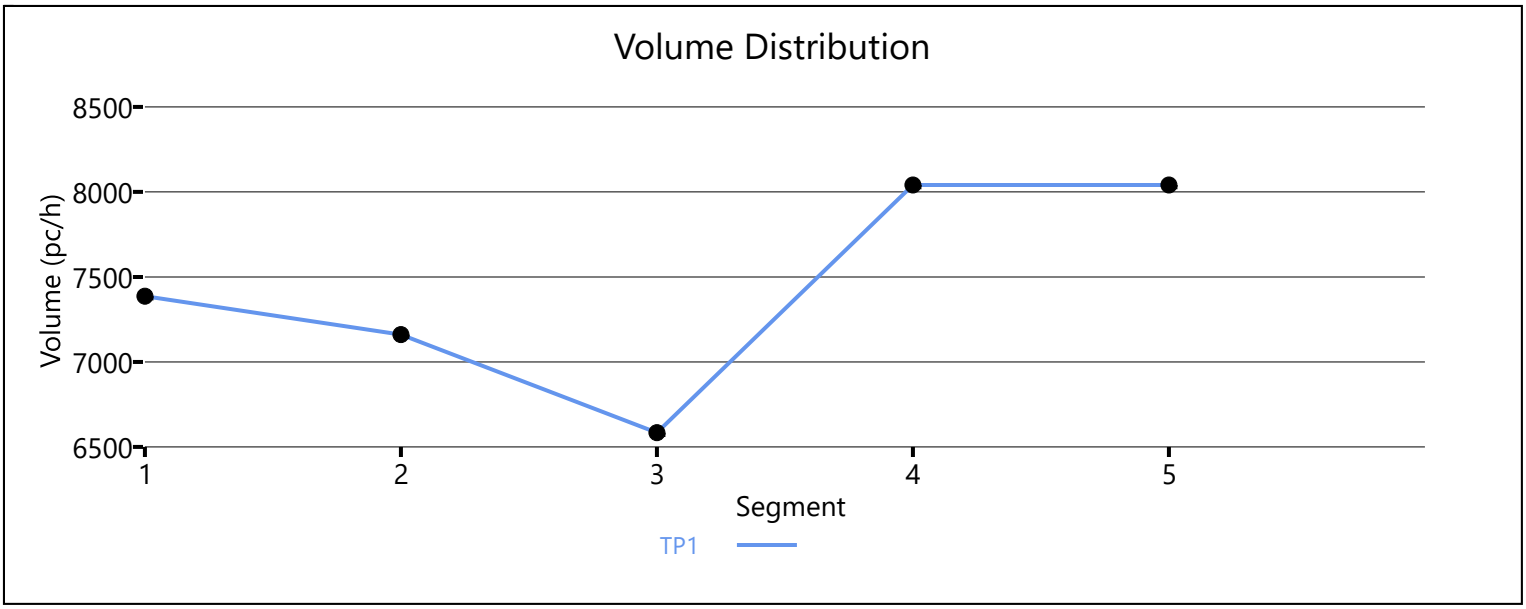
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	8041	11935	0.70	67.8	23.6	C

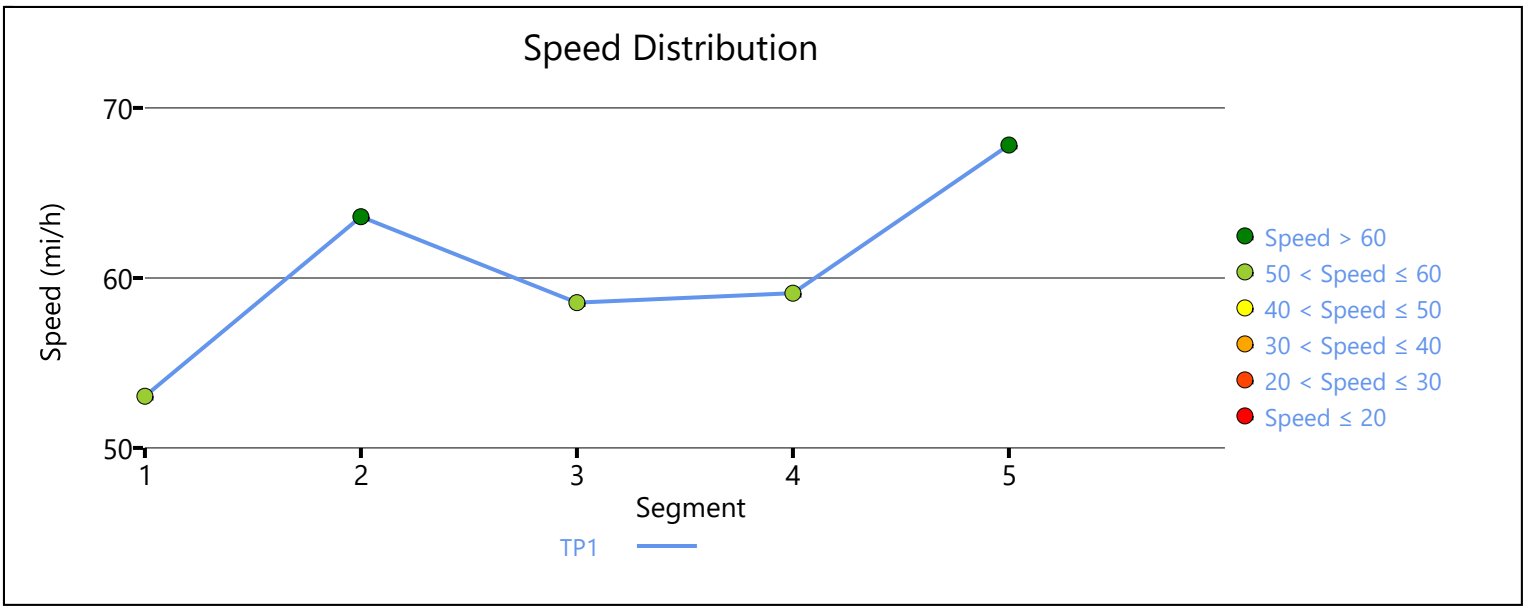
Facility Time Period Results

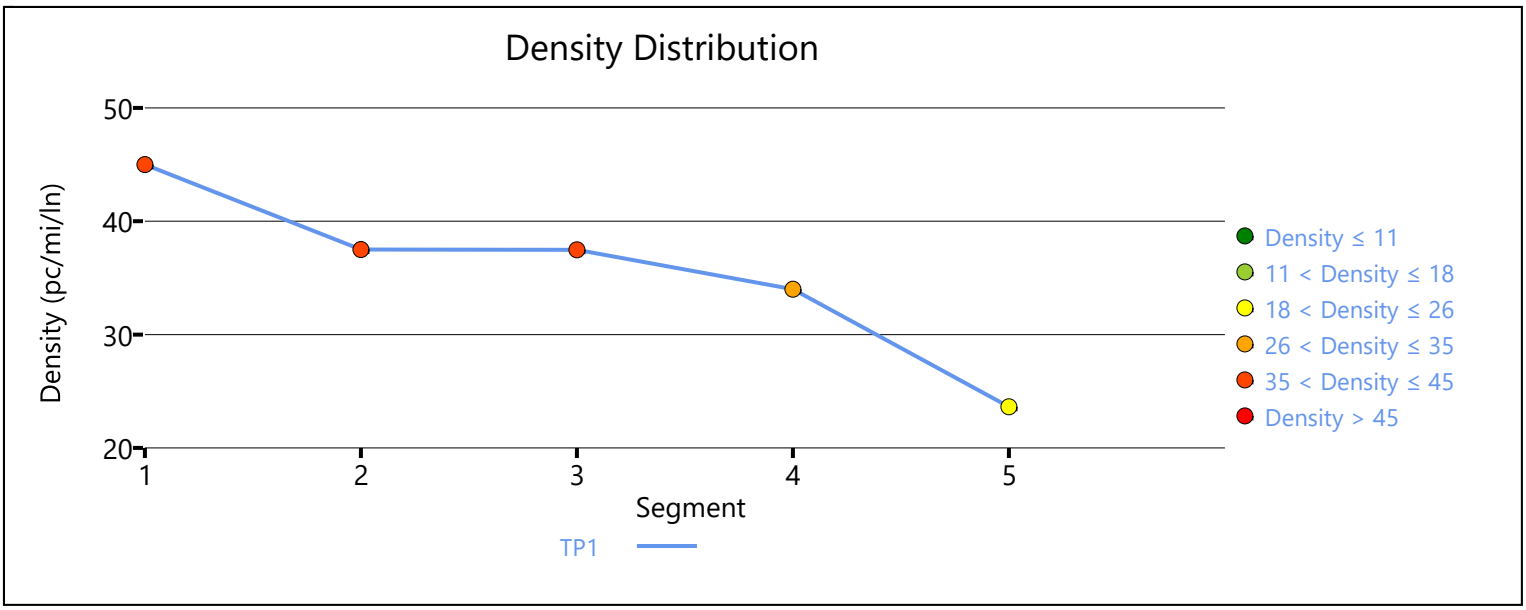
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	57.4	38.0	36.2	2.7	F

Facility Overall Results

Space Mean Speed, mi/h	57.4	Density, veh/mi/ln	36.2
Average Travel Time, min	2.7	Density, pc/mi/ln	38.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	2/12/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year Cumulative (2023) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	8585	11935	0.72	66.1	26.0	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	7748	1409	12000	4200	0.72	0.34	26.6	-	58.3	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	5791	9548	0.75	16.7	86.7	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6668	914	7200	2100	1.12	0.44	40.1	39.3	55.4	43.0	F

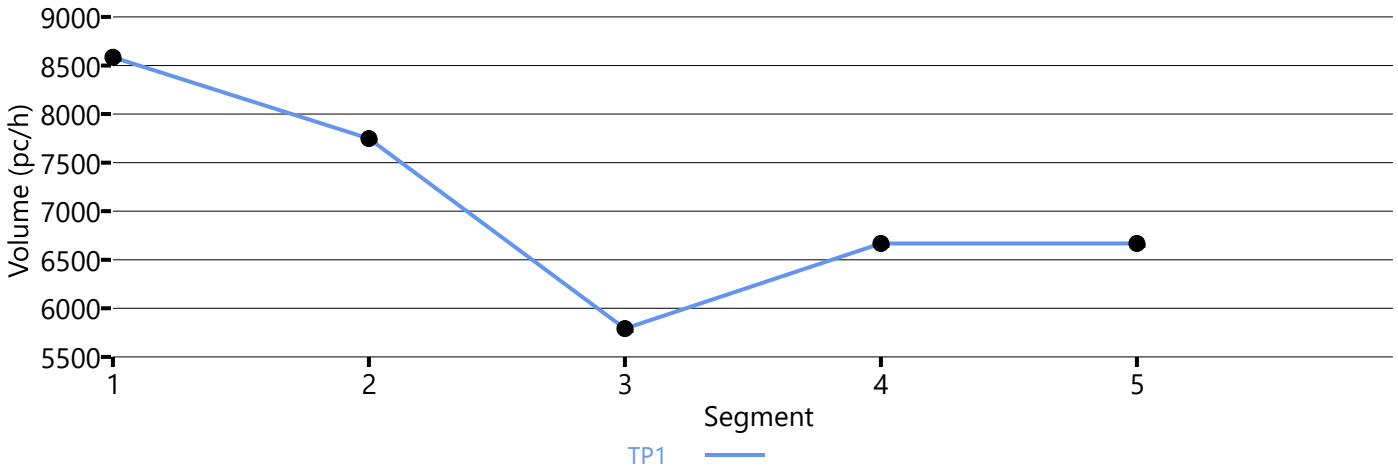
Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.13	57.9	38.4	F

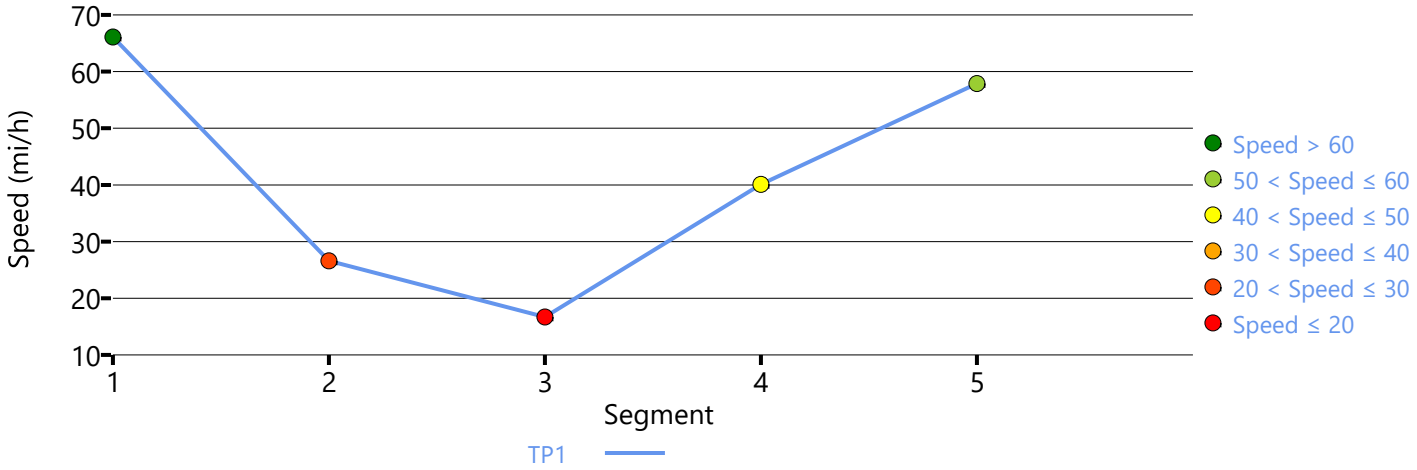
Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	37.7	49.7	47.8	4.3	F

Facility Overall Results			
Space Mean Speed, mi/h	37.7	Density, veh/mi/ln	47.8
Average Travel Time, min	4.3	Density, pc/mi/ln	49.7

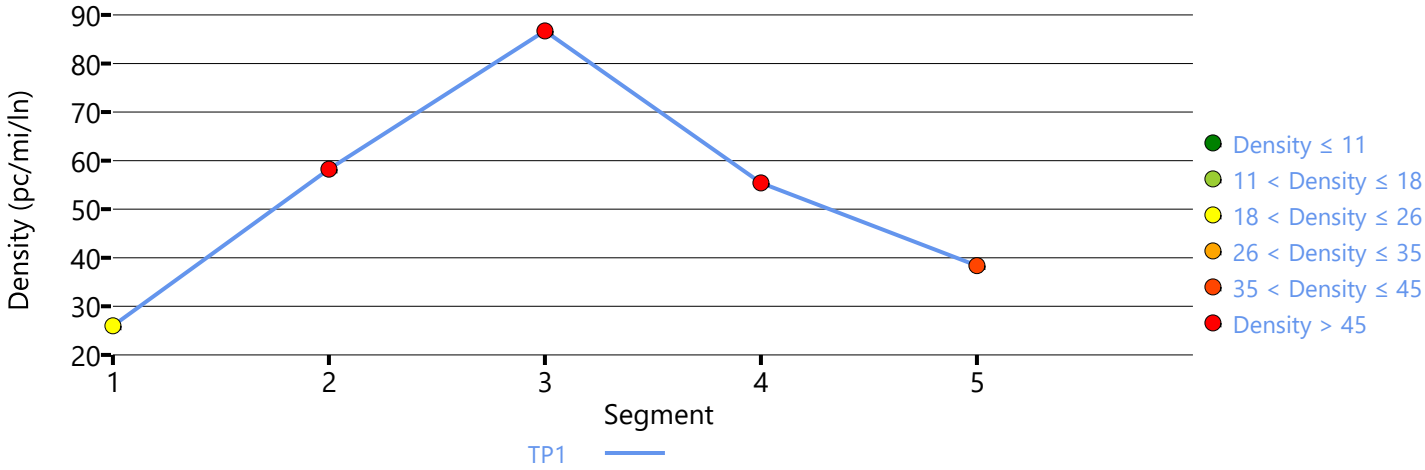
Volume Distribution



Speed Distribution



Density Distribution



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APPENDIX 7.8:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	7007	7161	0.98	54.4	42.9	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.980	7007	779	7200	2100	0.97	0.37	63.4	59.7	36.8	37.5	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6198	7161	0.87	60.6	34.1	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.952	7367	1169	9600	2100	0.65	0.56	68.6	-	22.6	-	C

Segment 5: Basic

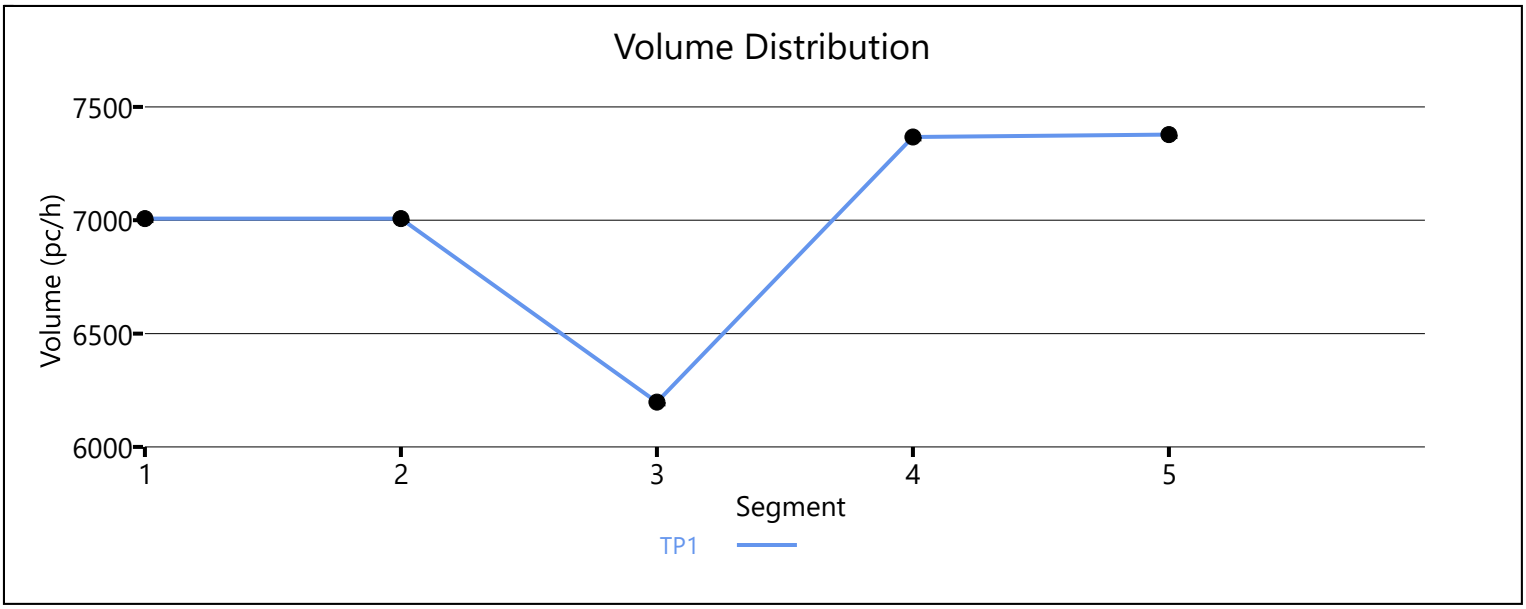
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	7378	11935	0.62	68.1	21.7	C

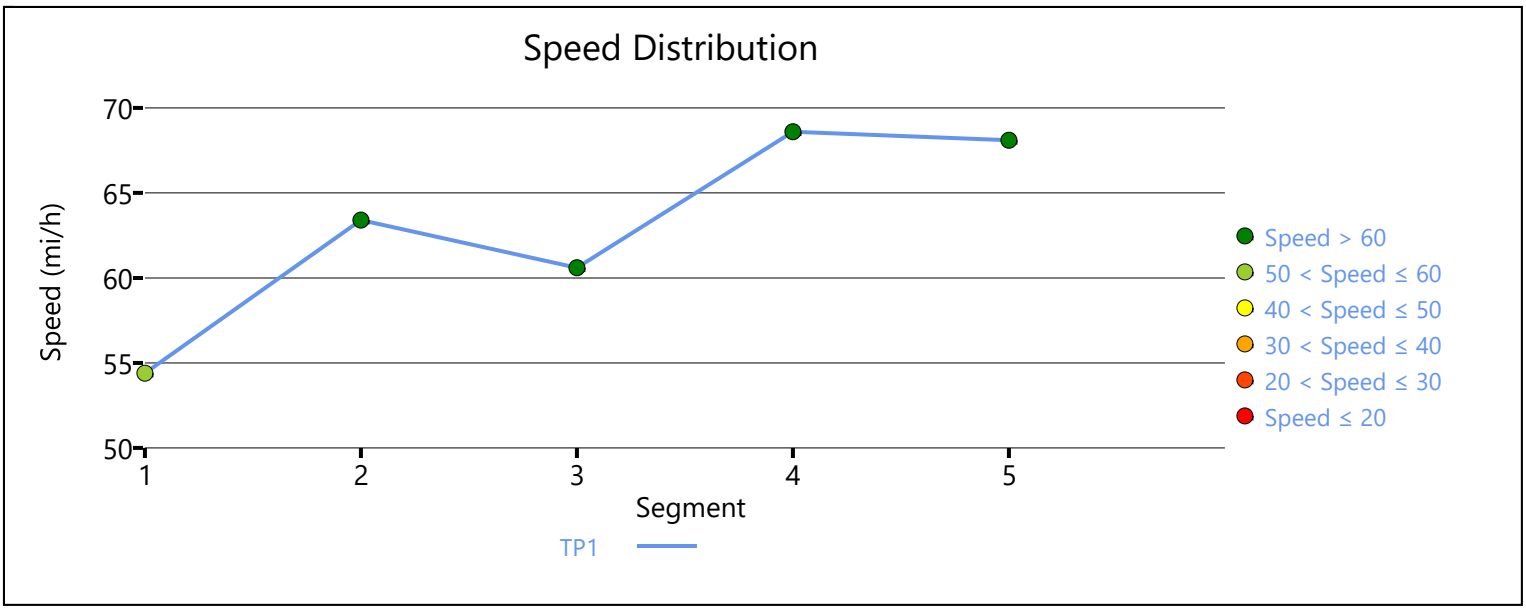
Facility Time Period Results

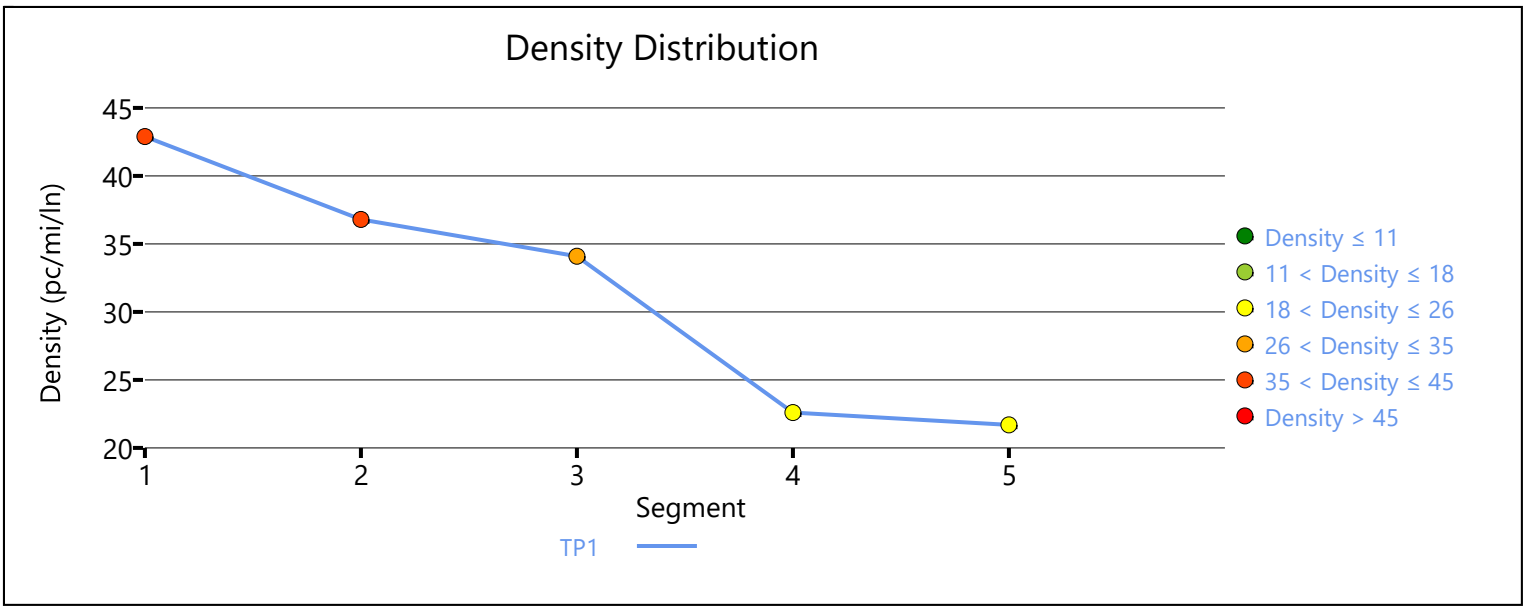
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.9	34.9	33.0	2.6	D

Facility Overall Results

Space Mean Speed, mi/h	58.9	Density, veh/mi/ln	33.0
Average Travel Time, min	2.6	Density, pc/mi/ln	34.9







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	10398	12000	0.87	61.0	34.1	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	8547	1838	12000	4200	0.87	0.44	22.4	-	76.3	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6277	9548	0.89	17.6	89.4	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.943	6668	428	7200	2100	1.24	0.20	40.1	5.8	55.4	50.2	F

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.25	57.9	38.4	F

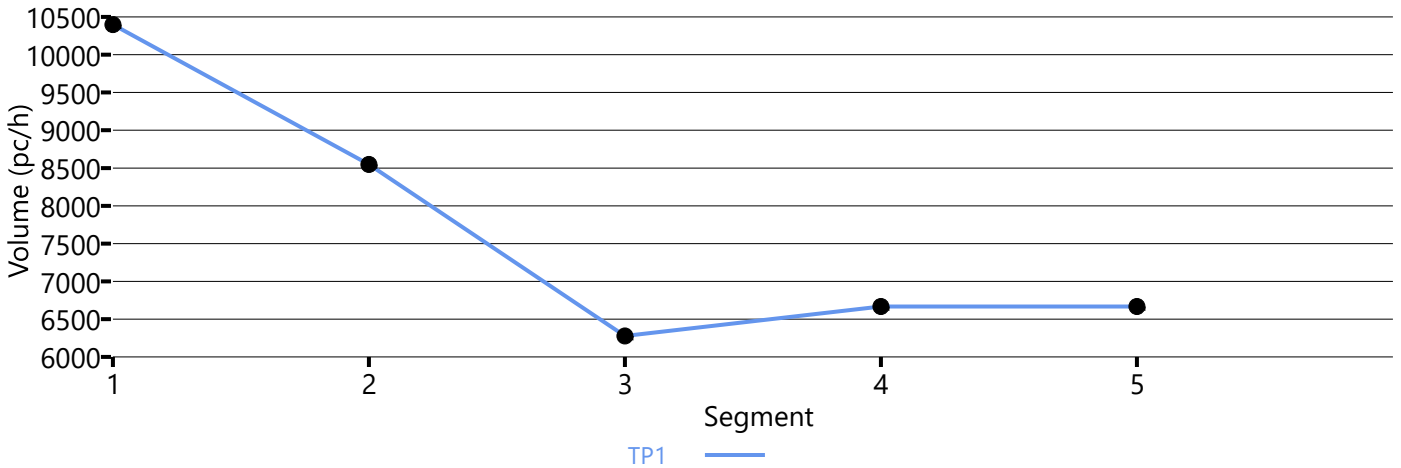
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	31.1	62.6	60.2	5.2	F

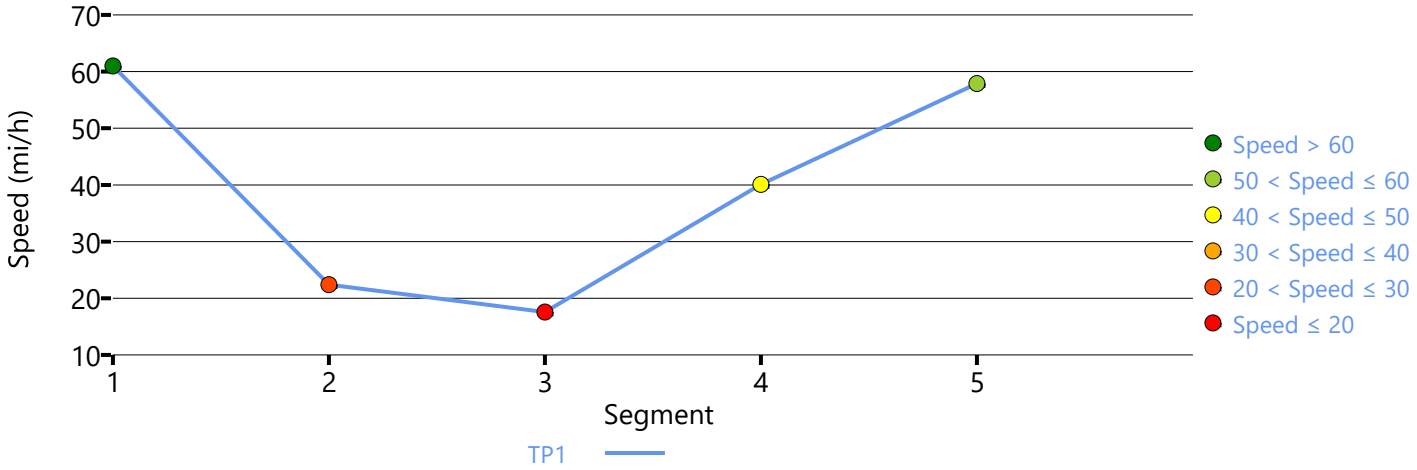
Facility Overall Results

Space Mean Speed, mi/h	31.1	Density, veh/mi/ln	60.2
Average Travel Time, min	5.2	Density, pc/mi/ln	62.6

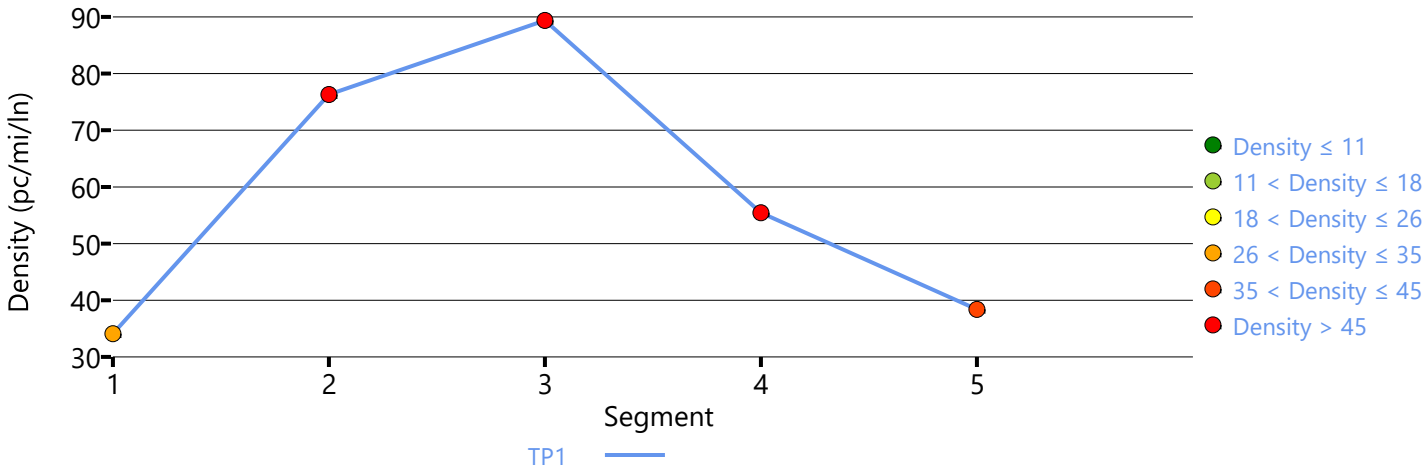
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7417	7161	1.04	53.0	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.971	7161	606	7200	2100	1.03	0.29	63.5	60.1	37.6	38.8	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6555	7161	0.95	58.8	37.2	E

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.990	8035	1480	9600	2100	0.71	0.70	59.0	-	34.0	-	D

Segment 5: Basic

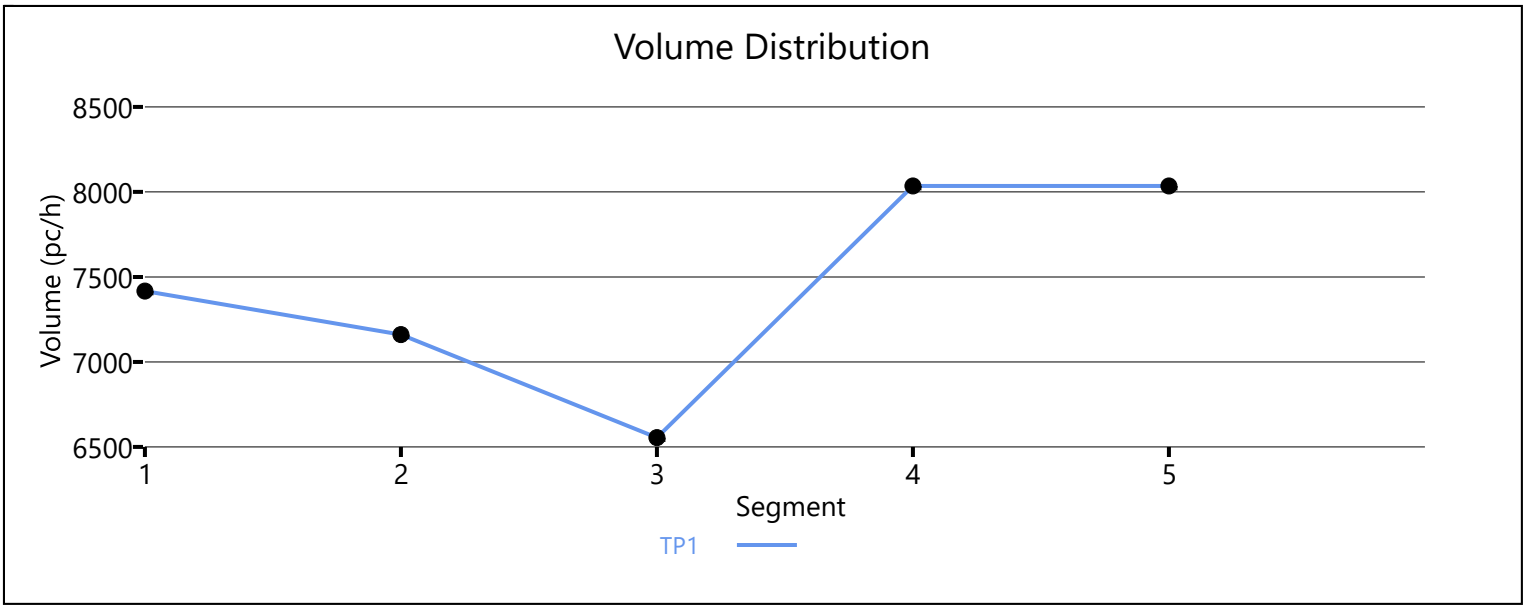
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	8035	11935	0.70	67.8	23.6	C

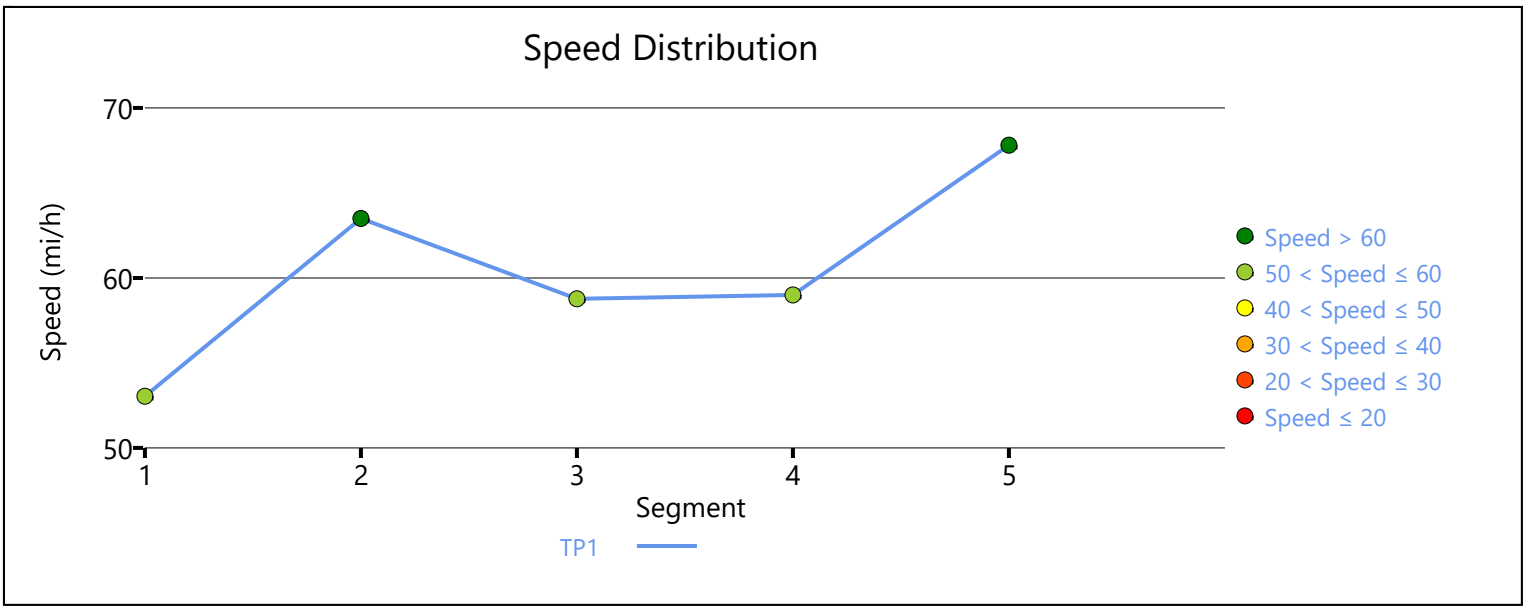
Facility Time Period Results

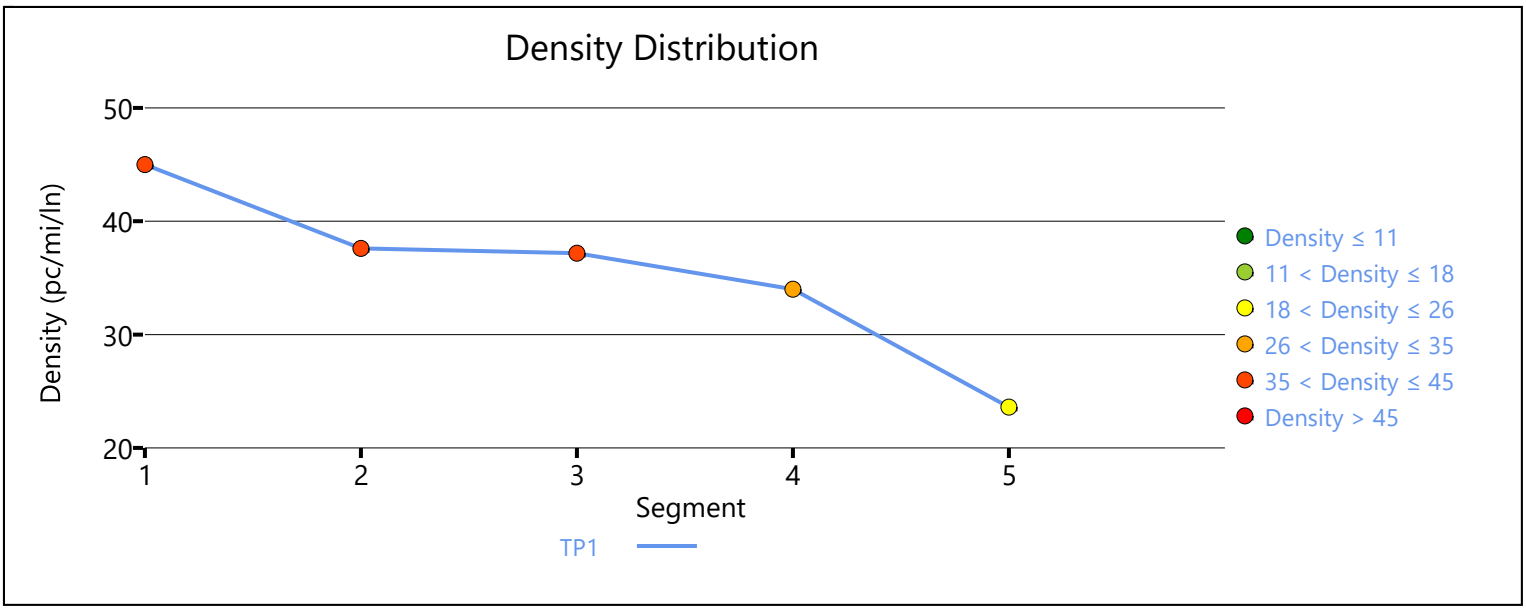
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	57.4	38.0	36.2	2.7	F

Facility Overall Results

Space Mean Speed, mi/h	57.4	Density, veh/mi/ln	36.2
Average Travel Time, min	2.7	Density, pc/mi/ln	38.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	8614	11935	0.72	66.0	26.1	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.980	7755	1437	12000	4200	0.72	0.34	26.3	-	59.0	-	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	5767	9548	0.75	16.5	87.2	F

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6668	938	7200	2100	1.12	0.45	40.1	38.7	55.4	43.2	F

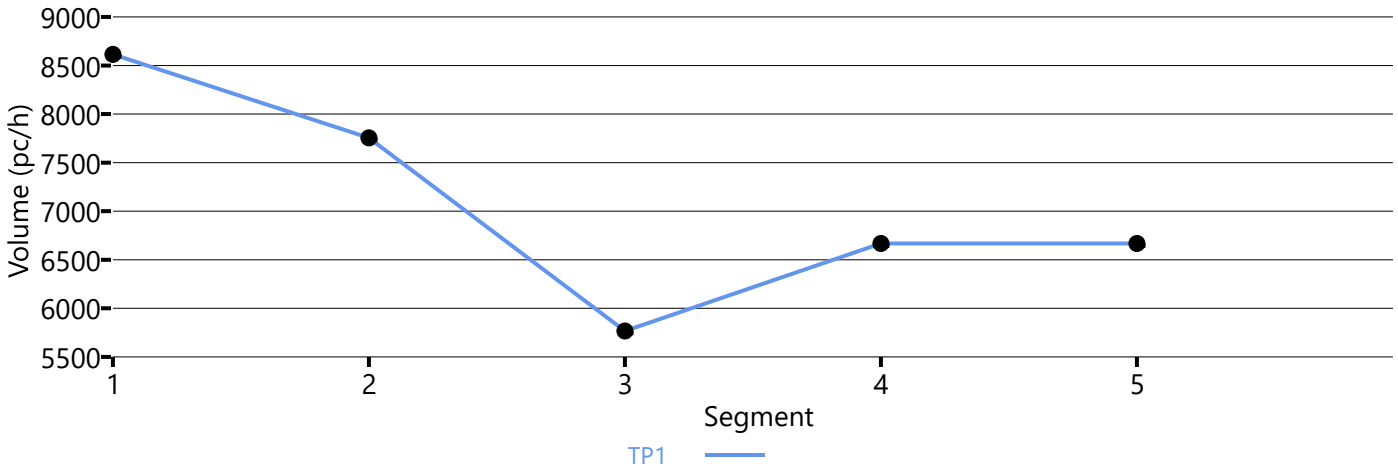
Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6668	7161	1.13	57.9	38.4	F

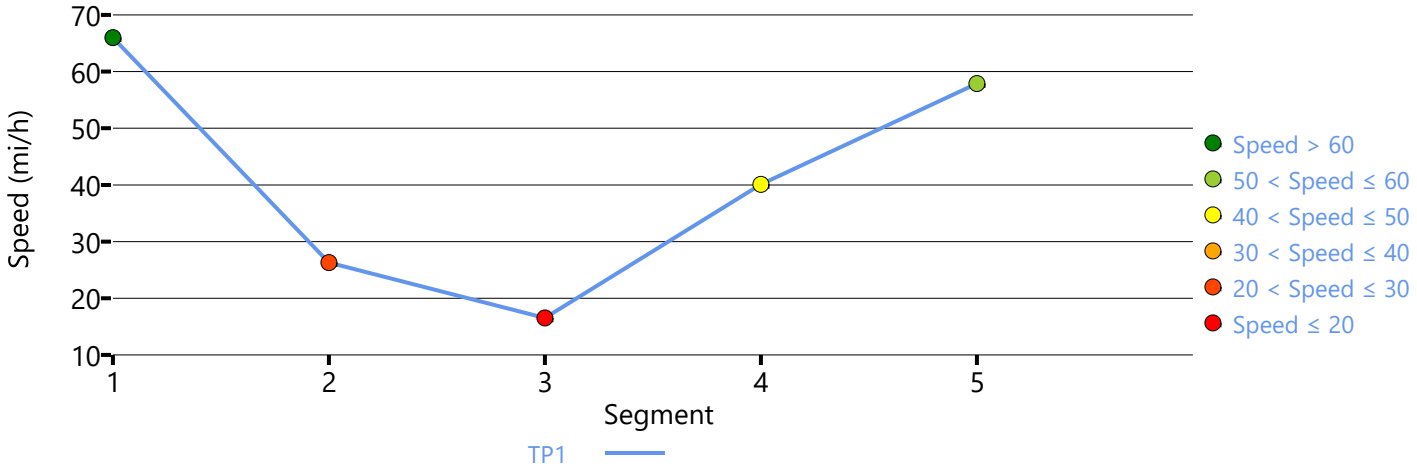
Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	37.6	49.9	48.0	4.3	F

Facility Overall Results			
Space Mean Speed, mi/h	37.6	Density, veh/mi/ln	48.0
Average Travel Time, min	4.3	Density, pc/mi/ln	49.9

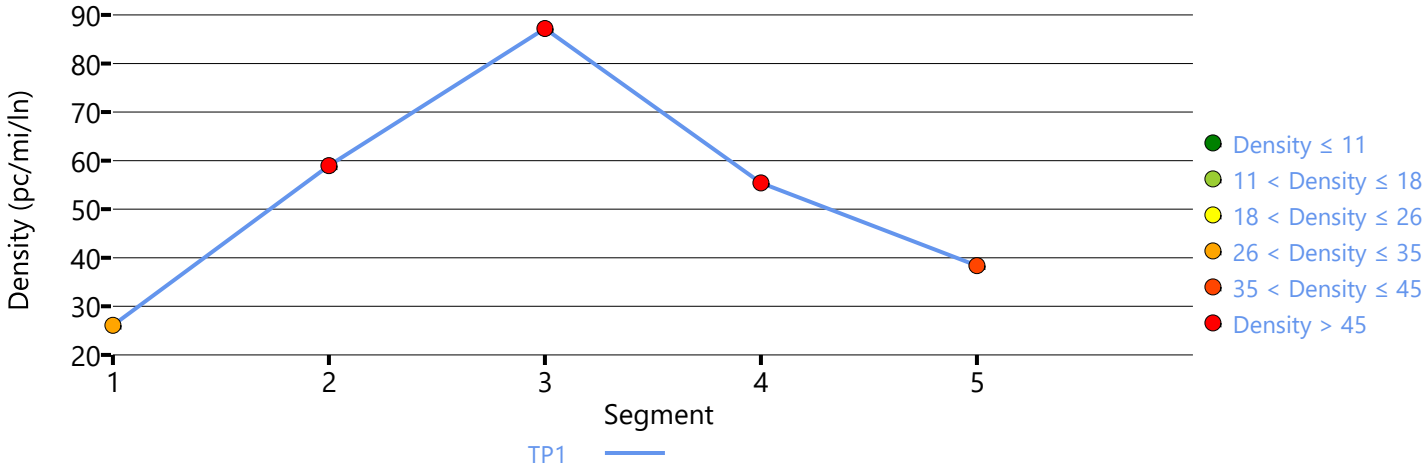
Volume Distribution



Speed Distribution



Density Distribution



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APPENDIX 7.9:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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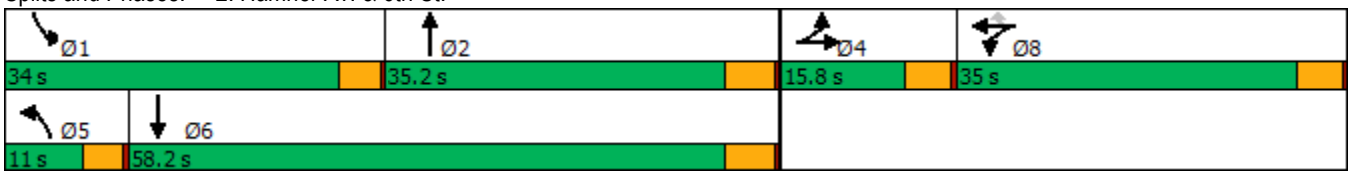
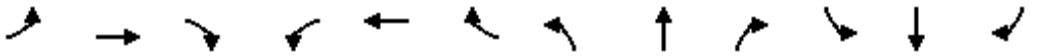
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	266	634	125	368	110	569	598	1306
Future Volume (vph)	49	266	634	125	368	110	569	598	1306
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	9.1	29.9
Total Split (s)	15.8	15.8	35.0	35.0	35.0	11.0	35.2	34.0	58.2
Total Split (%)	13.2%	13.2%	29.2%	29.2%	29.2%	9.2%	29.3%	28.3%	48.5%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.2	11.2	30.1	30.1	30.1	6.9	34.9	25.3	53.3
Actuated g/C Ratio	0.09	0.09	0.25	0.25	0.25	0.06	0.29	0.21	0.45
v/c Ratio	0.32	1.01	0.93	0.94	0.57	1.15	0.63	0.84	0.98
Control Delay	56.4	102.2	74.3	75.6	7.1	184.0	35.0	56.2	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	102.2	74.3	75.6	7.1	184.0	35.0	56.2	52.0
LOS	E	F	E	E	A	F	D	E	D
Approach Delay		96.1		52.8			51.6		53.2
Approach LOS		F		D			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 56.3	Intersection LOS: E
Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	266	57	634	125	368	110	569	313	598	1306	145
Future Volume (veh/h)	49	266	57	634	125	368	110	569	313	598	1306	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	280	44	761	0	174	116	599	208	629	1375	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	299	46	851	0	378	106	1165	396	703	1483	125
Arrive On Green	0.10	0.10	0.10	0.24	0.00	0.24	0.06	0.31	0.31	0.20	0.45	0.45
Sat Flow, veh/h	1781	3082	479	3563	0	1581	1781	3765	1278	3563	3317	279
Grp Volume(v), veh/h	52	160	164	761	0	174	116	540	267	629	734	757
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	0	1581	1781	1702	1639	1781	1777	1819
Q Serve(g_s), s	3.1	10.3	10.6	23.9	0.0	10.9	6.9	15.1	15.5	19.9	45.0	45.6
Cycle Q Clear(g_c), s	3.1	10.3	10.6	23.9	0.0	10.9	6.9	15.1	15.5	19.9	45.0	45.6
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.78	1.00		0.15
Lane Grp Cap(c), veh/h	173	172	173	851	0	378	106	1053	507	703	794	813
V/C Ratio(X)	0.30	0.93	0.95	0.89	0.00	0.46	1.09	0.51	0.53	0.90	0.92	0.93
Avail Cap(c_a), veh/h	173	172	173	937	0	416	106	1053	507	922	819	839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	51.8	51.9	42.6	0.0	37.6	54.3	32.8	32.9	45.2	30.1	30.3
Incr Delay (d2), s/veh	1.0	48.4	53.4	10.3	0.0	0.9	113.9	0.4	1.0	7.8	15.8	16.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.9	7.2	11.5	0.0	4.3	6.4	6.1	6.1	9.3	21.5	22.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	100.2	105.3	52.9	0.0	38.5	168.2	33.2	33.9	53.0	45.9	46.8
LnGrp LOS	D	F	F	D	A	D	F	C	C	D	D	D
Approach Vol, veh/h		376			935			923			2120	
Approach Delay, s/veh		95.4			50.2			50.4			48.3	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.9	40.7		15.8	11.0	56.6		32.2				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	29.9	30.3		11.2	6.9	53.3		30.4				
Max Q Clear Time (g_c+I1), s	21.9	17.5		12.6	8.9	47.6		25.9				
Green Ext Time (p_c), s	0.9	4.1		0.0	0.0	4.1		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		53.2	
HCM 6th LOS		D	

Notes

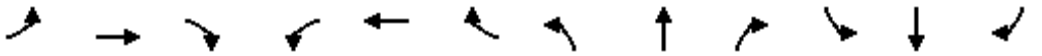
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	148	39	317	117	368	630	1389	31	844
Future Volume (vph)	148	39	317	117	368	630	1389	31	844
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	9.6	33.4
Total Split (s)	16.7	35.7	28.0	14.4	33.4	28.0	58.7	11.2	41.9
Total Split (%)	13.9%	29.8%	23.3%	12.0%	27.8%	23.3%	48.9%	9.3%	34.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.0	26.5	52.0	16.9	28.4	23.4	57.8	6.1	36.5
Actuated g/C Ratio	0.10	0.22	0.43	0.14	0.24	0.20	0.48	0.05	0.30
v/c Ratio	0.91	0.10	0.48	0.51	1.06	1.02	0.65	0.38	1.04dr
Control Delay	101.0	35.0	20.4	60.2	103.7	67.6	29.8	67.3	56.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.0	35.0	20.4	60.2	103.7	67.6	29.8	67.3	56.7
LOS	F	C	C	E	F	E	C	E	E
Approach Delay		45.2			94.3		41.3		57.0
Approach LOS		D			F		D		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 52.9	Intersection LOS: D
Intersection Capacity Utilization 94.1%	ICU Level of Service F
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	39	317	117	368	56	630	1389	64	31	844	552
Future Volume (veh/h)	148	39	317	117	368	56	630	1389	64	31	844	552
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	42	206	127	400	45	685	1510	60	34	917	418
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	477	713	145	389	44	674	2373	94	50	1039	473
Arrive On Green	0.10	0.25	0.25	0.08	0.24	0.24	0.20	0.47	0.47	0.03	0.30	0.30
Sat Flow, veh/h	1781	1870	1585	1781	1651	186	3456	5038	200	1781	3415	1555
Grp Volume(v), veh/h	161	42	206	127	0	445	685	1020	550	34	914	421
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1836	1728	1702	1834	1781	1702	1565
Q Serve(g_s), s	10.7	2.1	9.9	8.5	0.0	28.3	23.4	27.2	27.2	2.3	30.7	30.7
Cycle Q Clear(g_c), s	10.7	2.1	9.9	8.5	0.0	28.3	23.4	27.2	27.2	2.3	30.7	30.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.11	1.00		0.99
Lane Grp Cap(c), veh/h	180	477	713	145	0	433	674	1603	864	50	1035	476
V/C Ratio(X)	0.90	0.09	0.29	0.87	0.00	1.03	1.02	0.64	0.64	0.68	0.88	0.88
Avail Cap(c_a), veh/h	180	477	713	145	0	433	674	1603	864	98	1035	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.52	0.52	0.52
Uniform Delay (d), s/veh	53.3	34.1	20.9	54.5	0.0	45.9	48.3	24.0	24.0	57.8	39.7	39.7
Incr Delay (d2), s/veh	38.5	0.1	0.2	38.8	0.0	50.5	38.9	1.9	3.6	3.0	6.1	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.9	3.6	5.3	0.0	18.8	13.5	10.8	12.1	1.1	13.3	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.8	34.1	21.1	93.3	0.0	96.3	87.2	25.9	27.6	60.8	45.8	51.9
LnGrp LOS	F	C	C	F	A	F	F	C	C	E	D	D
Approach Vol, veh/h		409			572			2255			1369	
Approach Delay, s/veh		50.3			95.6			44.9			48.1	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	61.9	14.4	35.7	28.0	41.9	16.7	33.4
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	6.6	53.3	9.8	30.6	23.4	36.5	12.1	28.3
Max Q Clear Time (g_c+I1), s	4.3	29.2	10.5	11.9	25.4	32.7	12.7	30.3
Green Ext Time (p_c), s	0.0	11.6	0.0	0.8	0.0	2.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	1	0	0	0	2067	4	0	1279	0
Future Vol, veh/h	0	0	0	1	0	0	0	2067	4	0	1279	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	1	0	0	0	2247	4	0	1390	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2293	3645	699	2805	3643	1126	1394	0	0	2251	0	0
Stage 1	1394	1394	-	2249	2249	-	-	-	-	-	-	-
Stage 2	899	2251	-	556	1394	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	*156	*148	*632	*156	*148	*437	*794	-	-	*550	-	-
Stage 1	*648	*616	-	*449	*427	-	-	-	-	-	-	-
Stage 2	*449	*427	-	*648	*616	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*155	*148	*629	*156	*148	*437	*791	-	-	*550	-	-
Mov Cap-2 Maneuver	*375	*357	-	*376	*357	-	-	-	-	-	-	-
Stage 1	*646	*615	-	*449	*427	-	-	-	-	-	-	-
Stage 2	*449	*427	-	*648	*615	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.6	0	0
HCM LOS	A	B		

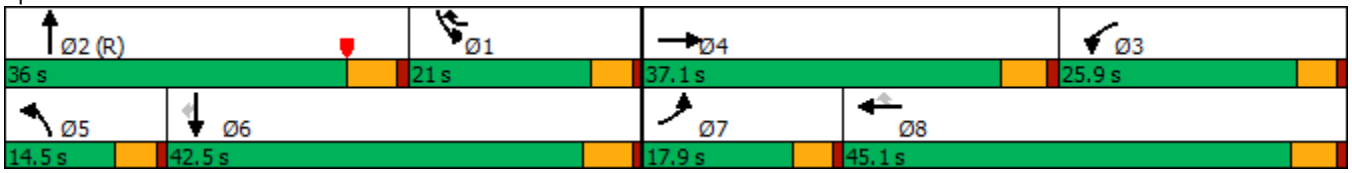
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 791	-	-	-	376	* 550	-	-
HCM Lane V/C Ratio	-	-	-	-	0.003	-	-	-
HCM Control Delay (s)	0	-	-	0	14.6	0	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	277	672	587	655	806	92	994	334	831	246
Future Volume (vph)	277	672	587	655	806	92	994	334	831	246
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	1	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	9.6	9.6	35.4	9.6	31.4	31.4
Total Split (s)	17.9	37.1	25.9	45.1	21.0	14.5	36.0	21.0	42.5	42.5
Total Split (%)	14.9%	30.9%	21.6%	37.6%	17.5%	12.1%	30.0%	17.5%	35.4%	35.4%
Yellow Time (s)	3.6	4.1	3.6	4.1	3.6	3.6	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	4.6	4.6	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	Max	None	C-Max	Max	None	None
Act Effct Green (s)	13.3	32.0	21.3	40.0	56.9	9.2	30.6	16.4	37.8	37.8
Actuated g/C Ratio	0.11	0.27	0.18	0.33	0.47	0.08	0.26	0.14	0.32	0.32
v/c Ratio	0.79	0.84	1.05	1.15	1.10	0.74	1.04	0.77	0.81	0.42
Control Delay	67.9	50.3	85.6	111.2	75.3	83.9	77.6	71.7	55.6	22.2
Queue Delay	0.0	0.7	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	51.0	85.6	111.8	75.9	83.9	77.6	71.7	55.6	22.2
LOS	E	D	F	F	E	F	E	E	E	C
Approach Delay		55.7		90.1			78.0		53.6	
Approach LOS		E		F			E		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 72.5	Intersection LOS: E
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	672	49	587	655	806	92	994	235	334	831	246
Future Volume (veh/h)	277	672	49	587	655	806	92	994	235	334	831	246
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	730	33	638	712	538	100	1080	150	363	903	202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	383	923	42	613	631	1318	124	1153	160	1708	2439	1087
Arrive On Green	0.11	0.27	0.27	0.18	0.34	0.34	0.07	0.25	0.25	0.49	0.69	0.69
Sat Flow, veh/h	3456	3462	156	3456	1870	1584	1781	4522	627	3456	3554	1584
Grp Volume(v), veh/h	301	375	388	638	712	538	100	813	417	363	903	202
Grp Sat Flow(s),veh/h/ln	1728	1777	1842	1728	1870	1584	1781	1702	1745	1728	1777	1584
Q Serve(g_s), s	10.2	23.5	23.5	21.3	40.5	9.2	6.6	28.0	28.1	7.1	12.8	5.5
Cycle Q Clear(g_c), s	10.2	23.5	23.5	21.3	40.5	9.2	6.6	28.0	28.1	7.1	12.8	5.5
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	383	474	491	613	631	1318	124	868	445	1708	2439	1087
V/C Ratio(X)	0.79	0.79	0.79	1.04	1.13	0.41	0.81	0.94	0.94	0.21	0.37	0.19
Avail Cap(c_a), veh/h	383	474	491	613	631	1318	147	868	445	1708	2439	1087
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.47	0.47	0.47	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	40.9	40.9	49.4	39.7	10.2	55.0	43.7	43.8	17.2	7.9	6.8
Incr Delay (d2), s/veh	14.9	12.6	12.3	36.0	67.6	0.1	20.3	18.5	29.6	0.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	11.8	12.2	12.1	29.9	5.6	3.6	13.7	15.4	2.8	4.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	53.5	53.2	85.3	107.4	10.3	75.4	62.3	73.4	17.4	8.0	6.8
LnGrp LOS	E	D	D	F	F	B	E	E	E	B	A	A
Approach Vol, veh/h		1064			1888			1330			1468	
Approach Delay, s/veh		57.2			72.3			66.7			10.2	
Approach LOS		E			E			E			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	66.0	36.0	26.4	37.1	12.9	89.1	17.9	45.6
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	16.4	* 31	21.3	* 32	9.9	37.1	13.3	40.0
Max Q Clear Time (g_c+I1), s	9.1	30.1	23.3	25.5	8.6	14.8	12.2	42.5
Green Ext Time (p_c), s	0.4	0.4	0.0	2.5	0.0	7.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D

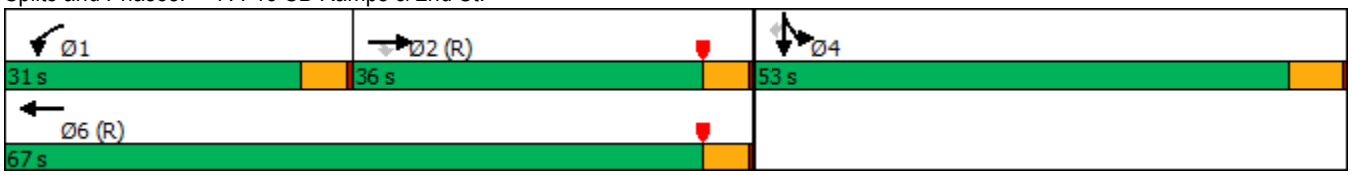
Notes

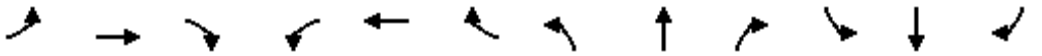
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	616	657	342	1352	2	603
Future Volume (vph)	616	657	342	1352	2	603
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	20.6	9.5	23.6	20.0	20.0
Total Split (s)	36.0	36.0	31.0	67.0	53.0	53.0
Total Split (%)	30.0%	30.0%	25.8%	55.8%	44.2%	44.2%
Yellow Time (s)	4.1	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	33.4	33.4	25.7	63.6	46.5	46.5
Actuated g/C Ratio	0.28	0.28	0.21	0.53	0.39	0.39
v/c Ratio	0.65	0.73	0.94	0.75	0.12	0.97
Control Delay	25.4	11.3	58.3	15.1	23.7	62.3
Queue Delay	0.0	6.7	0.0	49.3	0.0	2.5
Total Delay	25.4	17.9	58.3	64.4	23.7	64.8
LOS	C	B	E	E	C	E
Approach Delay	21.6			63.2	60.0	
Approach LOS	C			E	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 48.1	Intersection LOS: D
Intersection Capacity Utilization 143.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	616	657	342	1352	0	0	0	0	78	2	603
Future Volume (veh/h)	0	616	657	342	1352	0	0	0	0	78	2	603
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	642	507	356	1408	0				81	2	467
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1260	562	381	2153	0				543	13	494
Arrive On Green	0.00	0.35	0.35	0.21	0.61	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1740	43	1585
Grp Volume(v), veh/h	0	642	507	356	1408	0				83	0	467
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	17.1	36.4	23.6	31.0	0.0				4.0	0.0	34.5
Cycle Q Clear(g_c), s	0.0	17.1	36.4	23.6	31.0	0.0				4.0	0.0	34.5
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1260	562	381	2153	0				556	0	494
V/C Ratio(X)	0.00	0.51	0.90	0.94	0.65	0.00				0.15	0.00	0.95
Avail Cap(c_a), veh/h	0	1260	562	393	2153	0				709	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.47	0.47	0.48	0.48	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.5	36.7	46.4	15.4	0.0				29.8	0.0	40.3
Incr Delay (d2), s/veh	0.0	0.7	11.1	17.1	0.8	0.0				0.0	0.0	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.3	15.4	12.1	11.9	0.0				1.7	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.2	47.8	63.5	16.2	0.0				29.9	0.0	59.0
LnGrp LOS	A	C	D	E	B	A				C	A	E
Approach Vol, veh/h		1149			1764						550	
Approach Delay, s/veh		38.5			25.7						54.6	
Approach LOS		D			C						D	

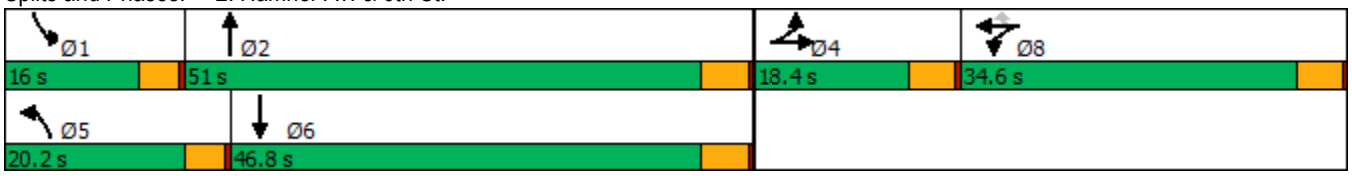
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	30.1	47.1		42.7		77.3
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6
Max Green Setting (Gmax), s	26.5	31.4		47.7		62.4
Max Q Clear Time (g_c+I1), s	25.6	38.4		36.5		33.0
Green Ext Time (p_c), s	0.1	0.0		0.9		8.3

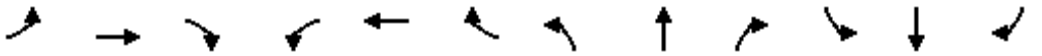
Intersection Summary			
HCM 6th Ctrl Delay		34.6	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	188	272	407	108	449	115	1453	380	681
Future Volume (vph)	188	272	407	108	449	115	1453	380	681
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	9.1	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	20.2	51.0	16.0	46.8
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	16.8%	42.5%	13.3%	39.0%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.8	13.8	26.5	26.5	26.5	12.1	46.2	11.9	46.1
Actuated g/C Ratio	0.12	0.12	0.23	0.23	0.23	0.10	0.40	0.10	0.40
v/c Ratio	0.96	0.84	0.71	0.70	0.92	0.67	1.11	1.12	0.56
Control Delay	104.5	66.7	52.7	51.8	47.5	68.7	88.3	131.8	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	66.7	52.7	51.8	47.5	68.7	88.3	131.8	30.5
LOS	F	E	D	D	D	E	F	F	C
Approach Delay		80.3		50.0			87.3		65.2
Approach LOS		F		D			F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 74.1	Intersection LOS: E
Intersection Capacity Utilization 94.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	272	63	407	108	449	115	1453	688	380	681	47
Future Volume (veh/h)	188	272	63	407	108	449	115	1453	688	380	681	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	289	50	274	338	263	122	1546	397	404	724	32
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	367	63	381	400	339	149	1668	424	372	1462	65
Arrive On Green	0.12	0.12	0.12	0.21	0.21	0.21	0.08	0.40	0.40	0.10	0.42	0.42
Sat Flow, veh/h	1781	3034	518	1781	1870	1583	1781	4159	1057	3563	3466	153
Grp Volume(v), veh/h	200	168	171	274	338	263	122	1319	624	404	371	385
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1870	1583	1781	1777	1662	1781	1777	1842
Q Serve(g_s), s	12.7	10.4	10.7	16.3	19.8	17.9	7.7	40.3	41.1	11.9	17.4	17.4
Cycle Q Clear(g_c), s	12.7	10.4	10.7	16.3	19.8	17.9	7.7	40.3	41.1	11.9	17.4	17.4
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.64	1.00		0.08
Lane Grp Cap(c), veh/h	216	215	215	381	400	339	149	1425	666	372	749	777
V/C Ratio(X)	0.93	0.78	0.80	0.72	0.84	0.78	0.82	0.93	0.94	1.09	0.50	0.50
Avail Cap(c_a), veh/h	216	215	215	469	492	417	252	1437	672	372	749	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	48.6	48.7	41.6	43.0	42.2	51.4	32.5	32.8	51.0	24.1	24.1
Incr Delay (d2), s/veh	41.6	16.6	18.6	4.1	10.8	7.3	4.1	10.4	20.6	71.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	5.6	5.8	7.5	10.2	7.6	3.5	18.5	19.4	8.9	7.1	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.2	65.2	67.3	45.7	53.8	49.5	55.5	42.9	53.4	122.8	24.6	24.6
LnGrp LOS	F	E	E	D	D	D	E	D	D	F	C	C
Approach Vol, veh/h		539			875			2065			1160	
Approach Delay, s/veh		75.5			50.0			46.8			58.8	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	50.6		18.4	13.6	53.0		29.0				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	11.9	46.1		13.8	16.1	41.9		30.0				
Max Q Clear Time (g_c+I1), s	13.9	43.1		14.7	9.7	19.4		21.8				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.1	4.5		2.5				

Intersection Summary												
HCM 6th Ctrl Delay			53.8									
HCM 6th LOS			D									

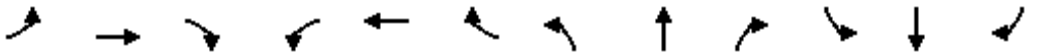
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	163	81	494	55	122	432	1205	71	1408
Future Volume (vph)	163	81	494	55	122	432	1205	71	1408
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	9.6	33.4
Total Split (s)	18.0	36.9	22.2	14.2	33.1	22.2	52.5	16.4	46.7
Total Split (%)	15.0%	30.8%	18.5%	11.8%	27.6%	18.5%	43.8%	13.7%	38.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	13.2	25.6	51.1	7.9	18.4	20.4	61.5	9.2	48.3
Actuated g/C Ratio	0.11	0.21	0.43	0.07	0.15	0.17	0.51	0.08	0.40
v/c Ratio	0.91	0.22	0.75	0.51	0.70	0.81	0.54	0.57	0.88
Control Delay	97.9	40.2	31.6	69.2	55.6	53.1	22.2	69.1	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.9	40.2	31.6	69.2	55.6	53.1	22.2	69.1	39.7
LOS	F	D	C	E	E	D	C	E	D
Approach Delay		47.1			58.7		30.0		41.0
Approach LOS		D			E		C		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 38.7	Intersection LOS: D
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	81	494	55	122	61	432	1205	82	71	1408	220
Future Volume (veh/h)	163	81	494	55	122	61	432	1205	82	71	1408	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	177	88	436	60	133	41	470	1310	72	77	1530	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	468	629	77	249	77	507	2411	132	98	1777	262
Arrive On Green	0.11	0.25	0.25	0.04	0.18	0.18	0.29	0.97	0.97	0.06	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	1781	1368	422	3456	4946	272	1781	4491	662
Grp Volume(v), veh/h	177	88	436	60	0	174	470	902	480	77	1159	597
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1789	1728	1702	1814	1781	1702	1749
Q Serve(g_s), s	11.8	4.4	27.5	4.0	0.0	10.6	15.8	1.7	1.7	5.1	37.4	37.6
Cycle Q Clear(g_c), s	11.8	4.4	27.5	4.0	0.0	10.6	15.8	1.7	1.7	5.1	37.4	37.6
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.15	1.00		0.38
Lane Grp Cap(c), veh/h	199	468	629	77	0	325	507	1659	884	98	1347	692
V/C Ratio(X)	0.89	0.19	0.69	0.78	0.00	0.53	0.93	0.54	0.54	0.79	0.86	0.86
Avail Cap(c_a), veh/h	199	496	653	143	0	418	507	1659	884	175	1347	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	52.6	35.4	30.1	56.8	0.0	44.5	41.8	0.8	0.8	56.0	33.2	33.3
Incr Delay (d2), s/veh	34.4	0.2	3.0	6.1	0.0	1.4	23.0	1.3	2.4	3.9	5.7	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	2.0	10.8	1.9	0.0	4.8	7.1	0.6	0.9	2.4	15.8	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	35.6	33.2	63.0	0.0	45.9	64.8	2.1	3.2	60.0	39.0	43.9
LnGrp LOS	F	D	C	E	A	D	E	A	A	E	D	D
Approach Vol, veh/h		701			234			1852			1833	
Approach Delay, s/veh		47.1			50.2			18.3			41.4	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	63.9	9.8	35.1	22.2	52.9	18.0	26.9
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	11.8	47.1	9.6	31.8	17.6	41.3	13.4	28.0
Max Q Clear Time (g_c+I1), s	7.1	3.7	6.0	29.5	17.8	39.6	13.8	12.6
Green Ext Time (p_c), s	0.0	12.0	0.0	0.5	0.0	1.5	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	4	1	0	0	1668	7	1	1957	0
Future Vol, veh/h	0	0	0	4	1	0	0	1668	7	1	1957	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	1	0	0	1702	7	1	1997	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2680	3708	999	2507	3705	855	1997	0	0	1709	0	0
Stage 1	1999	1999	-	1706	1706	-	-	-	-	-	-	-
Stage 2	681	1709	-	801	1999	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	*122	*116	*459	*122	*116	*524	*577	-	-	*658	-	-
Stage 1	*471	*448	-	*537	*511	-	-	-	-	-	-	-
Stage 2	*537	*511	-	*471	*448	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*121	*115	*459	*122	*115	*524	*577	-	-	*658	-	-
Mov Cap-2 Maneuver	*354	*337	-	*355	*337	-	-	-	-	-	-	-
Stage 1	*471	*447	-	*537	*511	-	-	-	-	-	-	-
Stage 2	*536	*511	-	*470	*447	-	-	-	-	-	-	-

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

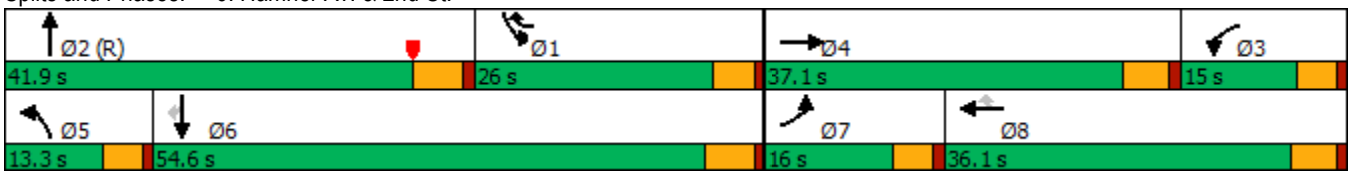
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 577	-	-	-	351	* 658	-	-
HCM Lane V/C Ratio	-	-	-	-	0.015	0.002	-	-
HCM Control Delay (s)	0	-	-	0	15.4	10.5	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	357	875	293	507	587	112	970	645	1229	287
Future Volume (vph)	357	875	293	507	587	112	970	645	1229	287
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	1	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	9.6	9.6	35.4	9.6	31.4	31.4
Total Split (s)	16.0	37.1	15.0	36.1	26.0	13.3	41.9	26.0	54.6	54.6
Total Split (%)	13.3%	30.9%	12.5%	30.1%	21.7%	11.1%	34.9%	21.7%	45.5%	45.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	3.6	3.6	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	4.6	4.6	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	Max	None	C-Max	Max	None	None
Act Effct Green (s)	11.4	32.0	10.4	31.0	52.9	8.7	36.5	21.4	49.2	49.2
Actuated g/C Ratio	0.10	0.27	0.09	0.26	0.44	0.07	0.30	0.18	0.41	0.41
v/c Ratio	1.12	1.06	1.01	1.07	0.79	0.89	1.02	1.08	0.86	0.39
Control Delay	134.3	89.7	100.5	98.0	23.5	110.1	66.9	110.2	52.5	21.8
Queue Delay	0.0	12.6	0.0	0.8	0.0	0.0	0.2	9.8	0.0	0.0
Total Delay	134.3	102.2	100.5	98.9	23.5	110.1	67.1	120.0	52.5	21.8
LOS	F	F	F	F	C	F	E	F	D	C
Approach Delay		110.8		67.3			70.0		68.5	
Approach LOS		F		E			E		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 77.3	Intersection LOS: E
Intersection Capacity Utilization 103.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	875	99	293	507	587	112	970	573	645	1229	287
Future Volume (veh/h)	357	875	99	293	507	587	112	970	573	645	1229	287
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	364	893	55	299	517	390	114	990	424	658	1254	232
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	906	56	299	491	1265	129	1060	454	1852	2751	1226
Arrive On Green	0.09	0.27	0.27	0.09	0.26	0.26	0.07	0.30	0.30	0.54	0.77	0.77
Sat Flow, veh/h	3456	3398	209	3456	1870	1585	1781	3486	1493	3456	3554	1583
Grp Volume(v), veh/h	364	467	481	299	517	390	114	967	447	658	1254	232
Grp Sat Flow(s),veh/h/ln	1728	1777	1830	1728	1870	1585	1781	1702	1575	1728	1777	1583
Q Serve(g_s), s	11.4	31.4	31.4	10.4	31.5	5.2	7.6	33.1	33.1	13.1	14.8	4.7
Cycle Q Clear(g_c), s	11.4	31.4	31.4	10.4	31.5	5.2	7.6	33.1	33.1	13.1	14.8	4.7
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.95	1.00		1.00
Lane Grp Cap(c), veh/h	328	474	488	299	491	1265	129	1035	479	1852	2751	1226
V/C Ratio(X)	1.11	0.99	0.99	1.00	1.05	0.31	0.88	0.93	0.93	0.36	0.46	0.19
Avail Cap(c_a), veh/h	328	474	488	299	491	1265	129	1035	479	1852	2751	1226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	43.8	43.8	54.8	44.3	11.1	55.1	40.6	40.6	16.0	4.7	3.6
Incr Delay (d2), s/veh	82.2	37.9	37.3	46.6	51.5	0.1	44.6	15.9	27.5	0.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	18.5	19.0	6.4	21.3	4.4	5.0	15.7	16.1	5.1	4.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	136.5	81.7	81.1	101.4	95.8	11.2	99.7	56.5	68.1	16.5	4.8	3.7
LnGrp LOS	F	F	F	F	F	B	F	E	E	B	A	A
Approach Vol, veh/h		1312			1206			1528			2144	
Approach Delay, s/veh		96.7			69.8			63.1			8.3	
Approach LOS		F			E			E			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	71.0	41.9	15.5	37.1	13.3	99.6	16.0	36.6
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	21.4	* 37	10.4	* 32	8.7	49.2	11.4	31.0
Max Q Clear Time (g_c+I1), s	15.1	35.1	12.4	33.4	9.6	16.8	13.4	33.5
Green Ext Time (p_c), s	0.8	1.1	0.0	0.0	0.0	12.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

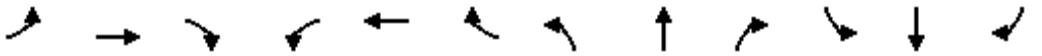
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1065	1084	238	976	5	395
Future Volume (vph)	1065	1084	238	976	5	395
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	20.6	9.5	23.6	20.0	20.0
Total Split (s)	68.5	68.5	22.5	91.0	29.0	29.0
Total Split (%)	57.1%	57.1%	18.8%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	66.5	66.5	17.7	88.6	21.5	21.5
Actuated g/C Ratio	0.55	0.55	0.15	0.74	0.18	0.18
v/c Ratio	0.55	0.95	0.93	0.38	0.38	0.94
Control Delay	8.1	10.0	50.0	0.5	46.4	59.1
Queue Delay	1.0	35.7	0.0	0.3	0.0	10.0
Total Delay	9.0	45.8	50.0	0.9	46.4	69.1
LOS	A	D	D	A	D	E
Approach Delay	27.5			10.5	63.8	
Approach LOS	C			B	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1065	1084	238	976	0	0	0	0	115	5	395
Future Volume (veh/h)	0	1065	1084	238	976	0	0	0	0	115	5	395
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1087	951	243	996	0				117	5	311
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1892	844	267	2559	0				338	14	313
Arrive On Green	0.00	0.53	0.53	0.15	0.72	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1712	73	1585
Grp Volume(v), veh/h	0	1087	951	243	996	0				122	0	311
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1785	0	1585
Q Serve(g_s), s	0.0	24.7	63.9	16.1	13.1	0.0				7.1	0.0	23.5
Cycle Q Clear(g_c), s	0.0	24.7	63.9	16.1	13.1	0.0				7.1	0.0	23.5
Prop In Lane	0.00		1.00	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1892	844	267	2559	0				352	0	313
V/C Ratio(X)	0.00	0.57	1.13	0.91	0.39	0.00				0.35	0.00	0.99
Avail Cap(c_a), veh/h	0	1892	844	267	2559	0				352	0	313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.9	28.0	50.2	6.5	0.0				41.5	0.0	48.1
Incr Delay (d2), s/veh	0.0	0.1	58.7	16.8	0.2	0.0				0.2	0.0	48.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.8	36.3	8.3	4.4	0.0				3.1	0.0	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.0	86.7	67.0	6.7	0.0				41.7	0.0	97.0
LnGrp LOS	A	B	F	E	A	A				D	A	F
Approach Vol, veh/h		2038			1239						433	
Approach Delay, s/veh		50.6			18.5						81.4	
Approach LOS		D			B						F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.5	68.5		29.0		91.0
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6
Max Green Setting (Gmax), s	18.0	63.9		23.7		86.4
Max Q Clear Time (g_c+I1), s	18.1	65.9		25.5		15.1
Green Ext Time (p_c), s	0.0	0.0		0.0		5.4

Intersection Summary			
HCM 6th Ctrl Delay		43.5	
HCM 6th LOS		D	

APPENDIX 7.10:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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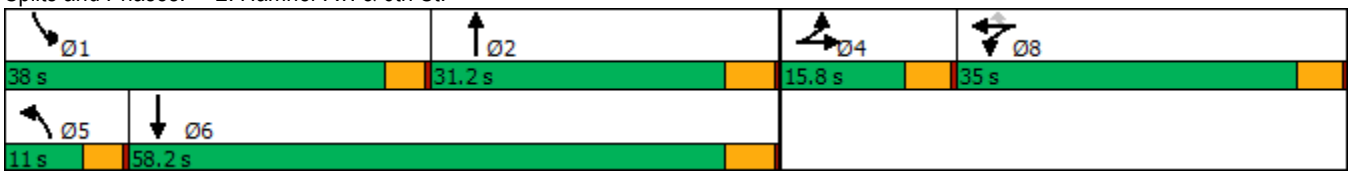
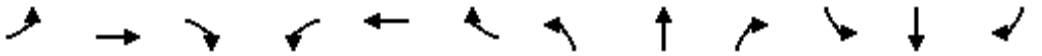
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	49	266	641	125	368	116	593	598	1328
Future Volume (vph)	49	266	641	125	368	116	593	598	1328
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	9.1	29.9
Total Split (s)	15.8	15.8	35.0	35.0	35.0	11.0	31.2	38.0	58.2
Total Split (%)	13.2%	13.2%	29.2%	29.2%	29.2%	9.2%	26.0%	31.7%	48.5%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	11.2	11.2	30.3	30.3	30.3	6.9	34.5	25.7	53.3
Actuated g/C Ratio	0.09	0.09	0.25	0.25	0.25	0.06	0.29	0.21	0.44
v/c Ratio	0.32	1.02	0.94	0.95	0.57	1.21	0.66	0.83	1.00
Control Delay	56.4	105.5	75.4	76.5	7.1	202.3	36.6	54.7	56.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	105.5	75.4	76.5	7.1	202.3	36.6	54.7	56.0
LOS	E	F	E	E	A	F	D	D	E
Approach Delay		99.0		53.6			55.3		55.6
Approach LOS		F		D			E		E

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.9
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 58.6 — Intersection LOS: E
Intersection Capacity Utilization 93.6% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	266	63	641	125	368	116	593	317	598	1328	145
Future Volume (veh/h)	49	266	63	641	125	368	116	593	317	598	1328	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	280	50	769	0	174	122	624	213	629	1398	106
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	291	51	856	0	380	106	1167	390	706	1498	113
Arrive On Green	0.10	0.10	0.10	0.24	0.00	0.24	0.06	0.31	0.31	0.20	0.45	0.45
Sat Flow, veh/h	1781	3019	532	3563	0	1581	1781	3781	1265	3563	3348	253
Grp Volume(v), veh/h	52	163	167	769	0	174	122	561	276	629	739	765
Grp Sat Flow(s),veh/h/ln	1781	1777	1775	1781	0	1581	1781	1702	1641	1781	1777	1824
Q Serve(g_s), s	3.2	10.6	10.9	24.3	0.0	10.9	6.9	15.8	16.3	20.0	45.8	46.4
Cycle Q Clear(g_c), s	3.2	10.6	10.9	24.3	0.0	10.9	6.9	15.8	16.3	20.0	45.8	46.4
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.77	1.00		0.14
Lane Grp Cap(c), veh/h	172	171	171	856	0	380	106	1050	506	706	795	816
V/C Ratio(X)	0.30	0.95	0.97	0.90	0.00	0.46	1.15	0.53	0.55	0.89	0.93	0.94
Avail Cap(c_a), veh/h	172	171	171	932	0	414	106	1050	506	1039	815	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	52.2	52.4	42.8	0.0	37.7	54.6	33.2	33.4	45.4	30.4	30.6
Incr Delay (d2), s/veh	1.0	54.9	61.2	10.9	0.0	0.9	134.6	0.5	1.2	5.2	16.8	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.3	7.7	11.8	0.0	4.3	7.0	6.4	6.5	9.1	22.1	23.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	107.2	113.5	53.7	0.0	38.5	189.3	33.8	34.6	50.5	47.2	48.1
LnGrp LOS	D	F	F	D	A	D	F	C	C	D	D	D
Approach Vol, veh/h		382			943			959			2133	
Approach Delay, s/veh		102.1			50.9			53.8			48.5	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.1	40.8		15.8	11.0	56.9		32.5				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	33.9	26.3		11.2	6.9	53.3		30.4				
Max Q Clear Time (g_c+I1), s	22.0	18.3		12.9	8.9	48.4		26.3				
Green Ext Time (p_c), s	1.0	3.2		0.0	0.0	3.6		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		54.8	
HCM 6th LOS		D	

Notes

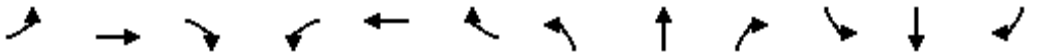
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	207	45	329	117	379	638	1367	31	864
Future Volume (vph)	207	45	329	117	379	638	1367	31	864
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	9.6	33.4
Total Split (s)	16.7	35.1	35.0	15.0	33.4	35.0	58.7	11.2	34.9
Total Split (%)	13.9%	29.3%	29.2%	12.5%	27.8%	29.2%	48.9%	9.3%	29.1%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	12.1	26.0	55.3	17.4	28.3	27.2	57.8	6.1	32.7
Actuated g/C Ratio	0.10	0.22	0.46	0.14	0.24	0.23	0.48	0.05	0.27
v/c Ratio	1.26	0.12	0.47	0.49	1.09	0.86	0.64	0.38	1.18dr
Control Delay	199.5	35.7	18.4	59.1	112.4	47.8	33.9	67.3	101.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.5	35.7	18.4	59.1	112.4	47.8	33.9	67.3	101.9
LOS	F	D	B	E	F	D	C	E	F
Approach Delay		84.2			101.1		38.2		101.1
Approach LOS		F			F		D		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 71.1	Intersection LOS: E
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	45	329	117	379	56	638	1367	64	31	864	570
Future Volume (veh/h)	207	45	329	117	379	56	638	1367	64	31	864	570
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1945	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	49	219	127	412	45	693	1486	60	34	939	330
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	180	470	734	152	391	43	762	2371	96	50	1067	374
Arrive On Green	0.10	0.25	0.25	0.09	0.24	0.24	0.21	0.47	0.47	0.03	0.29	0.29
Sat Flow, veh/h	1781	1870	1585	1781	1656	181	3594	5035	203	1781	3715	1303
Grp Volume(v), veh/h	225	49	219	127	0	457	693	1005	541	34	860	409
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1837	1797	1702	1834	1781	1702	1614
Q Serve(g_s), s	12.1	2.4	10.3	8.4	0.0	28.3	22.6	26.6	26.6	2.3	28.9	29.0
Cycle Q Clear(g_c), s	12.1	2.4	10.3	8.4	0.0	28.3	22.6	26.6	26.6	2.3	28.9	29.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.11	1.00		0.81
Lane Grp Cap(c), veh/h	180	470	734	152	0	433	762	1603	864	50	977	463
V/C Ratio(X)	1.25	0.10	0.30	0.83	0.00	1.05	0.91	0.63	0.63	0.68	0.88	0.88
Avail Cap(c_a), veh/h	180	470	734	154	0	433	910	1603	864	98	977	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	54.0	34.6	20.1	54.0	0.0	45.9	46.1	23.8	23.8	57.8	40.8	40.8
Incr Delay (d2), s/veh	151.1	0.1	0.2	28.7	0.0	58.4	10.5	1.9	3.4	2.8	5.9	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	1.1	3.8	5.0	0.0	19.7	11.0	10.6	11.8	1.0	12.6	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	205.0	34.7	20.3	82.7	0.0	104.2	56.7	25.7	27.3	60.6	46.7	52.3
LnGrp LOS	F	C	C	F	A	F	E	C	C	E	D	D
Approach Vol, veh/h		493			584			2239			1303	
Approach Delay, s/veh		106.0			99.6			35.7			48.8	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	61.9	14.9	35.2	30.0	39.9	16.7	33.4
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	6.6	53.3	10.4	30.0	30.4	29.5	12.1	28.3
Max Q Clear Time (g_c+I1), s	4.3	28.6	10.4	12.3	24.6	31.0	14.1	30.3
Green Ext Time (p_c), s	0.0	11.6	0.0	0.9	0.9	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	55.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	94	1	0	0	98	2053	4	0	1276	35
Future Vol, veh/h	0	0	94	1	0	0	98	2053	4	0	1276	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	102	1	0	0	107	2232	4	0	1387	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2517	3860	717	3003	3877	1118	1429	0	0	2236	0	0
Stage 1	1410	1410	-	2448	2448	-	-	-	-	-	-	-
Stage 2	1107	2450	-	555	1429	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	*156	65	*632	*156	57	*437	761	-	-	*550	-	-
Stage 1	*636	609	-	*333	351	-	-	-	-	-	-	-
Stage 2	*449	350	-	*648	592	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*139	56	*629	*116	49	*437	759	-	-	*550	-	-
Mov Cap-2 Maneuver	*322	258	-	*246	244	-	-	-	-	-	-	-
Stage 1	*544	607	-	*286	302	-	-	-	-	-	-	-
Stage 2	*385	301	-	*543	591	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	19.7	0.5	0
HCM LOS	B	C		

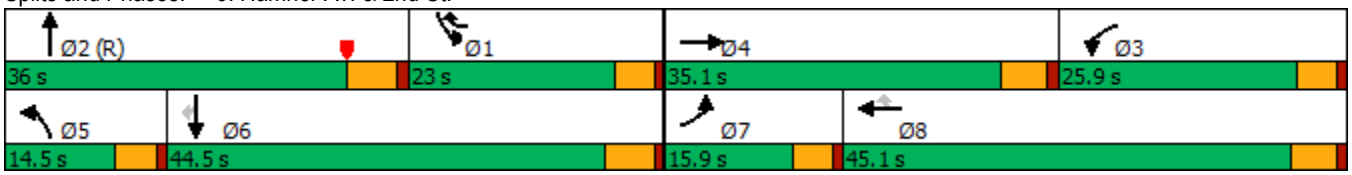
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	759	-	-	629	246	* 550	-	-
HCM Lane V/C Ratio	0.14	-	-	0.162	0.004	-	-	-
HCM Control Delay (s)	10.5	-	-	11.8	19.7	0	-	-
HCM Lane LOS	B	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.6	0	0	-	-

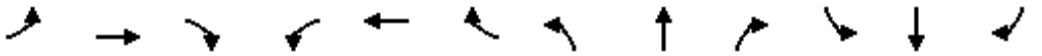
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	290	672	587	655	861	92	1009	395	848	259
Future Volume (vph)	290	672	587	655	861	92	1009	395	848	259
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	1	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	9.6	9.6	35.4	9.6	31.4	31.4
Total Split (s)	15.9	35.1	25.9	45.1	23.0	14.5	36.0	23.0	44.5	44.5
Total Split (%)	13.3%	29.3%	21.6%	37.6%	19.2%	12.1%	30.0%	19.2%	37.1%	37.1%
Yellow Time (s)	3.6	4.1	3.6	4.1	3.6	3.6	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	4.6	4.6	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	Max	None	C-Max	Max	None	None
Act Effct Green (s)	11.3	30.0	21.3	40.0	58.9	9.2	30.6	18.4	39.8	39.8
Actuated g/C Ratio	0.09	0.25	0.18	0.33	0.49	0.08	0.26	0.15	0.33	0.33
v/c Ratio	0.98	0.89	1.05	1.15	1.14	0.74	1.05	0.82	0.79	0.42
Control Delay	98.6	56.6	84.0	109.9	91.3	83.9	81.2	72.5	54.0	21.5
Queue Delay	0.0	3.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.6	59.9	84.0	110.5	91.3	83.9	81.2	72.5	54.0	21.5
LOS	F	E	F	F	F	F	F	E	D	C
Approach Delay		71.0		95.2			81.4		53.3	
Approach LOS		E		F			F		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 77.4	Intersection LOS: E
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	672	49	587	655	861	92	1009	235	395	848	259
Future Volume (veh/h)	290	672	49	587	655	861	92	1009	235	395	848	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	315	730	33	638	712	598	100	1097	150	429	922	217
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	866	39	613	631	1344	124	1156	158	1765	2498	1113
Arrive On Green	0.09	0.25	0.25	0.18	0.34	0.34	0.07	0.25	0.25	0.51	0.70	0.70
Sat Flow, veh/h	3456	3462	156	3456	1870	1584	1781	4532	619	3456	3554	1584
Grp Volume(v), veh/h	315	375	388	638	712	598	100	824	423	429	922	217
Grp Sat Flow(s),veh/h/ln	1728	1777	1842	1728	1870	1584	1781	1702	1747	1728	1777	1584
Q Serve(g_s), s	10.9	24.0	24.1	21.3	40.5	9.6	6.6	28.5	28.6	8.3	12.5	5.7
Cycle Q Clear(g_c), s	10.9	24.0	24.1	21.3	40.5	9.6	6.6	28.5	28.6	8.3	12.5	5.7
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	325	444	460	613	631	1344	124	868	445	1765	2498	1113
V/C Ratio(X)	0.97	0.84	0.84	1.04	1.13	0.44	0.81	0.95	0.95	0.24	0.37	0.19
Avail Cap(c_a), veh/h	325	444	460	613	631	1344	147	868	445	1765	2498	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.42	0.42	0.42	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	42.8	42.8	49.4	39.7	10.4	55.0	43.9	44.0	16.4	7.1	6.1
Incr Delay (d2), s/veh	42.4	17.5	17.0	34.7	66.7	0.1	20.3	20.4	31.9	0.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	12.5	12.9	12.0	29.8	6.6	3.6	14.1	15.9	3.3	4.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.6	60.2	59.8	84.0	106.4	10.5	75.4	64.3	75.8	16.7	7.2	6.2
LnGrp LOS	F	E	E	F	F	B	E	E	E	B	A	A
Approach Vol, veh/h		1078			1948			1347			1568	
Approach Delay, s/veh		70.7			69.6			68.8			9.7	
Approach LOS		E			E			E			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	68.0	36.0	26.4	35.1	12.9	91.1	15.9	45.6
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	18.4	* 31	21.3	* 30	9.9	39.1	11.3	40.0
Max Q Clear Time (g_c+I1), s	10.3	30.6	23.3	26.1	8.6	14.5	12.9	42.5
Green Ext Time (p_c), s	0.6	0.0	0.0	1.7	0.0	7.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.8
HCM 6th LOS	D

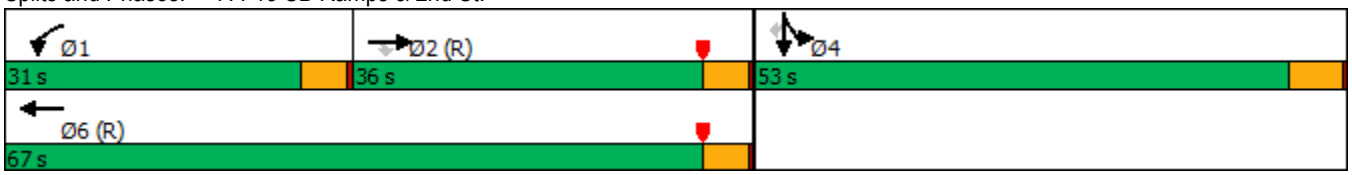
Notes

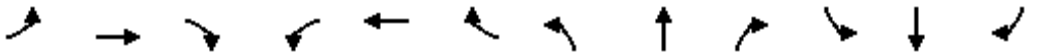
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	654	680	342	1388	2	622
Future Volume (vph)	654	680	342	1388	2	622
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	20.6	9.5	23.6	20.0	20.0
Total Split (s)	36.0	36.0	31.0	67.0	53.0	53.0
Total Split (%)	30.0%	30.0%	25.8%	55.8%	44.2%	44.2%
Yellow Time (s)	4.1	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	32.5	32.5	25.7	62.7	47.4	47.4
Actuated g/C Ratio	0.27	0.27	0.21	0.52	0.40	0.40
v/c Ratio	0.71	0.75	0.94	0.78	0.12	0.98
Control Delay	26.2	11.7	55.4	16.3	23.6	64.9
Queue Delay	0.0	11.4	0.0	49.2	0.0	3.8
Total Delay	26.2	23.1	55.4	65.4	23.6	68.7
LOS	C	C	E	E	C	E
Approach Delay	24.6			63.4	63.6	
Approach LOS	C			E	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 49.7	Intersection LOS: D
Intersection Capacity Utilization 146.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	654	680	342	1388	0	0	0	0	78	2	622
Future Volume (veh/h)	0	654	680	342	1388	0	0	0	0	78	2	622
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	681	531	356	1446	0				81	2	487
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1216	543	381	2109	0				564	14	514
Arrive On Green	0.00	0.34	0.34	0.21	0.59	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1740	43	1585
Grp Volume(v), veh/h	0	681	531	356	1446	0				83	0	487
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	18.7	39.8	23.6	33.5	0.0				4.0	0.0	36.0
Cycle Q Clear(g_c), s	0.0	18.7	39.8	23.6	33.5	0.0				4.0	0.0	36.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1216	543	381	2109	0				578	0	514
V/C Ratio(X)	0.00	0.56	0.98	0.94	0.69	0.00				0.14	0.00	0.95
Avail Cap(c_a), veh/h	0	1216	543	393	2109	0				709	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.38	0.38	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.1	39.0	46.4	16.7	0.0				28.8	0.0	39.6
Incr Delay (d2), s/veh	0.0	0.7	19.2	15.5	0.8	0.0				0.0	0.0	20.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.0	17.9	11.9	12.9	0.0				1.7	0.0	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.8	58.3	61.9	17.5	0.0				28.8	0.0	59.7
LnGrp LOS	A	C	E	E	B	A				C	A	E
Approach Vol, veh/h		1212			1802						570	
Approach Delay, s/veh		44.0			26.3						55.2	
Approach LOS		D			C						E	

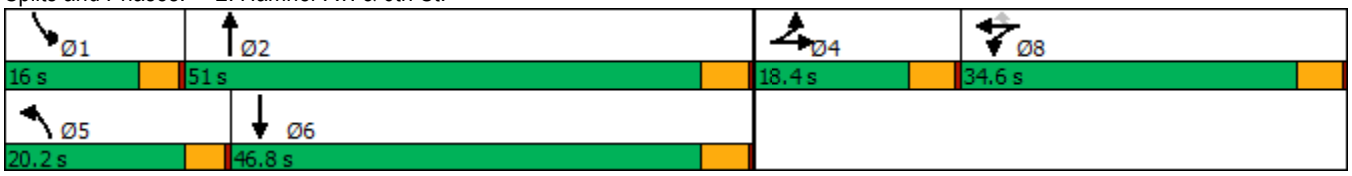
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	30.1	45.7		44.2		75.8
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6
Max Green Setting (Gmax), s	26.5	31.4		47.7		62.4
Max Q Clear Time (g_c+I1), s	25.6	41.8		38.0		35.5
Green Ext Time (p_c), s	0.1	0.0		0.9		8.5

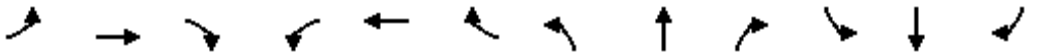
Intersection Summary			
HCM 6th Ctrl Delay		36.8	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	188	272	413	108	449	120	1475	380	709
Future Volume (vph)	188	272	413	108	449	120	1475	380	709
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	34.6	34.6	34.6	9.1	30.9	9.1	29.9
Total Split (s)	18.4	18.4	34.6	34.6	34.6	20.2	51.0	16.0	46.8
Total Split (%)	15.3%	15.3%	28.8%	28.8%	28.8%	16.8%	42.5%	13.3%	39.0%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.1	4.9	4.1	4.9
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.8	13.8	26.5	26.5	26.5	12.3	46.2	11.9	45.8
Actuated g/C Ratio	0.12	0.12	0.23	0.23	0.23	0.11	0.40	0.10	0.39
v/c Ratio	0.96	0.86	0.71	0.72	0.92	0.68	1.12	1.12	0.58
Control Delay	104.5	68.2	52.5	52.9	47.5	69.3	93.6	131.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.5	68.2	52.5	52.9	47.5	69.3	93.6	131.8	31.2
LOS	F	E	D	D	D	E	F	F	C
Approach Delay		81.1		50.3			92.3		64.8
Approach LOS		F		D			F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 76.5	Intersection LOS: E
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Hamner Av. & 6th St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	272	70	413	108	449	120	1475	693	380	709	47
Future Volume (veh/h)	188	272	70	413	108	449	120	1475	693	380	709	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	289	51	277	342	257	128	1569	397	404	754	32
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	365	64	384	403	341	155	1673	419	371	1450	62
Arrive On Green	0.12	0.12	0.12	0.22	0.22	0.22	0.09	0.40	0.40	0.10	0.42	0.42
Sat Flow, veh/h	1781	3024	527	1781	1870	1583	1781	4174	1044	3563	3473	147
Grp Volume(v), veh/h	200	168	172	277	342	257	128	1333	633	404	386	400
Grp Sat Flow(s),veh/h/ln	1781	1777	1774	1781	1870	1583	1781	1777	1664	1781	1777	1843
Q Serve(g_s), s	12.7	10.5	10.8	16.5	20.1	17.4	8.1	41.2	42.1	11.9	18.5	18.5
Cycle Q Clear(g_c), s	12.7	10.5	10.8	16.5	20.1	17.4	8.1	41.2	42.1	11.9	18.5	18.5
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.63	1.00		0.08
Lane Grp Cap(c), veh/h	215	214	214	384	403	341	155	1425	667	371	742	770
V/C Ratio(X)	0.93	0.79	0.80	0.72	0.85	0.75	0.82	0.94	0.95	1.09	0.52	0.52
Avail Cap(c_a), veh/h	215	214	214	467	490	415	251	1432	671	371	742	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	48.9	49.0	41.7	43.1	42.0	51.4	32.9	33.1	51.3	24.8	24.8
Incr Delay (d2), s/veh	42.5	17.3	19.4	4.3	11.3	6.2	5.1	11.7	22.8	73.2	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	5.6	5.9	7.6	10.4	7.3	3.8	19.1	20.3	9.0	7.6	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.4	66.1	68.4	46.0	54.4	48.2	56.4	44.6	55.9	124.5	25.4	25.4
LnGrp LOS	F	E	E	D	D	D	E	D	E	F	C	C
Approach Vol, veh/h		540			876			2094			1190	
Approach Delay, s/veh		76.6			49.9			48.7			59.0	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	50.8		18.4	14.1	52.7		29.2				
Change Period (Y+Rc), s	4.1	4.9		4.6	4.1	4.9		4.6				
Max Green Setting (Gmax), s	11.9	46.1		13.8	16.1	41.9		30.0				
Max Q Clear Time (g_c+I1), s	13.9	44.1		14.7	10.1	20.5		22.1				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.1	4.6		2.5				

Intersection Summary			
HCM 6th Ctrl Delay		54.8	
HCM 6th LOS		D	

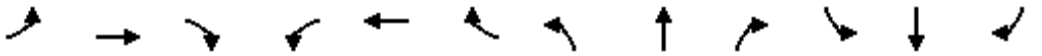
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	220	89	503	55	130	446	1182	71	1429
Future Volume (vph)	220	89	503	55	130	446	1182	71	1429
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	35.1	9.6	9.6	33.1	9.6	35.4	9.6	33.4
Total Split (s)	18.0	36.9	22.2	14.2	33.1	22.2	52.5	16.4	46.7
Total Split (%)	15.0%	30.8%	18.5%	11.8%	27.6%	18.5%	43.8%	13.7%	38.9%
Yellow Time (s)	3.6	4.1	3.6	3.6	4.1	3.6	4.4	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	4.6	5.1	4.6	5.4	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	13.4	26.2	52.5	7.9	18.9	21.1	60.8	9.2	46.9
Actuated g/C Ratio	0.11	0.22	0.44	0.07	0.16	0.18	0.51	0.08	0.39
v/c Ratio	1.21	0.24	0.74	0.51	0.71	0.80	0.54	0.57	0.93
Control Delay	178.3	40.1	30.9	69.2	56.3	51.9	22.3	69.1	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	178.3	40.1	30.9	69.2	56.3	51.9	22.3	69.1	44.6
LOS	F	D	C	E	E	D	C	E	D
Approach Delay		71.8			59.2		30.1		45.6
Approach LOS		E			E		C		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 31 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 45.2	Intersection LOS: D
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Hamner Av. & Third St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	89	503	55	130	61	446	1182	82	71	1429	242
Future Volume (veh/h)	220	89	503	55	130	61	446	1182	82	71	1429	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	97	446	60	141	41	485	1285	72	77	1553	250
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	476	636	77	259	75	507	2385	134	98	1734	278
Arrive On Green	0.11	0.25	0.25	0.04	0.19	0.19	0.29	0.97	0.97	0.06	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1389	404	3456	4940	277	1781	4432	711
Grp Volume(v), veh/h	239	97	446	60	0	182	485	885	472	77	1192	611
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1793	1728	1702	1813	1781	1702	1740
Q Serve(g_s), s	13.4	4.9	28.1	4.0	0.0	11.0	16.5	2.2	2.2	5.1	39.3	39.6
Cycle Q Clear(g_c), s	13.4	4.9	28.1	4.0	0.0	11.0	16.5	2.2	2.2	5.1	39.3	39.6
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.15	1.00		0.41
Lane Grp Cap(c), veh/h	199	476	636	77	0	334	507	1644	875	98	1332	681
V/C Ratio(X)	1.20	0.20	0.70	0.78	0.00	0.54	0.96	0.54	0.54	0.79	0.89	0.90
Avail Cap(c_a), veh/h	199	496	653	143	0	418	507	1644	875	175	1332	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	53.3	35.2	29.9	56.8	0.0	44.2	42.0	1.1	1.1	56.0	34.2	34.3
Incr Delay (d2), s/veh	128.7	0.2	3.3	6.1	0.0	1.4	29.1	1.3	2.4	3.8	7.4	13.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	2.3	11.0	1.9	0.0	5.0	7.7	0.7	1.0	2.4	16.9	18.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	182.0	35.4	33.2	63.0	0.0	45.6	71.1	2.4	3.5	59.9	41.6	47.7
LnGrp LOS	F	D	C	E	A	D	E	A	A	E	D	D
Approach Vol, veh/h		782			242			1842			1880	
Approach Delay, s/veh		78.9			49.9			20.7			44.3	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	63.3	9.8	35.7	22.2	52.3	18.0	27.5
Change Period (Y+Rc), s	4.6	5.4	4.6	5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	11.8	47.1	9.6	31.8	17.6	41.3	13.4	28.0
Max Q Clear Time (g_c+I1), s	7.1	4.2	6.0	30.1	18.5	41.6	15.4	13.0
Green Ext Time (p_c), s	0.0	11.7	0.0	0.4	0.0	0.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.2
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	96	4	1	0	113	1659	7	1	1943	44
Future Vol, veh/h	0	0	96	4	1	0	113	1659	7	1	1943	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	4	1	0	115	1693	7	1	1983	45

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2916	3938	1014	2722	3957	850	2028	0	0	1700	0	0
Stage 1	2008	2008	-	1927	1927	-	-	-	-	-	-	-
Stage 2	908	1930	-	795	2030	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	*144	*47	*459	*144	*40	*545	*577	-	-	*686	-	-
Stage 1	*471	*448	-	*431	*449	-	-	-	-	-	-	-
Stage 2	*560	*447	-	*471	*448	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*121	*37	*459	*96	*32	*545	*577	-	-	*686	-	-
Mov Cap-2 Maneuver	*295	*261	-	*212	*229	-	-	-	-	-	-	-
Stage 1	*377	*447	-	*345	*360	-	-	-	-	-	-	-
Stage 2	*447	*358	-	*370	*447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	22.2	0.8	0
HCM LOS	C	C		

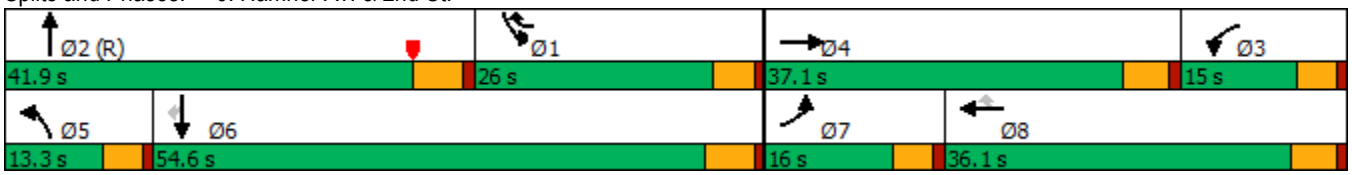
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 577	-	-	459	215	* 686	-	-
HCM Lane V/C Ratio	0.2	-	-	0.213	0.024	0.001	-	-
HCM Control Delay (s)	12.8	-	-	15	22.2	10.3	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0.7	-	-	0.8	0.1	0	-	-

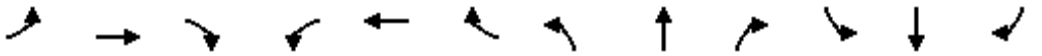
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	372	875	293	507	656	112	989	701	1243	299
Future Volume (vph)	372	875	293	507	656	112	989	701	1243	299
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	1	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	35.1	9.6	36.1	9.6	9.6	35.4	9.6	31.4	31.4
Total Split (s)	16.0	37.1	15.0	36.1	26.0	13.3	41.9	26.0	54.6	54.6
Total Split (%)	13.3%	30.9%	12.5%	30.1%	21.7%	11.1%	34.9%	21.7%	45.5%	45.5%
Yellow Time (s)	3.6	4.1	3.6	4.1	3.6	3.6	4.4	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	4.6	5.1	4.6	4.6	5.4	4.6	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	Max	None	C-Max	Max	None	None
Act Effct Green (s)	11.4	32.0	10.4	31.0	52.9	8.7	36.5	21.4	49.2	49.2
Actuated g/C Ratio	0.10	0.27	0.09	0.26	0.44	0.07	0.30	0.18	0.41	0.41
v/c Ratio	1.17	1.06	1.01	1.07	0.88	0.89	1.04	1.17	0.87	0.40
Control Delay	150.0	89.7	100.0	97.7	30.2	110.1	70.4	141.3	53.0	21.7
Queue Delay	0.0	14.8	0.0	0.8	0.1	0.0	0.5	0.2	0.0	0.0
Total Delay	150.0	104.5	100.0	98.5	30.3	110.1	70.9	141.5	53.0	21.7
LOS	F	F	F	F	C	F	E	F	D	C
Approach Delay		117.1		68.1			73.5		76.5	
Approach LOS		F		E			E		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 43.4 (36%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 82.0	Intersection LOS: F
Intersection Capacity Utilization 105.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Hamner Av. & 2nd St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	875	99	293	507	656	112	989	573	701	1243	299
Future Volume (veh/h)	372	875	99	293	507	656	112	989	573	701	1243	299
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	380	893	55	299	517	460	114	1009	424	715	1268	244
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	906	56	299	491	1265	129	1067	448	1852	2751	1226
Arrive On Green	0.09	0.27	0.27	0.09	0.26	0.26	0.07	0.30	0.30	0.54	0.77	0.77
Sat Flow, veh/h	3456	3398	209	3456	1870	1585	1781	3509	1474	3456	3554	1583
Grp Volume(v), veh/h	380	467	481	299	517	460	114	979	454	715	1268	244
Grp Sat Flow(s),veh/h/ln	1728	1777	1830	1728	1870	1585	1781	1702	1579	1728	1777	1583
Q Serve(g_s), s	11.4	31.4	31.4	10.4	31.5	6.5	7.6	33.7	33.7	14.5	15.0	4.9
Cycle Q Clear(g_c), s	11.4	31.4	31.4	10.4	31.5	6.5	7.6	33.7	33.7	14.5	15.0	4.9
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.93	1.00		1.00
Lane Grp Cap(c), veh/h	328	474	488	299	491	1265	129	1035	480	1852	2751	1226
V/C Ratio(X)	1.16	0.99	0.99	1.00	1.05	0.36	0.88	0.95	0.95	0.39	0.46	0.20
Avail Cap(c_a), veh/h	328	474	488	299	491	1265	129	1035	480	1852	2751	1226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	43.8	43.8	54.8	44.3	11.8	55.1	40.8	40.8	16.3	4.8	3.6
Incr Delay (d2), s/veh	99.6	37.9	37.3	45.7	50.8	0.1	44.6	17.6	29.5	0.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	18.5	19.0	6.4	21.2	5.6	5.0	16.1	16.6	5.6	4.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	153.9	81.7	81.1	100.5	95.1	11.9	99.7	58.3	70.3	16.9	4.9	3.7
LnGrp LOS	F	F	F	F	F	B	F	E	E	B	A	A
Approach Vol, veh/h		1328			1276			1547			2227	
Approach Delay, s/veh		102.1			66.4			64.9			8.6	
Approach LOS		F			E			E			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	71.0	41.9	15.5	37.1	13.3	99.6	16.0	36.6
Change Period (Y+Rc), s	5.4	* 5.4	5.1	* 5.1	4.6	5.4	4.6	5.1
Max Green Setting (Gmax), s	21.4	* 37	10.4	* 32	8.7	49.2	11.4	31.0
Max Q Clear Time (g_c+I1), s	16.5	35.7	12.4	33.4	9.6	17.0	13.4	33.5
Green Ext Time (p_c), s	0.8	0.6	0.0	0.0	0.0	12.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

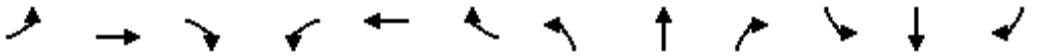
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1100	1105	238	1020	5	421
Future Volume (vph)	1100	1105	238	1020	5	421
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0	5.0	5.0	5.0	5.0
Minimum Split (s)	20.6	20.6	9.5	23.6	20.0	20.0
Total Split (s)	68.5	68.5	22.5	91.0	29.0	29.0
Total Split (%)	57.1%	57.1%	18.8%	75.8%	24.2%	24.2%
Yellow Time (s)	4.1	4.1	4.0	4.1	4.8	4.8
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.5	4.6	5.3	5.3
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	64.3	64.3	17.7	86.5	23.6	23.6
Actuated g/C Ratio	0.54	0.54	0.15	0.72	0.20	0.20
v/c Ratio	0.59	0.98	0.93	0.41	0.35	0.98
Control Delay	8.6	13.1	48.4	0.7	44.9	68.0
Queue Delay	1.6	39.8	0.0	0.5	0.0	24.5
Total Delay	10.2	53.0	48.4	1.2	44.9	92.4
LOS	B	D	D	A	D	F
Approach Delay	31.7			10.1	81.9	
Approach LOS	C			B	F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 100.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 7: I-15 SB Ramps & 2nd St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1100	1105	238	1020	0	0	0	0	115	5	421
Future Volume (veh/h)	0	1100	1105	238	1020	0	0	0	0	115	5	421
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1122	973	243	1041	0				117	5	338
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1892	844	267	2559	0				338	14	313
Arrive On Green	0.00	0.53	0.53	0.15	0.72	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1712	73	1585
Grp Volume(v), veh/h	0	1122	973	243	1041	0				122	0	338
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1785	0	1585
Q Serve(g_s), s	0.0	25.9	63.9	16.1	13.9	0.0				7.1	0.0	23.7
Cycle Q Clear(g_c), s	0.0	25.9	63.9	16.1	13.9	0.0				7.1	0.0	23.7
Prop In Lane	0.00		1.00	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1892	844	267	2559	0				352	0	313
V/C Ratio(X)	0.00	0.59	1.15	0.91	0.41	0.00				0.35	0.00	1.08
Avail Cap(c_a), veh/h	0	1892	844	267	2559	0				352	0	313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.35	0.35	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.2	28.0	50.2	6.7	0.0				41.5	0.0	48.1
Incr Delay (d2), s/veh	0.0	0.1	70.2	14.5	0.2	0.0				0.2	0.0	73.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	39.0	8.2	4.6	0.0				3.1	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.3	98.2	64.7	6.8	0.0				41.7	0.0	121.9
LnGrp LOS	A	B	F	E	A	A				D	A	F
Approach Vol, veh/h		2095			1284						460	
Approach Delay, s/veh		55.9			17.8						100.6	
Approach LOS		E			B						F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.5	68.5		29.0		91.0
Change Period (Y+Rc), s	4.5	4.6		5.3		4.6
Max Green Setting (Gmax), s	18.0	63.9		23.7		86.4
Max Q Clear Time (g_c+I1), s	18.1	65.9		25.7		15.9
Green Ext Time (p_c), s	0.0	0.0		0.0		5.7

Intersection Summary			
HCM 6th Ctrl Delay		48.5	
HCM 6th LOS		D	

APPENDIX 7.11:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	5121	7161	0.72	66.2	25.8	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.980	5121	758	7200	2100	0.71	0.36	64.0	59.8	26.7	29.3	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.917	4362	7161	0.61	68.2	21.3	C

Segment 4: Merge

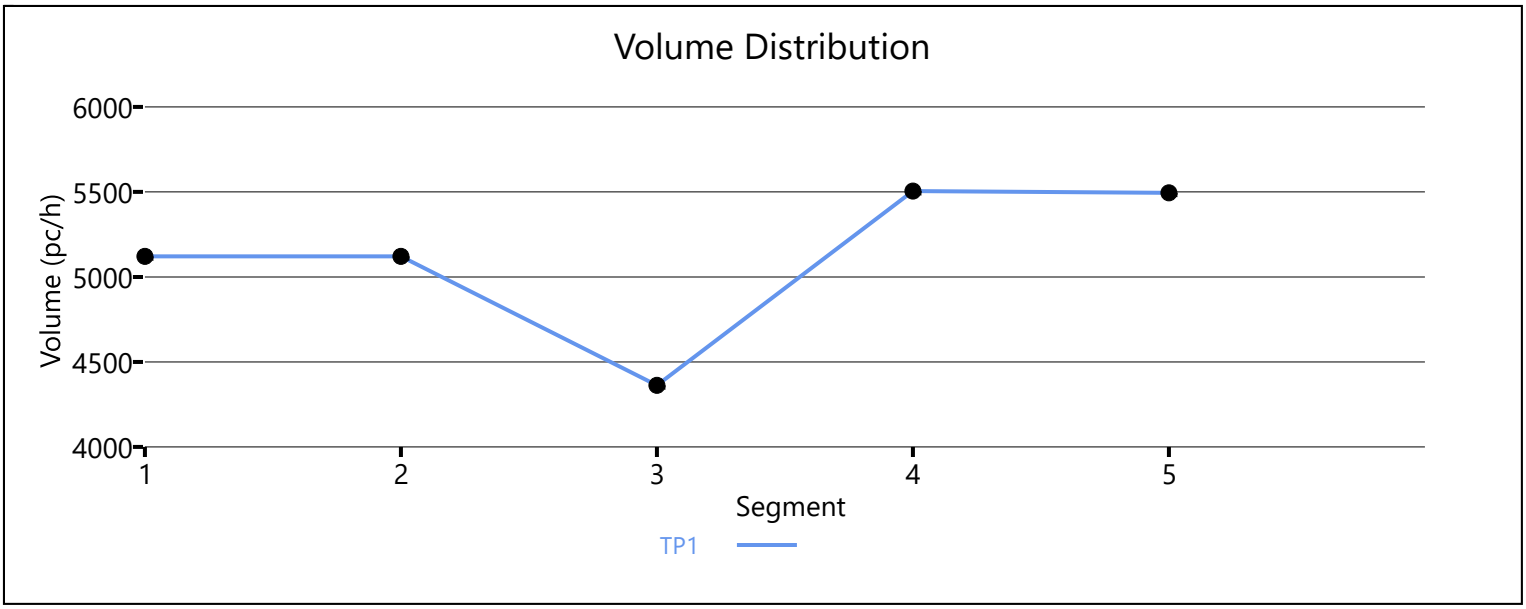
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.917	0.952	5505	1143	9600	2100	0.45	0.54	70.0	-	15.6	-	B

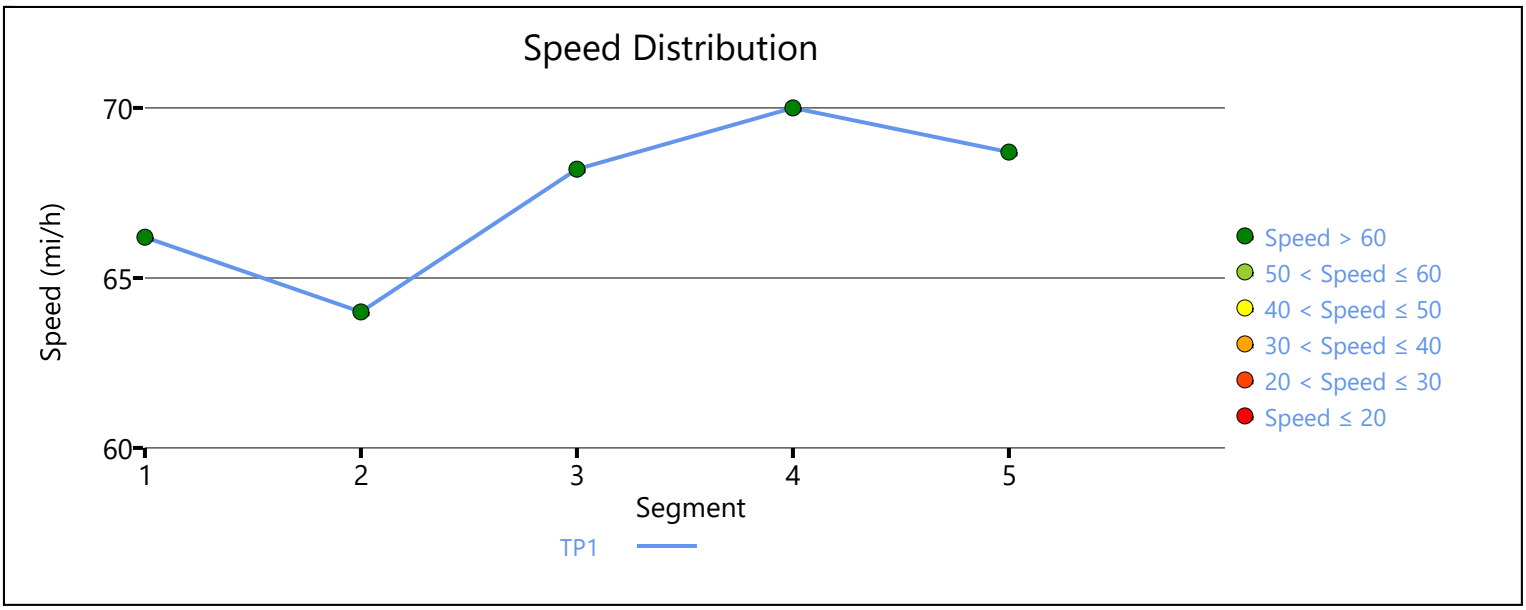
Segment 5: Basic

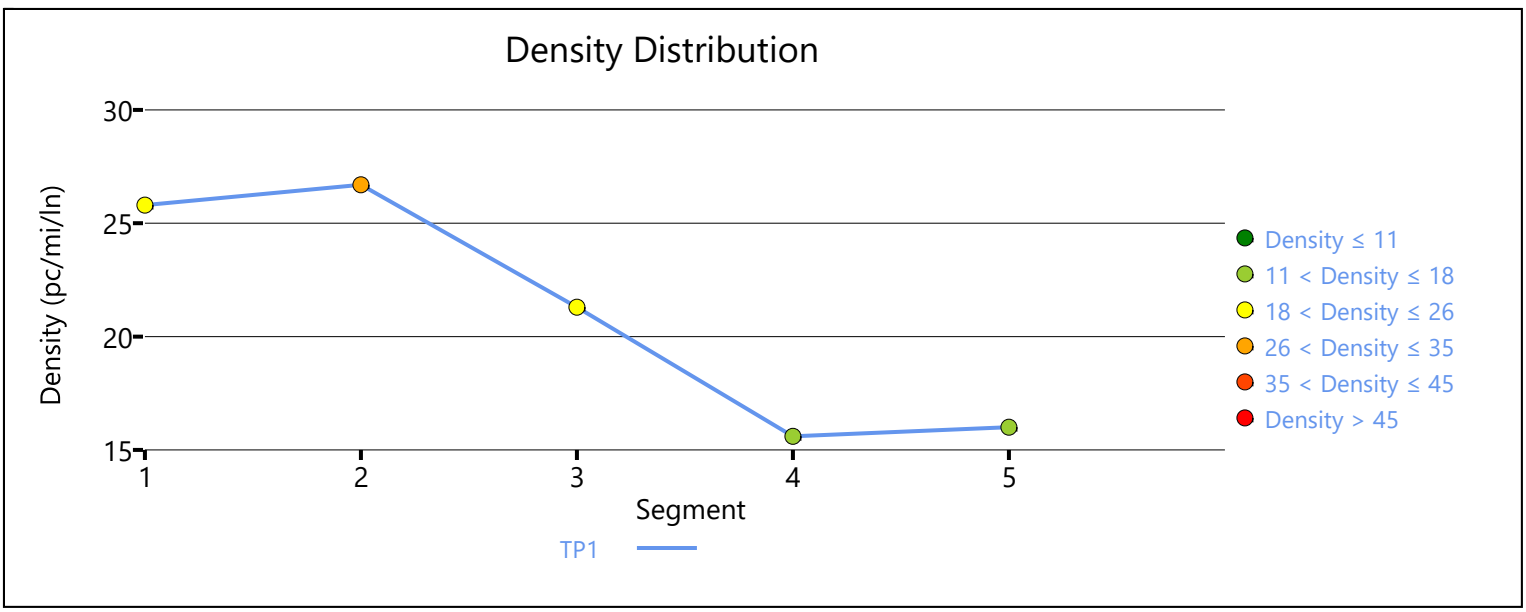
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	5495	11935	0.46	68.7	16.0	B

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	66.9	22.3	20.6	2.3	C

Facility Overall Results			
Space Mean Speed, mi/h	66.9	Density, veh/mi/ln	20.6
Average Travel Time, min	2.3	Density, pc/mi/ln	22.3







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	7963	11935	0.67	67.3	23.7	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.980	7963	1817	12000	4200	0.66	0.43	68.2	-	23.4	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6151	9548	0.64	67.7	22.7	C

Segment 4: Merge

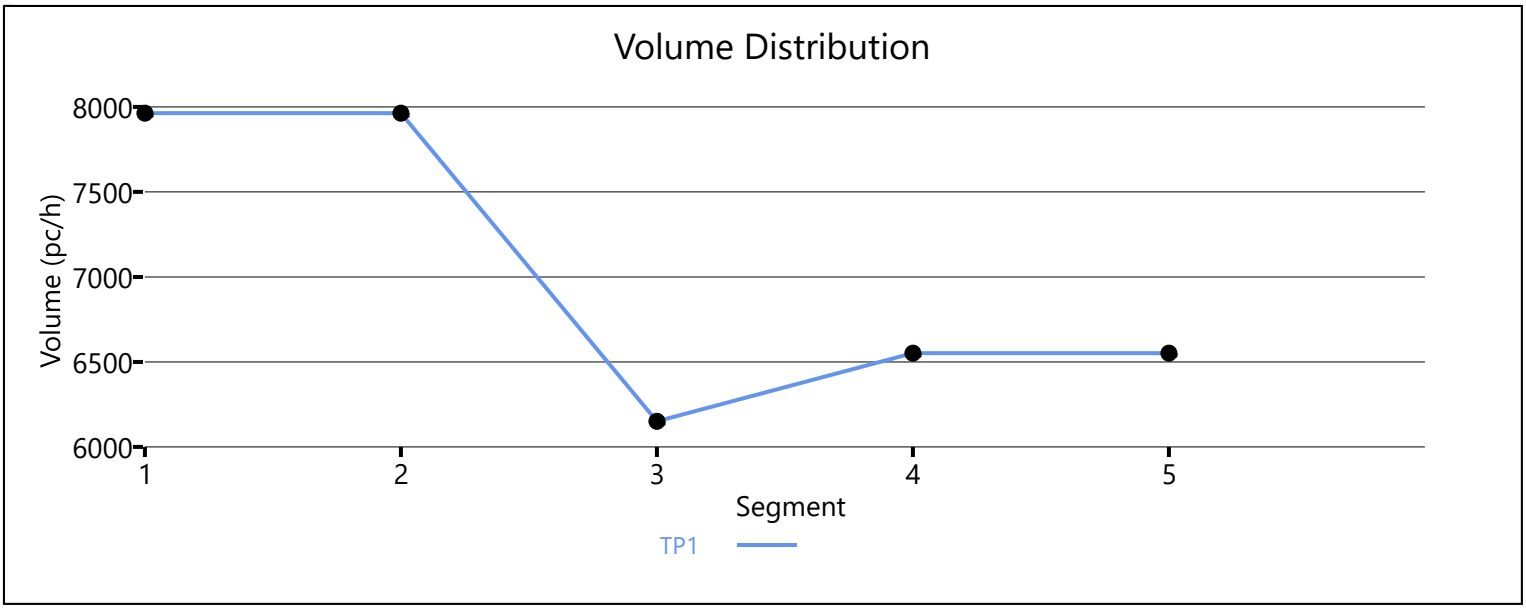
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.943	6552	401	7200	2100	0.91	0.19	58.4	56.3	37.4	33.1	D

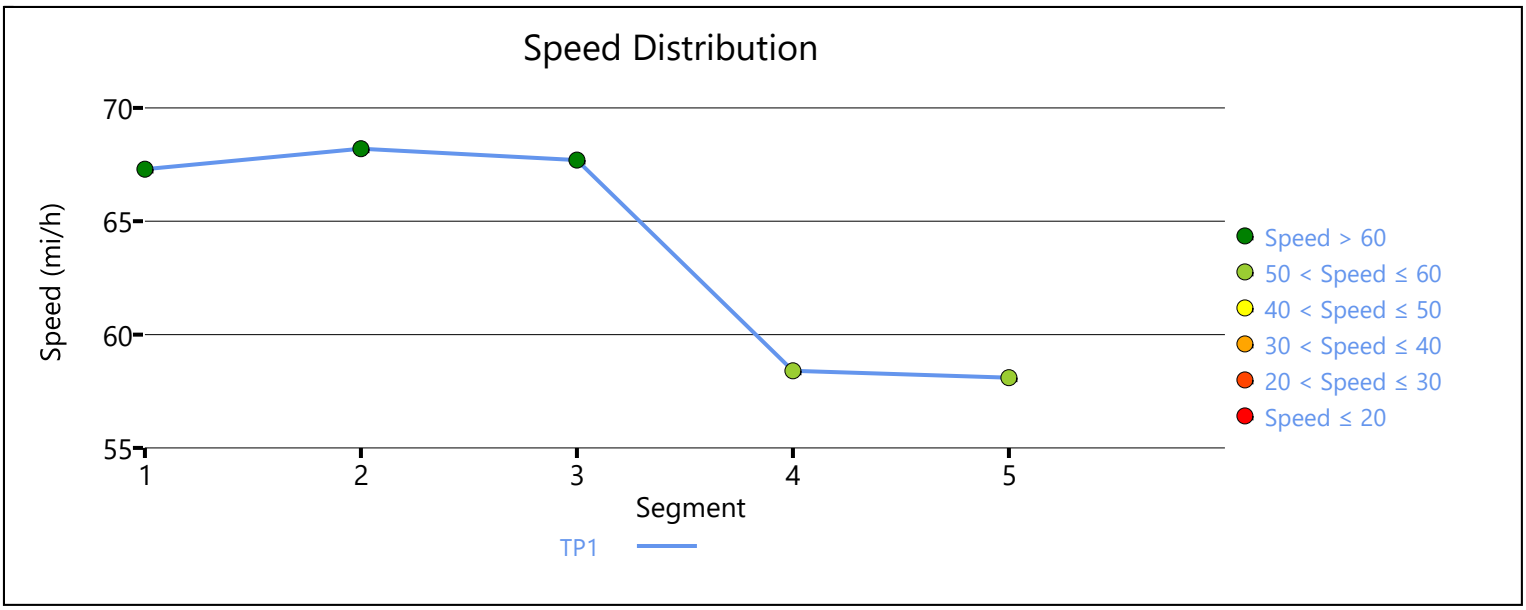
Segment 5: Basic

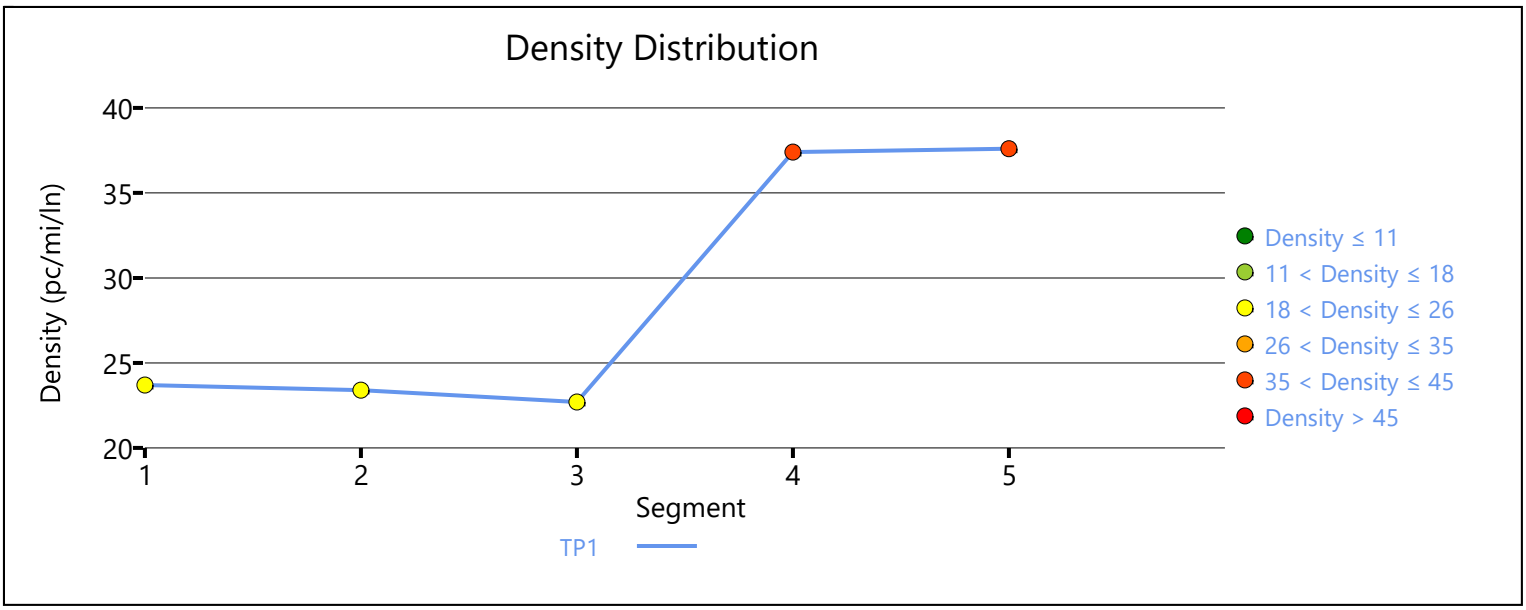
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6552	7161	0.91	58.1	37.6	E

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	61.9	30.3	28.6	2.6	D

Facility Overall Results			
Space Mean Speed, mi/h	61.9	Density, veh/mi/ln	28.6
Average Travel Time, min	2.6	Density, pc/mi/ln	30.3







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13043 - I-15 SB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of Second	7000	3
2	Diverge	Diverge	Off-Ramp at Second	1500	3
3	Basic	Basic	Between	2100	3
4	Merge	Basic	On-Ramp at Second	1500	4
5	Basic	Basic	South of Second	1450	5

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	5437	7161	0.76	64.9	27.9	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.971	5437	606	7200	2100	0.76	0.29	64.2	60.1	28.2	30.4	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4855	7161	0.68	67.1	24.1	C

Segment 4: Merge

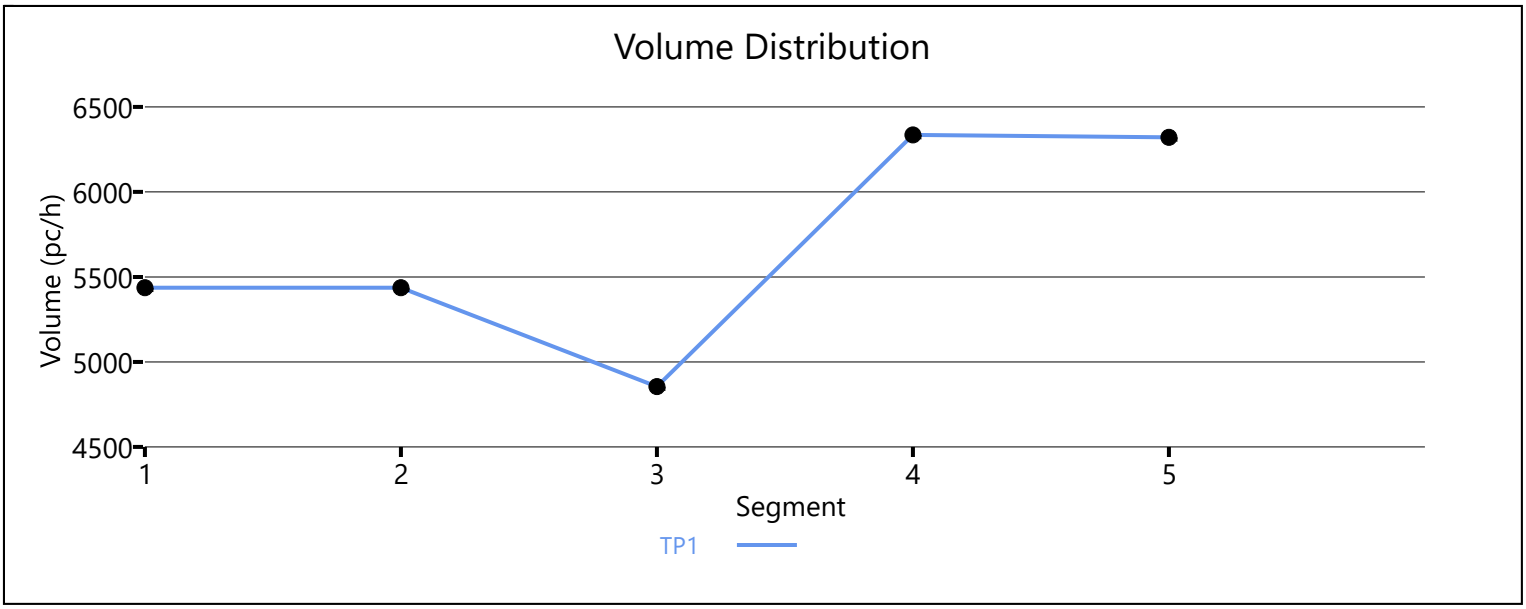
Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.990	6335	1480	9600	2100	0.51	0.70	70.0	-	17.3	-	B

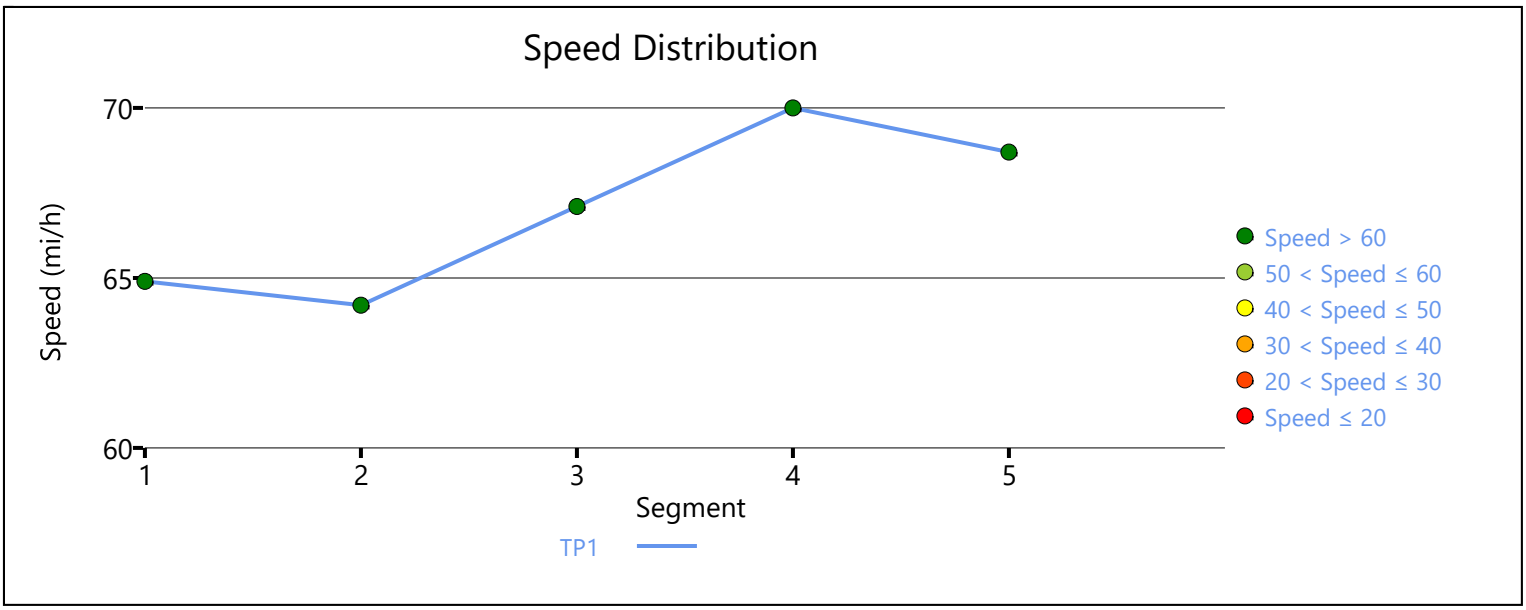
Segment 5: Basic

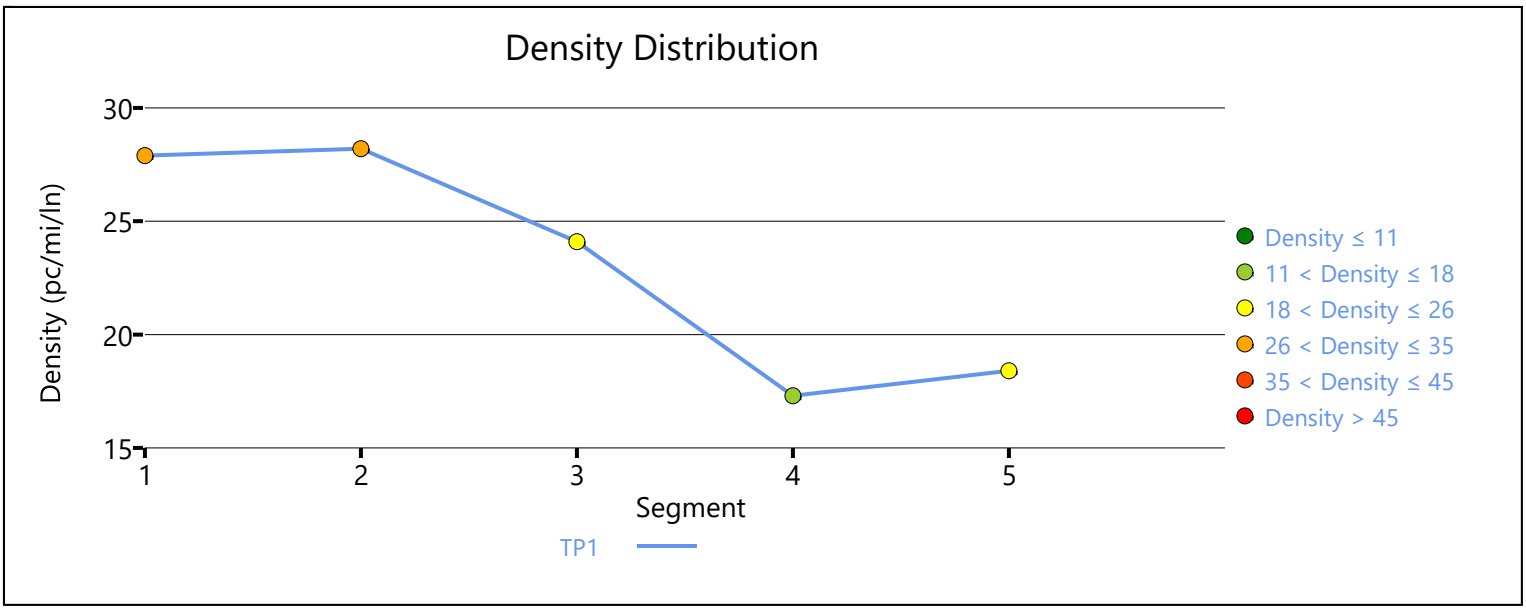
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6321	11935	0.53	68.7	18.4	C

Facility Time Period Results					
T	**Speed, mi/h**	**Density, pc/mi/ln**	**Density, veh/mi/ln**	**Travel Time, min**	**LOS**
1	66.2	24.5	22.9	2.3	C

Facility Overall Results			
Space Mean Speed, mi/h	66.2	Density, veh/mi/ln	22.9
Average Travel Time, min	2.3	Density, pc/mi/ln	24.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	3/3/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2023) With Project + IMPROVEMENTS
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	JN:13040 - I-15 NB, Second		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of Second	1700	5
2	Diverge	Basic	Off-Ramp at Second	1700	5
3	Basic	Basic	Between	2400	4
4	Merge	Merge	On-Ramp at Second	1500	3
5	Basic	Basic	North of Second	7000	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6478	11935	0.54	68.7	18.9	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.980	6478	1437	12000	4200	0.54	0.34	69.9	-	18.5	-	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	4984	9548	0.52	68.7	18.1	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.962	5922	938	7200	2100	0.82	0.45	59.5	57.2	33.2	31.6	D

Segment 5: Basic

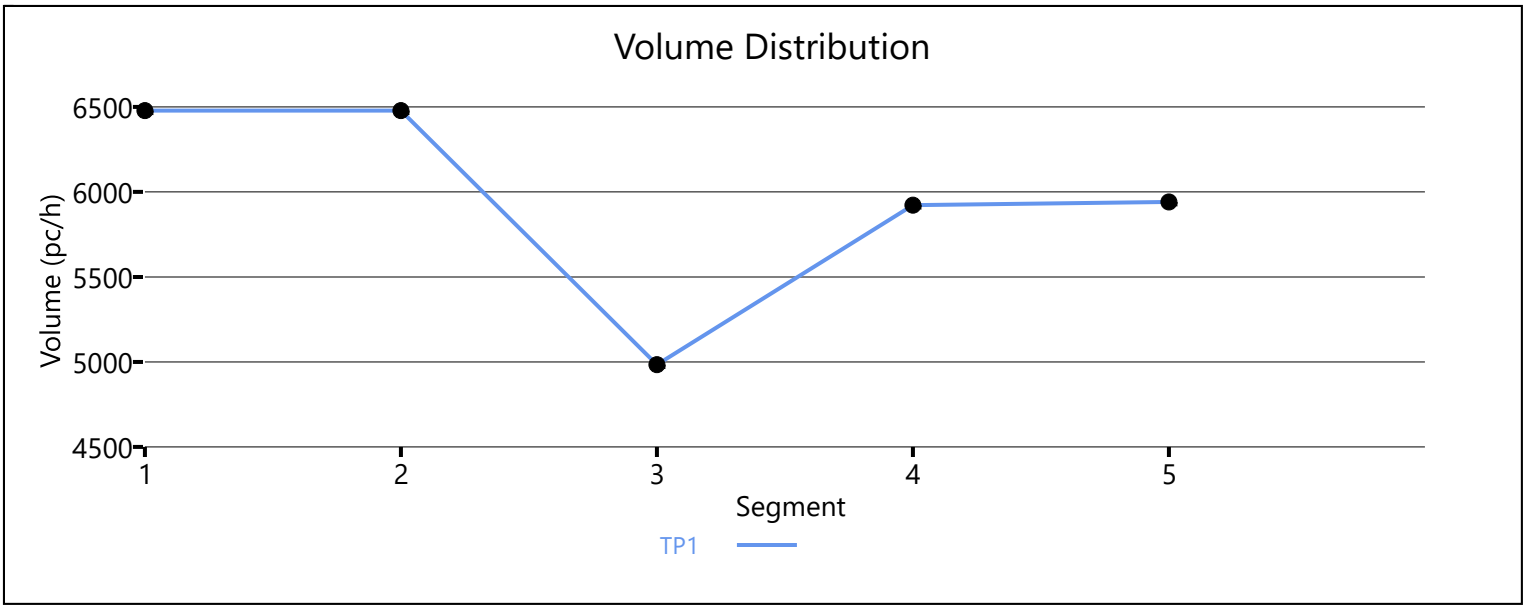
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5941	7161	0.83	62.3	31.8	D

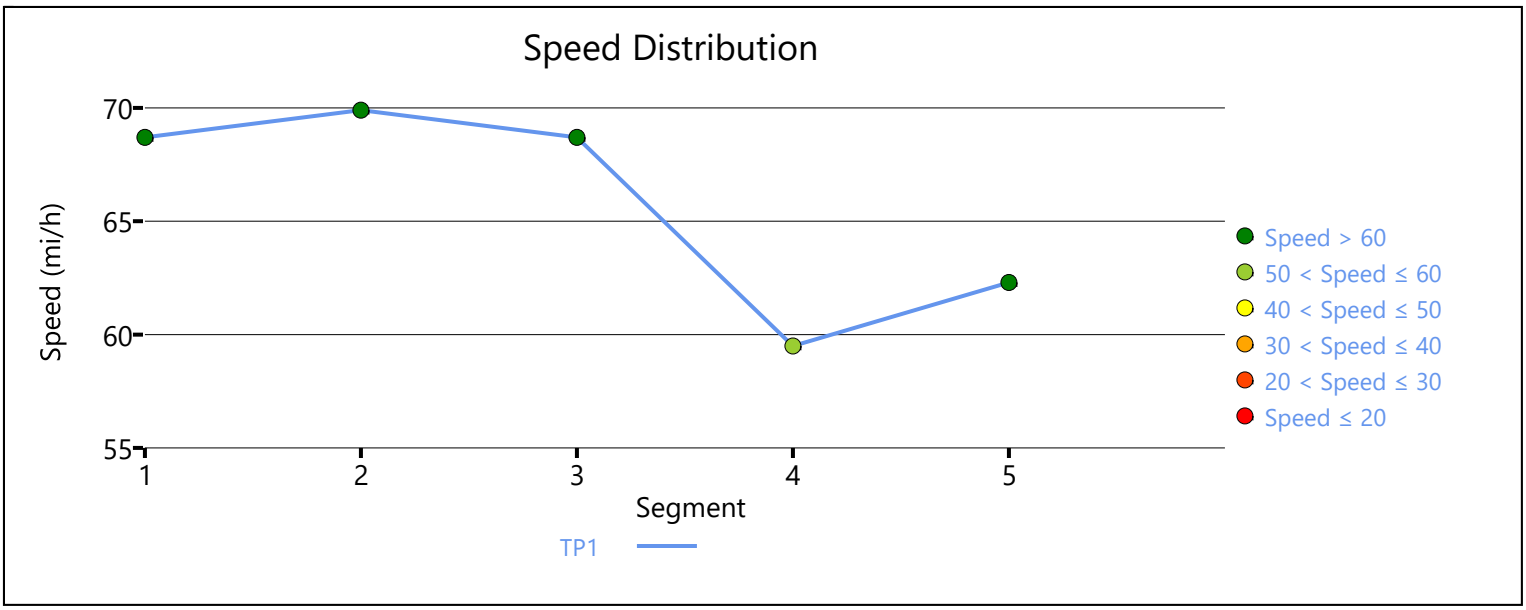
Facility Time Period Results

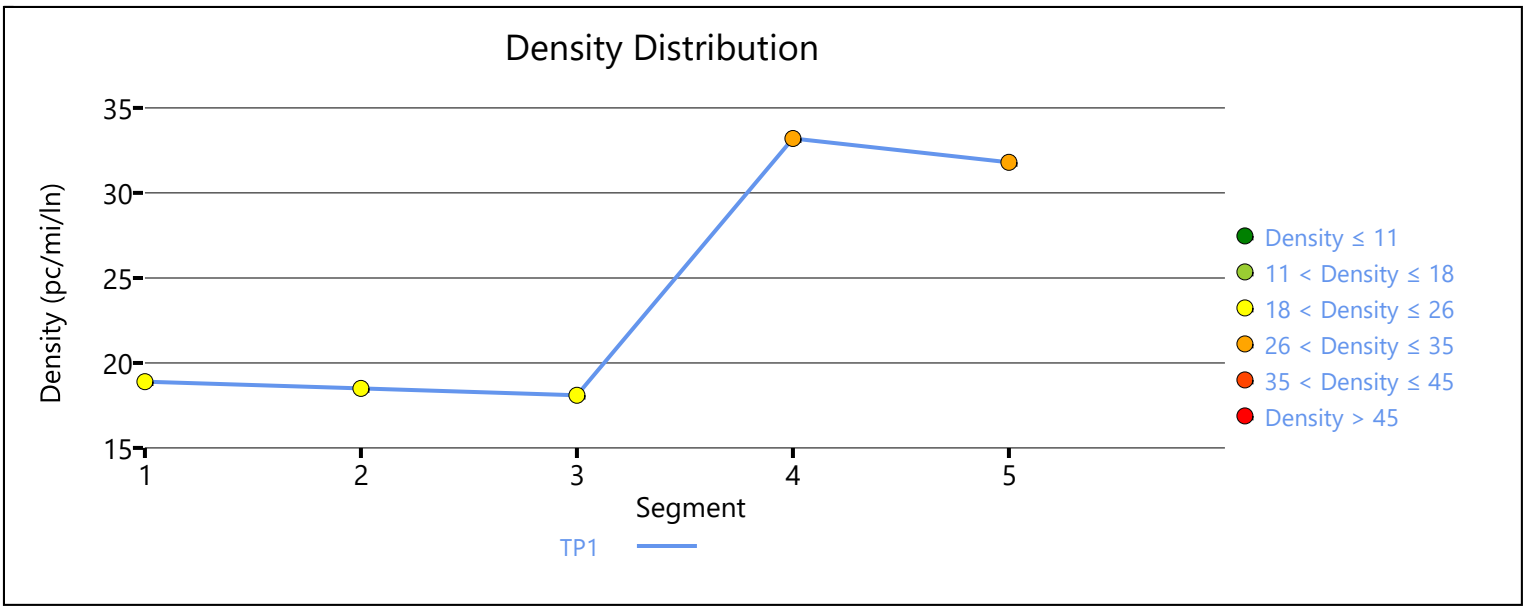
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.5	25.1	23.7	2.5	C

Facility Overall Results

Space Mean Speed, mi/h	64.5	Density, veh/mi/ln	23.7
Average Travel Time, min	2.5	Density, pc/mi/ln	25.1







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Appendix M

Vehicle Miles Traveled Assessment

Appendix M

Vehicle Miles Traveled Assessment

September 3, 2020

Mr. Tim Nguyen
Frontier Communities
2151 E. Convention Center Way, Suite 222
Ontario, CA 91764

SUBJECT: NORCO VALLEY SQUARE VEHICLE MILES TRAVELLED (VMT) ASSESSMENT

Dear Mr. Tim Nguyen:

The following Vehicle Miles Travelled (VMT) Assessment has been prepared for the proposed Norco Valley Square development (**Project**), which is located in the southwest corner of Hamner Avenue and 3rd Street in the City of Norco. The Project is proposed to consist of an 8,700 square foot food court, a 120-room hotel, and 320 multifamily dwelling units.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020.

It is our understanding that the City of Norco consistent with other cities within Western Riverside County utilizes the Western Riverside Council of Governments (WRCOG) VMT Screening Tool (**Screening Tool**). The Screening Tool allows the input of an Assessor's Parcel Number (APN) to determine if a project's location meets one or more of the screening thresholds for land use projects identified in the Governor's Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (**Technical Advisory**). (1) The City of Norco has adopted project level screening thresholds consistent with those recommended in the Technical Advisory and used by the VMT Screening Tool (**City Guidelines**).

PROJECT SCREENING

Consistent with the Technical Advisory, the City Guidelines provides a list of screening criteria that can be used to identify when a proposed land use project is anticipated to result in a less than significant transportation impact. Screening criteria are broken into the following four types:

- Transit Priority Area (TPA) Screening
- Project Type Screening
- Low VMT Area Screening
- Affordable Housing Screening

A land use project would only need to meet one of the above screening thresholds to result in a less-than-significant transportation impact.

TPA SCREENING

Consistent with guidance identified in the Technical Advisory and noted in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

The Project is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

The TPA screening criteria is not met.

PROJECT TYPE SCREENING

The City Guidelines identifies that local serving retail projects less than 50,000 square feet in floor area may be presumed to have a less than significant impact absent substantial evidence to the contrary. This is because local serving retail projects generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel. The Project's 8,700 square foot food court qualifies for screening as it will serve the residents of the Project, the nearby Norco College, and surrounding community.

In similar fashion, local serving hotels (i.e., non-destination hotels) that tend to serve the local area and would reduce the need for visitors of the City of Norco to travel outside of the City for lodging would also be presumed to have a less than significant transportation impact absent substantial evidence to the contrary. The Project's 120-room hotel would also qualify for screening as it would provide convenient lodging and meeting space for visitors of Norco College, the Silver Lakes Sports Complex, the

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

Naval Sea Systems Command, and the surrounding community. The local serving hotel would allow visitors to these City destinations more convenient lodging and meeting space and would reduce the need for longer vehicle trips from other hotels in Corona and Ontario.

The Project Type screening criteria is met for both the 8,700 square foot food court and 120-room hotel components of the Project.

LOW VMT AREA SCREENING

As discussed in the Technical Advisory, "residential and office projects that locate in areas with low VMT will tend to exhibit similarly low VMT." The Project is consistent with this criterion as the proposed retail, hotel and multifamily housing are generally consistent with the mix of land uses in the surrounding area (e.g., residential, retail, etc.). The Screening Tool utilizes the sub-regional travel demand model Riverside Transportation Analysis Model (RIVTAM) to measure VMT performance within the City of Norco for individual traffic analysis zones (TAZ's). The Project's physical location is shown to be located within a low VMT generating TAZ (TAZ 3,177) as compared to the City of Norco daily residential home-based VMT per capita and the daily home-based work VMT per worker baseline condition (see Attachment A). For example, the City of Norco average daily residential home-based VMT is 13.05, while the Project TAZ 3,177 has a daily residential home-based VMT of 11.49. In addition, the City's daily home-based work VMT per worker is 16.58, while the Project TAZ 3,177 has a daily home-based work VMT per worker of 15.82.

Once a project is confirmed to be within a low VMT area, the Technical Advisory also suggests that the traffic analyst ensure that the proposed Project is consistent with the land use assumptions contained in the travel demand model's traffic analysis zone (TAZ) used to measure VMT performance. A review of the land use mix contained within TAZ 3,177 reveals a mix of population, retail employment and other employment. The existing mix of uses contained in TAZ 3,177 would seem to be consistent with the proposed Project.

The Low VMT Area screening criteria is met for both the residential and employment components of the Project.

AFFORDABLE RESIDENTIAL DEVELOPMENT SCREENING

As noted in the Technical Advisory, "Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT." The Advisory goes on to state that "…a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less than significant impact on VMT." (2)

As the proposed Project does not include an affordable housing component, this screening criteria is not applicable.

The Affordable Residential Development screening criteria is not met.

CONCLUSION

Based on our review of City of Norco VMT screening criteria, the Project meets the Project Type screening criteria for the 8,700 square foot food court and non-destination 120-room hotel uses, and Low VMT Area screening criteria for the residential and employment (i.e., retail and hotel) components of the Project. As such, no additional VMT analysis is required.

If you have any questions, please contact me directly at aevatt@urbanxroads.com.

Respectfully submitted,

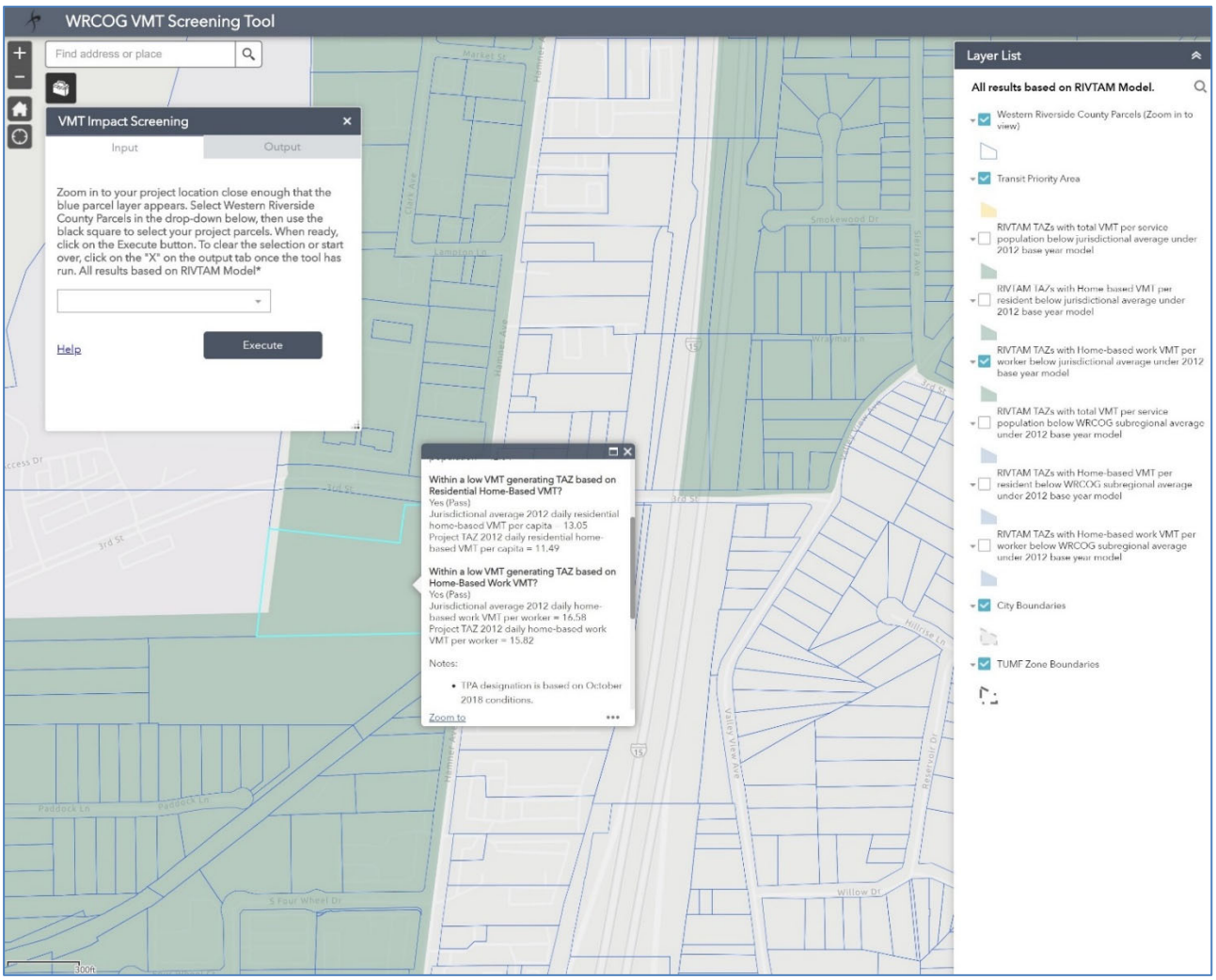
URBAN CROSSROADS, INC.

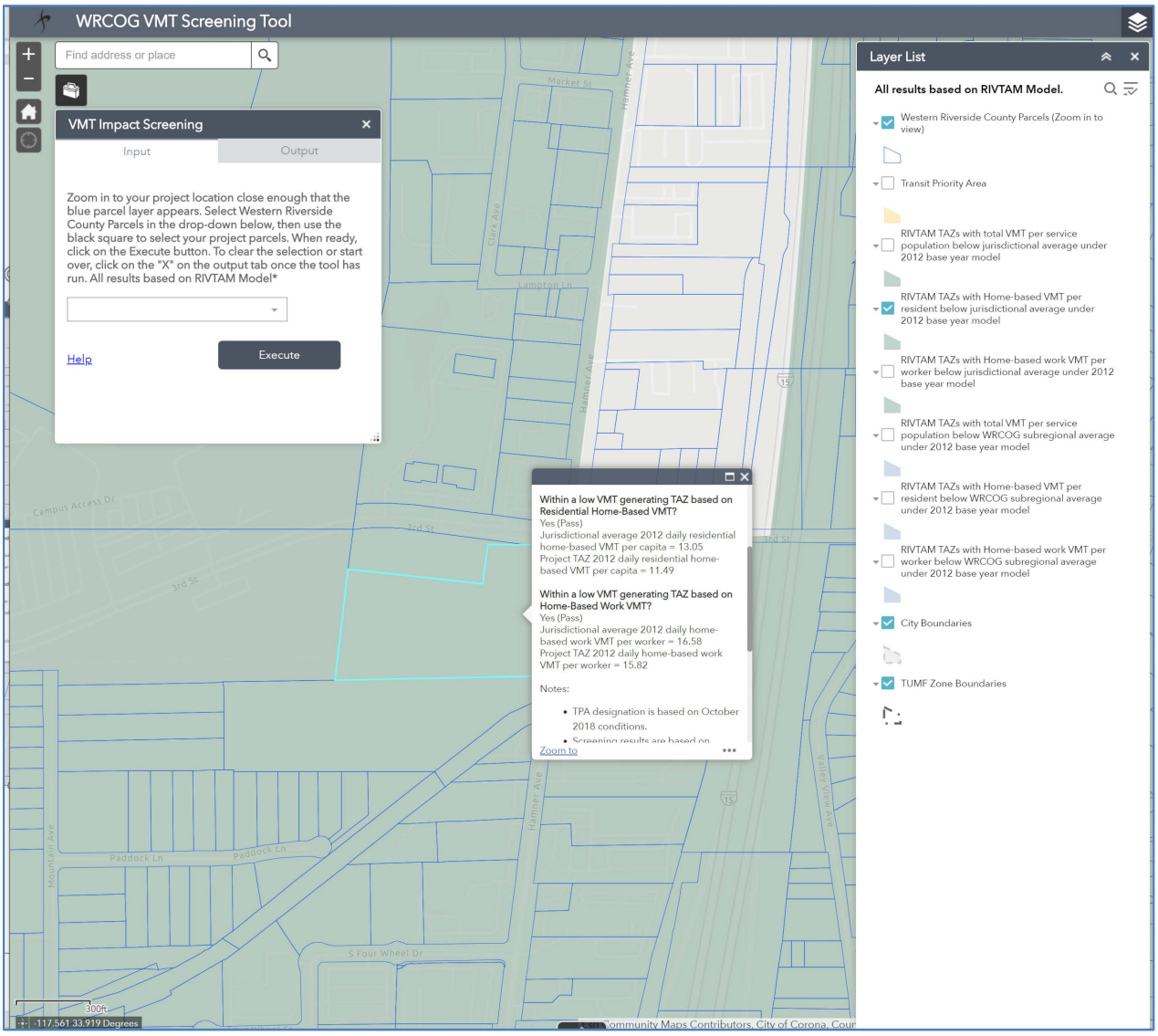
Aric Evatt, PTP
President

REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.

ATTACHMENT A
SCREENING TOOL RESULTS


WRCOG VMT Screening Tool
Find address or place
VMT Impact Screening
Input
Output
Zoom in to your project location close enough that the blue parcel layer appears. Select Western Riverside County Parcels in the drop-down below, then use the black square to select your project parcels. When ready, click on the Execute button. To clear the selection or start over, click on the "X" on the output tab once the tool has run. All results based on RIVTAM Model*
Help
Execute
Within a low VMT generating TAZ based on Residential Home-Based VMT?
Yes (Pass)
Jurisdictional average 2012 daily residential home-based VMT per capita = 13.05
Project TAZ 2012 daily residential home-based VMT per capita = 11.49
Within a low VMT generating TAZ based on Home-Based Work VMT?
Yes (Pass)
Jurisdictional average 2012 daily home-based work VMT per worker = 16.58
Project TAZ 2012 daily home-based work VMT per worker = 15.82
Notes:
TPA designation is based on October 2018 conditions.
Zoom to
Layer List
All results based on RIVTAM Model.
Western Riverside County Parcels (Zoom in to view)
Transit Priority Area
RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home based VMT per resident below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
City Boundaries
TUMF Zone Boundaries
Market St
Hammer Ave
Lamplon Ln
Smokewood Dr
Ave Estates
Wrangler Ln
3rd St
Valley View Ave
Hillrise Ln
Reservoir Dr
Willow Dr
Paddock Ln
5 Four Wheel Dr
300ft


WRCOG VMT Screening Tool
Find address or place
VMT Impact Screening
Input
Output
Zoom in to your project location close enough that the blue parcel layer appears. Select Western Riverside County Parcels in the drop-down below, then use the black square to select your project parcels. When ready, click on the Execute button. To clear the selection or start over, click on the "X" on the output tab once the tool has run. All results based on RIVTAM Model*
Help
Execute
Within a low VMT generating TAZ based on Residential Home-Based VMT?
Yes (Pass)
Jurisdictional average 2012 daily residential home-based VMT per capita = 13.05
Project TAZ 2012 daily residential home-based VMT per capita = 11.49
Within a low VMT generating TAZ based on Home-Based Work VMT?
Yes (Pass)
Jurisdictional average 2012 daily home-based work VMT per worker = 16.58
Project TAZ 2012 daily home-based work VMT per worker = 15.82
Notes:
TPA designation is based on October 2018 conditions.
Zoom to
Layer List
All results based on RIVTAM Model.
Western Riverside County Parcels (Zoom in to view)
Transit Priority Area
RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
City Boundaries
TUMF Zone Boundaries
Market St
Hamner Ave
Clark Ave
Lampton Ln
Campus Access Dr
3rd St
Paddock Ln
Mountain Ave
S Four Wheel Dr
Valley View Ave
300ft
-117.561 33.919 Degrees
Community Maps Contributors, City of Corona, Cour