State Route 29 (SR 29) Improvements at Rutherford Road and Oakville Cross Road Intersections

NAPA COUNTY, CALIFORNIA

Initial Study with Mitigated Negative Declaration

Prepared by
Metropolitan Transportation Commission

February 2024

Table of Contents

Project Information v
Mitigated Negative Declaration vi
1 Proposed Project 1-1
1.1 INTRODUCTION 1-1
1.2 CEQA REQUIREMENTS 1-1
1.3 CEQA Lead Agency Contact Information 1-2
1.4 PROJECT BACKGROUND AND OBJECTIVES 1-2
2 Project Description 2-1
2.1 PROJECT LOCATION AND SITE DESCRIPTION 2-1
2.1.1 Rutherford Road Intersection 2-5
2.1.2 Oakville Cross Road Intersection 2-8
2.2 ENVIRONMENTAL SETTING 2-10
2.2.1 Aesthetics 2-10
2.2.2 Agriculture 2-11
2.2.3 Air Quality 2-12
2.2.4 Biological Resources 2-15
2.2.5 Cultural and Tribal Cultural Resources 2-16
2.2.6 Geology and Soils 2-20
2.2.7 Hazards and Hazardous Materials 2-20
2.2.8 Hydrology and Water Quality 2-21
2.2.9 Land Use and Planning 2-22
2.2.10 Mineral Resources 2-23
2.2.11 Noise 2-23
2.2.12 Population and Housing 2-24
2.2.13 Recreation 2-24
2.2.14 Transportation 2-24
2.2.15 Utilities 2-28
2.2.16 Wildfire 2-28
2.3 PROJECT CHARACTERISTICS 2-28
2.3.1 Rutherford Road Intersection 2-28
2.3.2 Oakville Cross Road Intersection 2-29
2.3.3 Real Property Acquisition 2-29
2.3.4 Timeframe 2-31

2.3.5 Construction Activities 2-31
2.3.6 Temporary Construction Easements 2-31
2.4 AGENCY APPROVALS NEEDED 2-32
2.5 TRIBAL CONSULTATION 2-32
3 California Environmental Quality Act (CEQA) Evaluation 3-1
3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED 3-1
3.2 DETERMINATION 3-1
3.3 CEQA ENVIRONMENTAL CHECKLIST 3-3
3.3.1 Aesthetics 3-3
3.3.2 Agriculture and Forestry Resources 3-6
3.3.3 Air Quality 3-8
3.3.4 Biological Resources 3-19
3.3.5 Cultural Resources 3-23
3.3.6 Energy 3-28
3.3.7 Geology and Soils 3-29
3.3.8 Greenhouse Gas Emissions 3-32
3.3.9 Hazards and Hazardous Materials 3-34
3.3.10 Hydrology and Water Quality 3-39
3.3.11 Land Use and Planning 3-46
3.3.12 Mineral Resources 3-47
3.3.13 Noise 3-48
3.3.14 Population and Housing 3-51
3.3.15 Public Services 3-51
3.3.16 Recreation 3-52
3.3.17 Transportation 3-52
3.3.18 Tribal Cultural Resources 3-55
3.3.19 Utilities and Service Systems 3-57
3.3.20 Wildfire 3-58
3.3.21 Mandatory Findings of Significance 3-60
4 List of Preparers 4-1
4.1 Caltrans Staff 4-1
4.2 MTC 4-1
4.3 GHD 4-1
4.4 WSP 4-1

5 References 5-1
6 Comments and Coordination 6-1
6.1 Native American Coordination 6-1
6.2 Agency Coordination 6-2
6.3 Comments Received and Responses 6-2

List of Tables

Table 2-1. State and Federal Attainment Status 2-13
Table 2-2. Air Quality Concentrations for the Past 3 Years Measured at Napa-Valley College 2-13
Table 3-1. Estimated Short-term Construction Emissions (pounds per day) 3-12
Table 3-2. Regional Emissions Burden Summary 3-16

List of Figures

Figure 2-1. Project Location 2-2
Figure 2-2. Project Vicinity 2-3
Figure 2-3. Project Footprint 2-4
Figure 2-4. Rutherford Road Intersection Aerial 2-6
Figure 2-5. Napa Valley Wine Train Crossing at Rutherford Road and SR 29: Approach from west 2-7
Figure 2-6. Napa Valley Wine Train Crossing at Rutherford Road and SR 29: Approach from east 2-8
Figure 2-7. Oakville Cross Road Aerial 2-9
Figure 2-8 Walnut Lane and SR 29, Looking east 2-10
Figure 2-9. Existing Bicycle Facilities 2-25
Figure 2-10 Existing Transit Routes 2-27

Appendices

Appendix A Visual Impact Report
Appendix B Air Quality Report
Appendix C Natural Environmental Study Minimal Impact
Appendix D Cultural Resources Review Memorandum
Appendix E Initial Site Assessment Overview Study
Appendix F Water Quality Assessment Report
Appendix G Noise Study Report
Appendix H Vibration Damage Risk Assessment
Appendix I Traffic Operations Analysis Report

Project Information

Project Title	State Route 29 Intersection Improvement Project at Rutherford Road and Oakville Cross Road
Lead Agency Name & Address	Metropolitan Transportation Commission Bay Area Metro Center 375 Beale Street Suite 800 San Francisco, CA 94105
Contact Person & Phone Number	*Ingrid Supit, Principal Engineer - Capital Project Delivery* (415) 778-6691
Project Location	Rutherford, Napa County and Oakville, Napa County along State Route 29
General Plan Designation/Zoning	Right of Way, Agricultural Preserve, Limited Commercial

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The Metropolitan Transportation Commission (MTC), in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and enhance safety of SR 29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59). A single-lane roundabout is proposed at the intersection of SR 29 and Oakville Cross Road. Due to right of way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right of way impact. Hence, the project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR 29/ Rutherford Road.

Determination

MTC has prepared an Initial Study (IS) for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment. Minor revisions since public review are reflected in strikeout underline format. Responses to public comments have been added in Chapter 6.0.

The proposed project would have no effect on Energy, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Utilities and Service Systems, and Wildfire.

In addition, the proposed project would have less than significant effects to Aesthetics, Agriculture and Forestry Resources, Air Quality, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, and Transportation.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to: Biological Resources, Cultural Resources, Hazards and Hazardous Waste, Noise, and Tribal Cultural Resources.

- **MM-BIO-1 Pre-construction Field Inspections for Yellow-legged Frog**
- **MM-BIO-2 Pre-construction Nest Checks**
- **MM-CUL-1 Cultural Management Measures within Designated ESA Locations**
- **MM-CUL-2 Archeological and Native American Monitoring**
- **MM CUL-3 Discovery of Archeological Resources**
- **MM-HAZ-1 Phase II Investigation**

- **MM HAZ-2 Hazardous Waste Management Plan**
- **MM NOI-1 Photo Visual Documentation**
- **MM NOI-2 Vibration Control Plan**
- **MM NOI-3 Vibration Monitoring**

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Pamela Kwan, P.E., MTC Date
Assistant Director, Capital Program Delivery

1 Proposed Project

1.1 INTRODUCTION

State Route 29 (SR 29) (St. Helena Highway) in the communities of Rutherford, Oakville, and Yountville in the County of Napa is a key route providing north/south connectivity within Napa Valley. This section of the SR 29 corridor regularly experiences heavy traffic congestion during the peak periods.

In 2020, MTC in cooperation with Napa Valley Transportation Authority (NVTA) created the Napa Valley Forward Program, aiming to address the mobility needs of the area.

In March 2023, MTC completed a Traffic Operations Analysis Report (TOAR) to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that constructing a roundabout or installing traffic signals at the intersections of SR 29 and Rutherford Road and SR 29 and Oakville Cross Road would improve multimodal traffic operations performance along SR 29. For the purposes of discussion, SR 29 shall be referred to as north-south orientation and cross-streets Oakville Cross Road/Walnut Drive and Rutherford Road/SR-128 will be referenced as oriented east-west.

MTC grouped these intersections under the SR 29 Napa Valley Forward Intersection Improvements Project (Project).

1.2 CEQA REQUIREMENTS

Metropolitan Transportation Commission (MTC), serving as the California Environmental Quality Act (CEQA) Lead Agency, has prepared this Initial Study to provide the public, responsible agency, and trustee agencies with information about the potential environmental effects of the State Route SR 29 Intersection Improvement Project at Rutherford Road and Oakville Cross Road (hereafter referred to as the “project”).

The purpose of this Initial Study is to provide a basis for deciding the proper level of environmental document for CEQA clearance whether to prepare an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration. This Initial Study has been prepared to satisfy the requirements of CEQA (Public Resources Code, Division 13, Sec 21000-21177) and the CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387). Section 15063(d) of the State CEQA Guidelines states the content requirements of an Initial Study as follows:

1. A description of the project including the location of the project;

2. An identification of the environmental setting;

3. An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;

4. A discussion of the ways to mitigate the significant effects identified, if any;

5. An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls;

6. The name of the person or persons who prepared or participated in the Initial Study.

1.3 CEQA LEAD AGENCY CONTACT INFORMATION

The CEQA lead agency for the project is MTC. The contact person for the MTC is:

Ingrid Supit, Principal Engineer – Capital Project Delivery
Metropolitan Transportation Commission
Bay Area Metro Center
375 Beale Street Suite 800
San Francisco, CA 94105
(415) 778-6691

1.4 PROJECT BACKGROUND AND OBJECTIVES

In January 2020, MTC completed a traffic operations analysis to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that enhanced intersection control at the two intersections would improve multimodal traffic operations performance along SR-29. ~~Preliminary crash data analysis provided by Caltrans indicates that the total rate of fatal and injury crash at these two intersections are above the average crash rate for similar facilities statewide.~~ Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations needs and <u>enhance</u> safety ~~needs~~.

Federal Highway Administration (FHWA) studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor.

In March 2023, MTC completed a Traffic Operations Analysis Report (TOAR) to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicate constructing roundabouts or traffic signals at the intersections of SR 29 and Rutherford Road and SR 29 and Oakville Cross Road would improve multimodal traffic operations performance along SR 29.

The objectives of the project are to enhance both safety and traffic operations at the intersections of SR 29 and Oakville Cross Road and SR 29 and Rutherford Road. The project would improve travel time and reduce delay for side streets accessing SR 29, through enhancing traffic safety and improving turning movements at these intersections.

2 Project Description

2.1 PROJECT LOCATION AND SITE DESCRIPTION

The project is located in the communities of Rutherford and Oakville in unincorporated Napa County. It is located approximately 7 miles north of the outskirts of the City of Napa. The intersections are located approximately 2 miles from each other, with Rutherford to the north.

Figure 2-1. Project Location

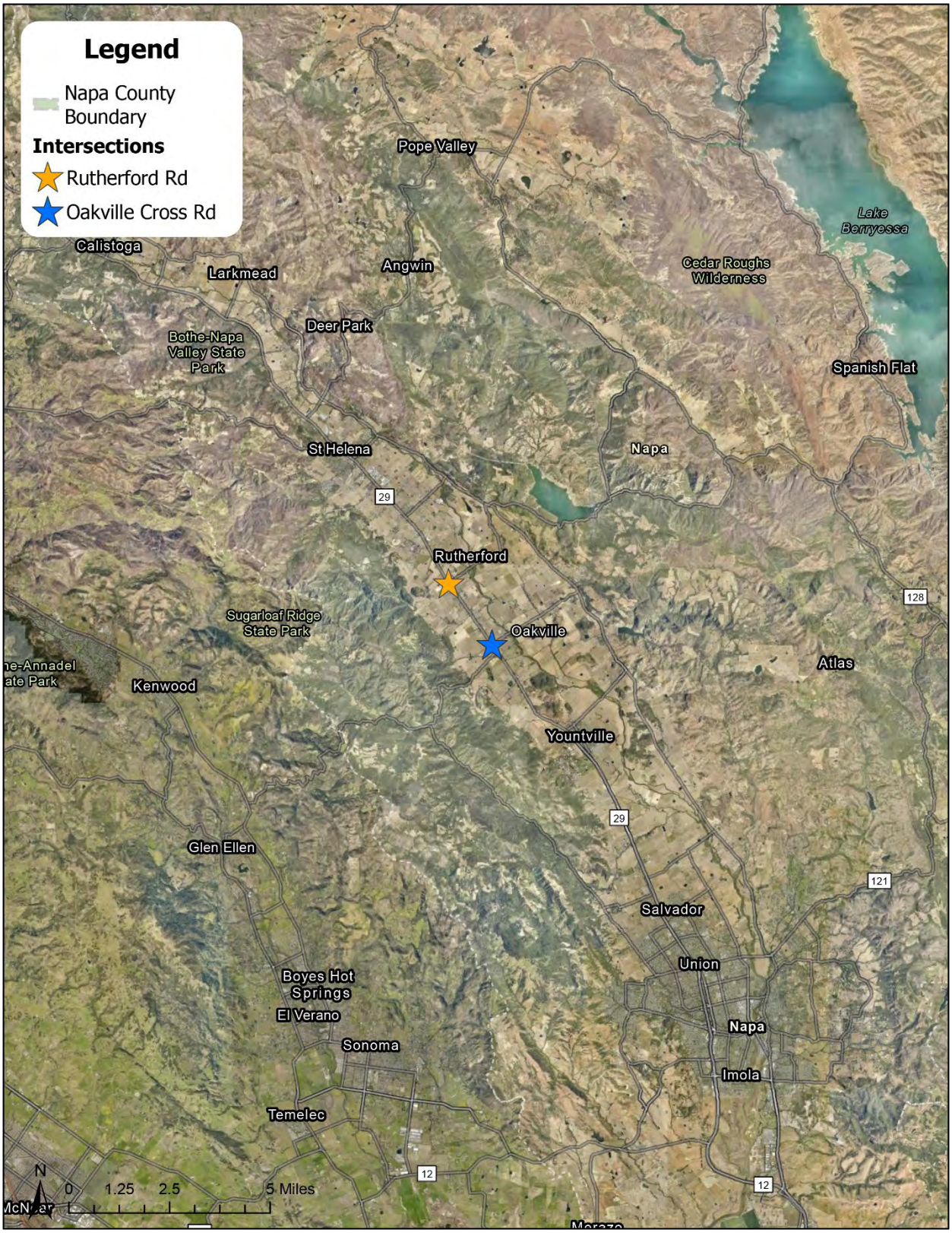


Figure 2-2. Project Vicinity

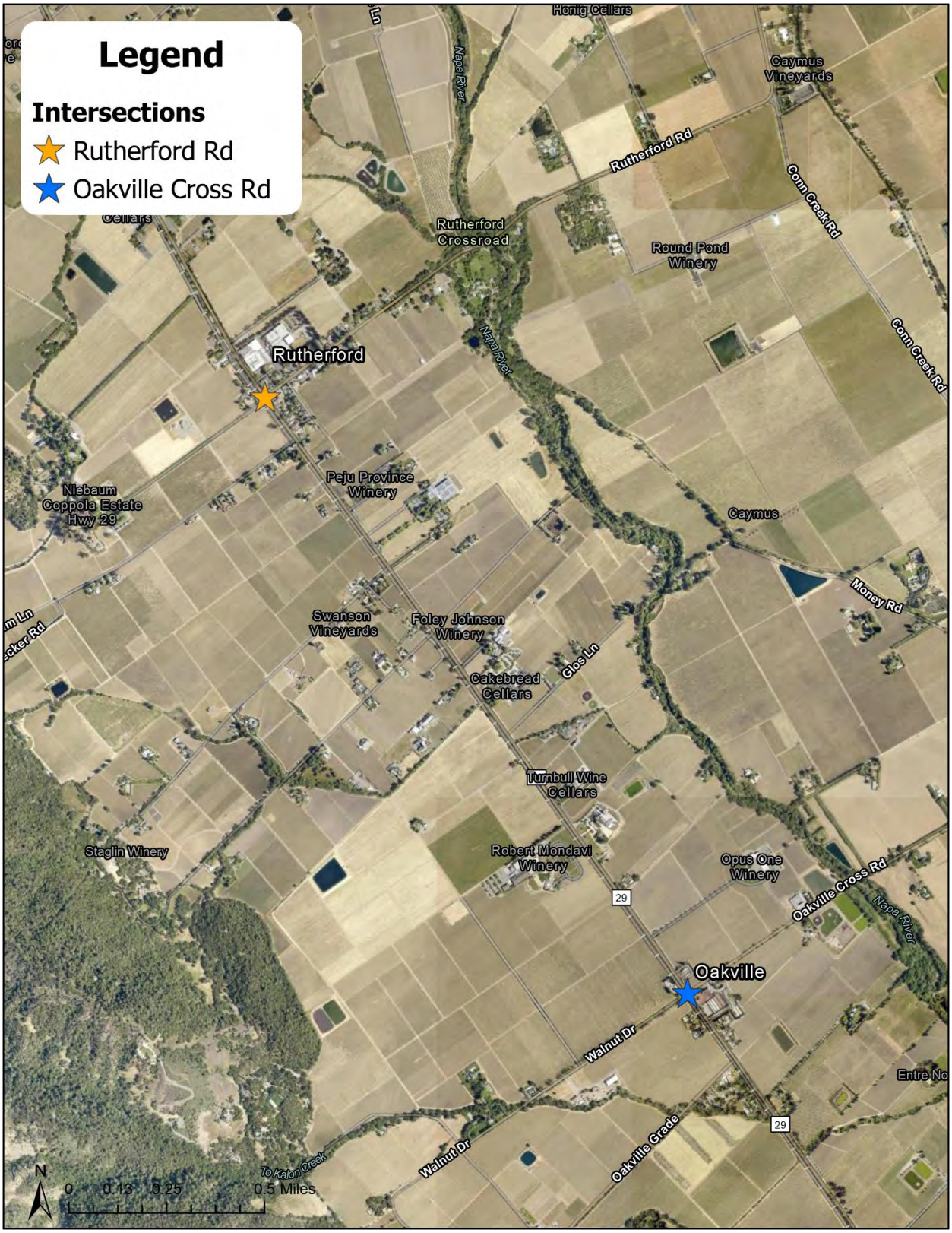
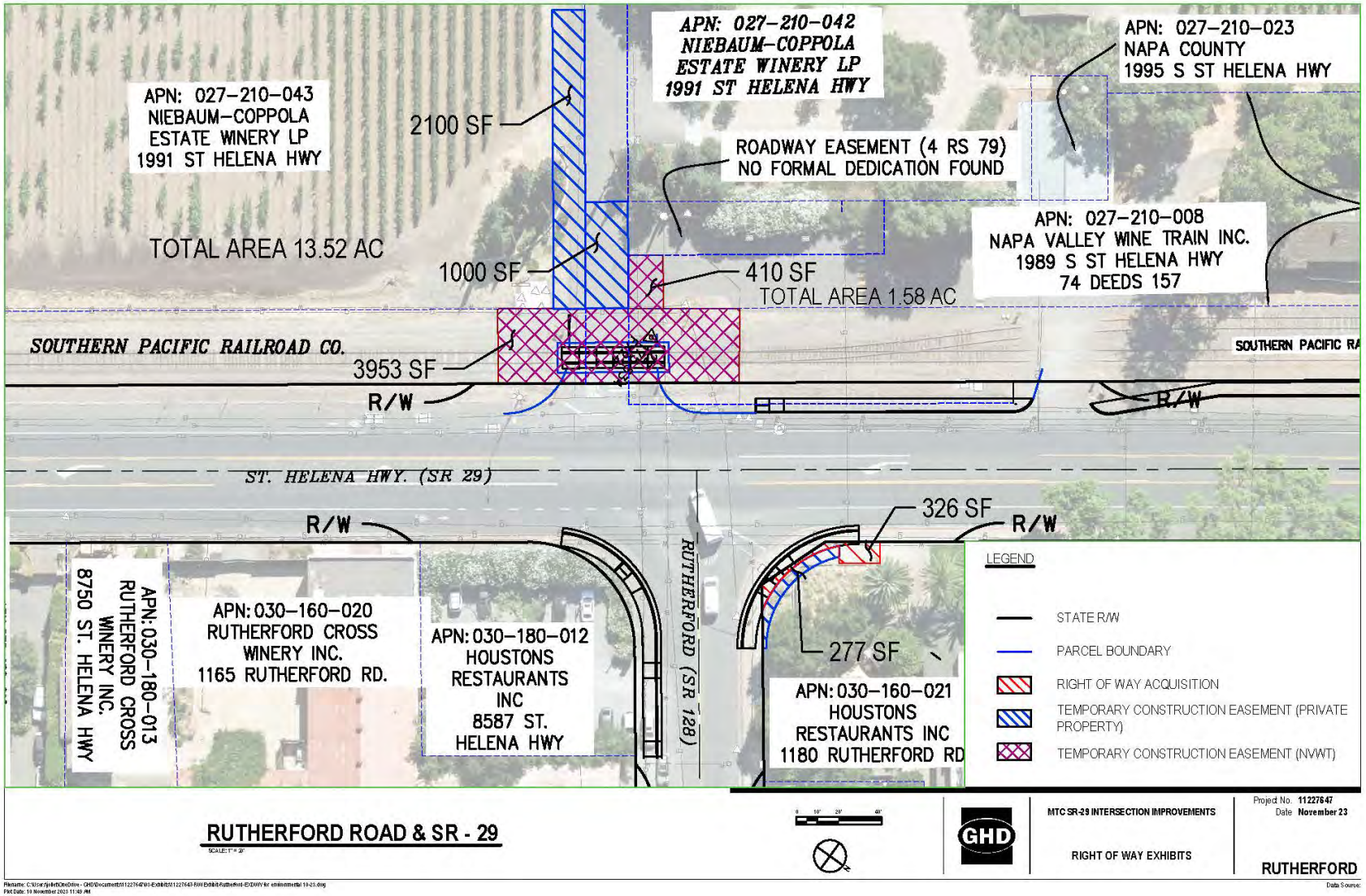


Figure 2-3. Project Footprint

2.1.1 RUTHERFORD ROAD INTERSECTION

The existing SR 29/Rutherford Road intersection is asphalt paved. It is an unsignalized T-intersection with an unnamed privately owned driveway located opposite and offset from Rutherford Road on the west side of SR 29. There is no existing stop control along SR 29 at the intersection. Rutherford Road and the unnamed privately owned driveway have stop signs at the intersection of SR 29. On the northeast corner of the intersection is the Rutherford Grill and a United States Post Office. Southeast of the intersection is the Elizabeth Spencer Winery, with residences and commercial structures located further south. The southwest parcel supports vineyards. Located on the northwest parcel is the Rutherford Fire Department and a vineyard.

Figure 2-4. Rutherford Road Intersection Aerial



Source: GHD 2023

On the west side, the SR 29 corridor is bordered by the NVWT railroad right of way. The NVWT operates six to nine trains per day, depending on the season on a single track.

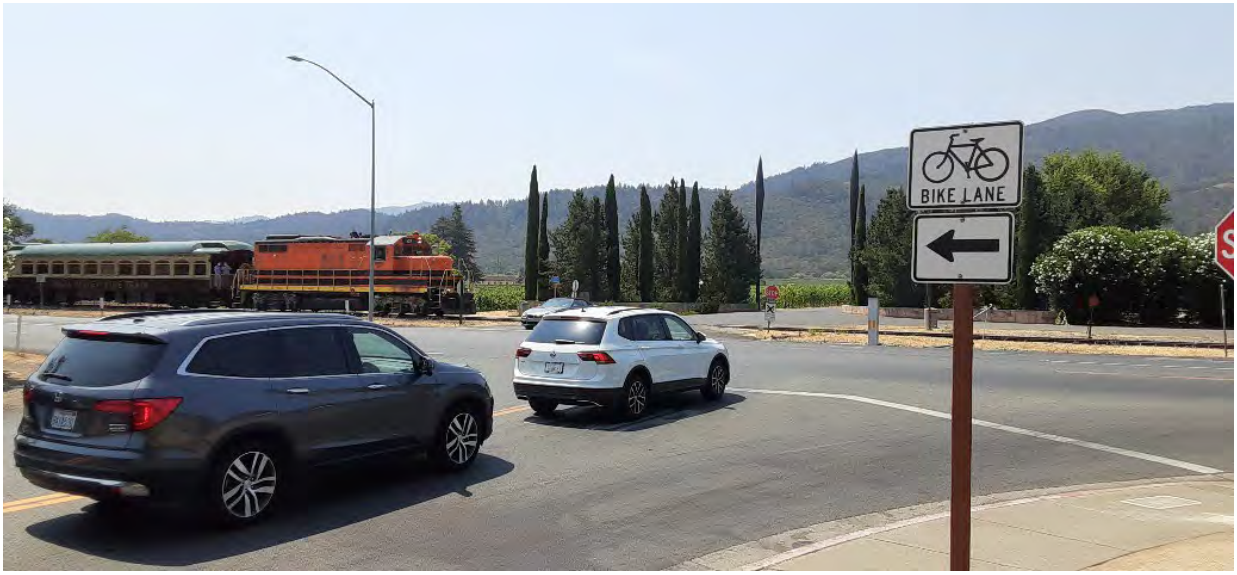
At Rutherford Road, the NVWT track crosses an existing privately owned driveway, which provides access to the parcels on the west side of the track.

Figure 2-5. Napa Valley Wine Train Crossing at Rutherford Road and SR 29: Approach from west

The intersection area is relatively flat with the existing crossing constructed at grade with asphalt concrete. There are no railroad crossing panels, gate or existing curb, gutter, or sidewalks at or near the crossing. There is no fence separating track from SR 29.

~~Because the crossing is offset to the south of the intersection and connects to the private driveway, there are no railroad crossing gates and signal~~.

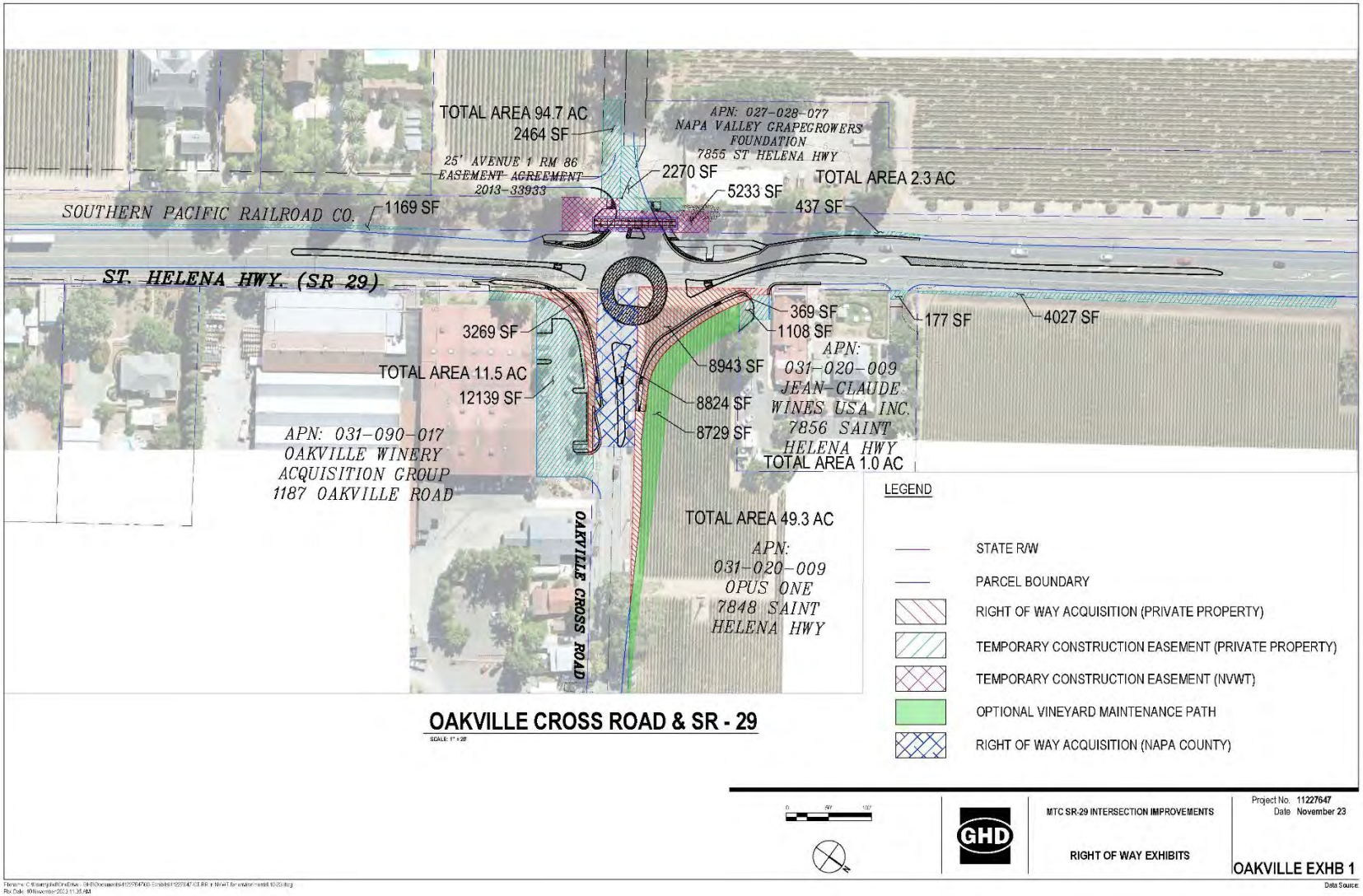
Figure 2-6. Napa Valley Wine Train Crossing at Rutherford Road and SR 29: Approach from east



2.1.2 OAKVILLE CROSS ROAD INTERSECTION

The intersection is an asphalt paved, unsignalized intersection. The roadways crossing SR 29 are known as Oakville Cross Road on the east of SR 29 and Walnut Lane west of SR 29. The Oakville Grocery structure and vineyard sits on the northeast corner of the intersection with two driveways providing access from/to SR 29. A sidewalk wraps around the southeast parcel, surrounding the Napa Wine Company and parking lot. A Class II bikeway runs north and south on SR 29. The southwest parcel is mainly vineyards, with a set of residences located further south of the intersection. On the northwest parcel, a small structure housing a commercial business sits on the corner in addition to vineyards.

Figure 2-7. Oakville Cross Road Aerial



Source: GHD 2023

On the west side, the existing SR 29 corridor is bordered by NVWT railroad right of way. At Oakville Cross Road, the NVWT track crosses an existing privately owned driveway, which provides access to the parcels on the west side of the track.

Figure 2-8 Walnut Lane and SR 29, Looking east

The existing crossing is constructed with asphalt concrete. There are no railroad crossing panels, gate, existing curb, gutter, or sidewalks at or near the crossing. There is no existing fence separating track from the SR 29. The crossing is private access and thus the reason for the absence of the railroad crossing gates and signal.

2.2 ENVIRONMENTAL SETTING

2.2.1 AESTHETICS

A Visual Impact Assessment was prepared for the project and approved by Caltrans (WSP 2023) (refer to Appendix A).

The Project intersections at Rutherford and Oakville are set in rural locations along the main thoroughfare of SR 29, which offers wide lanes and shoulders to accommodate bikers and automobiles as they travel through the scenic vineyard landscape of Napa Valley. The SR 29 corridor stretches through regionally acclaimed vineyards and local wineries. The lack of condensed urbanization and multi-storied buildings surrounding the corridor provide an unfiltered horizon line with additional views of mountain ridgelines, green hillsides, and valleys in the distance. Late-nineteenth and early-twentieth century architectural resources, including a rural mercantile and a historic rail line may also be considered distinct visual features along the roadway. On either side of the corridor, mature trees, ornamental landscaping, and agricultural vineyards obscure direct views of adjacent commercial land use and provide continuity and intactness between the roadway and the vast agricultural landscape.

Local businesses such as the Oakville Grocery in Oakville and Rutherford Grill in Rutherford are built in a historic style, and the scale of these buildings create a small, rural village character. Land uses along the Project corridor are primarily exurban, supporting low-density housing and commercial businesses, such as wineries, restaurants, grocery stores, and a post office. Much of the remaining surrounding area is used for the cultivation and harvest of grapes for wine production.

The visual character and quality of the Rutherford Road intersection are characterized by street signs, lighting, ornamental landscaping, and the adjacent train tracks and fire station. The 1902 Rutherford Depot and the Napa Valley Wine Train tracks are present on the eastern side of the intersection. The Napa Valley Wine Train is eligible as a California Point of Interest for its historical significance between ca. 1860 to ca. 1920. Roadside vegetation, foliage, as well as ornamental landscaping provide a focused view of the roadway blocking the vast agricultural landscape that surrounds the corridor. This dominated view of the roadway provides a strong corridor focused view with the skyline, surrounding vegetation, and roadway creating a cohesive image. However, roadway signage reduces intactness somewhat, the large-scale vegetation obscures views of the horizon, and the vast agricultural landscape that surrounds the corridor on either side minimizes impacts to visual quality.

The roadway corridor at the Oakville Cross Road intersection stretches through regionally acclaimed vineyards and local wineries. The lack of condensed urbanization and multi-storied buildings surrounding the corridor provide an unfiltered horizon line with additional views of mountain ridgelines, green hillsides, and valleys in the distance. Late-nineteenth and early-twentieth century architectural resources, including a rural mercantile and a historic rail line, may also be considered distinct visual features along the roadway. On either side of the corridor, mature trees, ornamental landscaping, and agricultural vineyards obscure direct views of adjacent commercial land use and provide continuity and intactness between the roadway and the vast agricultural landscape.

Architectural resources that reside within the Oakville Cross Road intersection's visual corridor include the Oakville Grocery and the Durrant House. The Oakville Grocery, built in 1921, resides on the northeast side of the Oakville Cross Road intersection providing historical significance of feeling, time, and place. The Durrant House, located behind the Oakville Grocery on the north side, was built in 1885 and provides historical 1885 significance in its exterior integrity that preserves the original rural interpretation of the Italianate-style of architecture.

According to the California State Scenic Highway System Map (California Department of Transportation, 2021), there are no officially designated State Scenic Highways within the Project vicinity. However, SR 29 is eligible for listing as a State Scenic Highway.

2.2.2 AGRICULTURE

Napa County is in the American Viticultural Area (AVA) of the northern California wine region and is known for the hundreds of hillside vineyards. The project is located in a corridor lined by prime farmland with urban and built-up land scattered along the

corridor, as mapped by the California Important Farmland Finder. Prime farmland is irrigated land with the best combination of physical and chemical features able to sustain long term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Urban and Built-Up land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel.[1]

2.2.3 AIR QUALITY

An Air Quality Report, approved by Caltrans, was prepared for the project and is included as Appendix B. The project site is in proximity to the communities of Rutherford and Oakville in Napa County, an area within the San Francisco Bay Area Air Basin, which also includes Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. Air quality regulation in San Francisco Bay Area Air Basin is administered by the Bay Area Air Quality Management District (BAAQMD).

The air pollution potential in the Napa Valley could be high if there were sufficient sources of air contaminants nearby. Summer and fall prevailing winds can transport ozone precursors northward from the Carquinez Strait Region to the Napa Valley, effectively trapping and concentrating the pollutants when stable conditions are present. The local upslope and downslope flows created by the surrounding mountains may also recirculate pollutants already present, contributing to buildup of air pollution. The Napa Valley is bordered by relatively high mountains. With an average ridge line height of about 2000 feet, with some peaks approaching 3000 to 4000 feet, these mountains are effective barriers to the prevailing northwesterly winds. High ozone concentrations are a potential problem to sensitive crops such as wine grapes, as well as to human health. The high frequency of light winds and stable conditions during the late fall and winter contribute to the buildup of particulate matter from motor vehicles, agriculture and wood burning in fireplaces and stoves.

2.2.3.1 CRITERIA POLLUTANTS AND ATTAINMENT STATUS

The project area is designated as “nonattainment” for the 2008 federal ozone standard, the 2015 federal ozone standard, and the 2006 federal $PM_{2.5}$ standard. Additionally, the project area is nonattainment for the state ozone, PM_{10}, and $PM_{2.5}$ standards. Table 2-1 lists the state and federal attainment status for all regulated pollutants.

Table 2-2 lists air quality trends in data collected at Napa-Valley College for the past 3 years. The Napa-Valley College station is the closest monitoring station to the project site, located 13 miles to the southeast. Several exceedances of the State 1-hour ozone, State and Federal 8-hour ozone, State 24-hour PM_{10} and Federal 24-hour $PM_{2.5}$ standards were recorded during the 2019 – 2021 period.

[1] California Department of Conservation. *California Important Farmland Finder*, https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed February 13, 2023.

Table 2-1. State and Federal Attainment Status

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment	Marginal Nonattainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment-Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Marginal Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment-Unclassified
Nitrogen Dioxide (NO_2)	Attainment	Attainment-Unclassified
Sulfur Dioxide (SO_2)	Attainment	Attainment-Unclassified
Lead (Pb)	Attainment	Attainment-Unclassified
Visibility-Reducing Particles	Unclassified	N/A
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Vinyl Chloride	N/A	N/A

Source: ARB, http://www.arb.ca.gov/desig/adm/adm.htm

Table 2-2. Air Quality Concentrations for the Past 3 Years Measured at Napa-Valley College

Pollutant	Standard	2019	2020	2021
Ozone				
Max 1-hr concentration		0.095	0.091	0.070
No. days exceeded: State	0.09 ppm	1	0	0
Max 8-hr concentration: State	-	0.077	0.077	0.064
Max 8-hr concentration: Federal:	-	0.076	0.076	0.064
No. days exceeded: State	0.070 ppm	2	1	0
No. days exceeded: Federal	0.070 ppm	2	1	0
PM_{10}				
Max 24-hr concentration: State	-	39.0	125.0	24.0
Max 24-hr concentration: Federal	-	37.5	122.9	22.9
No. days exceeded: State	50 µg/m^3	0	2	0
No. days exceeded: Federal	150 µg/m^3	0	0	0
Annual average concentration		*	19.0	*
No. days exceeded: State	20 µg/m^3	-	-	-

Pollutant	Standard	2019	2020	2021
$PM_{2.5}$				
Max 24-hr concentration		21.5	148.5	17.6
No. days exceeded: Federal	35 µg/m^3	0	14.7	*
Annual average concentration: State	-	6.0	10.4	*
Annual average concentration: Federal	-	5.9	10.3	*
No. days exceeded: State	12 µg/m^3	-	-	-
No. days exceeded: Federal	12.0 µg/m^3	-	-	-
Nitrogen Dioxide				
Max 1-hr concentration: State	-	36	29	29
Max 1-hr concentration: Federal	-	36.6	29.9	29.0
No. days exceeded: State	0.18 ppm	0	0	0
No. days exceeded: Federal	100 ppb	0	0	0
Annual average concentration: State	-	4	4	*
Annual average concentration: Federal	-	-	-	-
No. days exceeded: State	0.030 ppm	-	-	-
No. days exceeded: Federal	53 ppb	-	-	-

Notes:
2022 data is not yet available from ARB.
* means there was insufficient data available to determine the value
- means not available
Source: California Air Resources Board: http://www.arb.ca.gov/adam/welcome.html

Mobile Source Air Toxics

Sources of emissions of priority Mobile Source Air Toxics (MSAT) pollutants in the project area are from passenger and freight vehicles traveling on roadways. There are no other nearby facilities that serve on- or off-road motor vehicles, such as rail yards or transit terminals. There is no ambient MSAT concentration data available in the project vicinity.

Greenhouse Gas Emissions

According to the 2015 GHG inventory in the *2017 Clean Air Plan*, the transportation sector contributed 40 percent of the estimated CO_2e GHG emissions in the Bay Area that year.

Sensitive Receptors

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive populations that are in proximity to

localized sources of toxics and CO are of particular concern. Sensitive receptors for air quality include residential areas, schools, hospitals, other health care facilities, child/day care facilities, parks, and playgrounds. Research shows that the zone of greatest concern near roadways is within 500 feet (or 150 meters). Sensitive receptors within 500 feet (or 150 meters) of the two intersections affected by the proposed project include single family homes.

2.2.4 BIOLOGICAL RESOURCES

A Natural Environment Study - Minimal Impact (NESMI) was prepared for the project and approved by Caltrans (refer to Appendix C). The NESMI identifies any special-status plant and wildlife species and sensitive habitats that have the potential to occur on or in the vicinity of the project site. The assessment includes literature and database searches in the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database, California Native Plant Society's Inventory of Rare and Endangered Plants, US Department of Agriculture Natural Resource Conservation Service Web Soil Survey, US Fish and Wildlife Service (USFWS) Information for Planning and Consultation, and USFWS National Wetland Inventory. In addition to the database search, a reconnaissance field survey was conducted on September 9, 2021, by a WSP biologist to determine what species might have potential to be present on the project site. The survey methods were intended to identify land cover/land use, suitable habitat for migratory birds, raptor nests, and habitat for special status species. Where the habitat allowed the surveyor to walk without risk of damaging nests or dens and surrounding vegetation, the survey included a physical search of the area. This included inspecting the ground, shrubs, and trees for the presence of any wildlife species. The information and data collected for the habitat assessment have been used as the basis of this biological resources analysis.

A California Natural Diversity Database (CNDDB) search identified one species of concern with potential to occur within 3 miles of the project area: the foothill yellow-legged frog. The foothill yellow-legged frog is a Federal Species of Concern. It is the only species for which habitat is mapped in CNDDB for this project. According to CNDDB, the entire Rutherford USGS 7.5-minute Quadrangle map is considered yellow-legged frog habitat, but there is no suitable breeding habitat for this species within the project area. Adult frogs typically congregate at breeding sites during the reproductive season and then disperse following reproductive activity. Seasonal movements occur among breeding, post breeding summer, and overwintering habitats. Movement data on foothill yellow-legged frogs is limited to a few studies at this time, but it is likely that frogs are more mobile than commonly believed and likely utilize a wide range of watershed features including different order tributaries. Foothill yellow-legged frog upland habitat use and movement are poorly understood; however, anecdotal observations suggest that foothill yellow-legged frogs utilize upland habitat in relative proximity to streams, particularly in more mesic parts of California. There are no recorded occurrences in CNDDB within one mile of the project, but there are several recorded instances within three miles of the project area. No suitable habitat for this species was observed during a field visit in September 2021.

To account for local concerns, field survey for Swainson's Hawk and the California red-legged frog was also completed in September 2021. Swainson's hawks are protected under the MBTA and CFGC §§ 3503, 3503.5, and 3800 that prohibit the take, possession, or destruction of birds, their nests, or eggs. According to CNDDB, there was one known Swainson's hawk nest that was recorded in 2013 approximately 0.5 mile from SR 29 along the Napa River approximately 1 mile from both Rutherford and Oakville intersections. It appears that the nest tree could be within direct line of sight from SR 29 along Glos Lane. The California red-legged frog is listed under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA) as Threatened. There are no recorded occurrences of the red-legged frog was recorded in CNDDB within 3 miles of the project area. No suitable habitat for either of these species was observed during the field visit, nor were Swainson's hawks or unoccupied raptor nests observed.

The Project footprint is located outside of the National Oceanic and Atmospheric Administration (NOAA) Fisheries jurisdiction. According to the California Essential Habitat Connectivity Project data, the Project footprint is not located in an Essential Connectivity Area of California. In addition, the Information for Planning and Consultation (IPaC) report lists Birds of Conservation Concern as potentially occurring in the vicinity of the Project footprint either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.

2.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

A Cultural Resources Review memo was prepared in support of this IS/MND (WSP, 2023; Appendix D). The CEQA Cultural Resources Review memo is based upon several technical studies that were prepared in consultation with Caltrans to identify cultural and tribal resources near the project site. The following is a list of draft technical studies that are available to qualified viewers at the Caltrans District 4 Office (111 Grand Ave Oakland, CA 94612).:

- An Historic Property Survey Report includes the archaeological resources and historical resources survey results and a record of tribal outreach.
- All project correspondence for this report.
- The State Historic Preservation Office determinations and property documents.
- A Historic Resources Evaluation Report that identifies and records previously identify and record previously unrecorded architectural resources in the APE, resurveys previously recorded resources in the APE and assess the potential eligibility of these resources.
- An extended Phase I and Archeological Survey Report summarizes the pedestrian archeological survey that included an analysis of six archeological sites that extend horizontally into the Area of Direct Impact identified for the project.

- An Environmentally Sensitive Area Action Plan for the Proposed Napa Forward Intersection Improvements Project (ESA Action Plan) was prepared in accordance with the Caltrans Section 106 Programmatic Agreement/5024 Memorandum of Understanding (MOU to support a Finding of No Adverse Effect with Standard Conditions – ESA under Stipulation X.B.1.a. for the State Route 29 Improvements Project. It is intended to ensure that provisions for the protection of archaeological sites and historic properties identified in the project Area of Potential Effect (APE) are carried out.

- A Finding of No Adverse Effect was prepared to summarize findings from the Historic Property Survey Report (HPSR), Historical Resources Evaluation Report (HRER), and the Archaeological Survey Report (ASR) and document the findings.

2.2.5.1 HISTORICAL/ARCHITECTURAL RESOURCES

The project is located in the two communities of Rutherford and Oakville. These communities are located along SR 29 and developed in the mid-nineteenth century as agricultural and viticultural communities in the heart of Napa Valley. Both communities historically had railroad depots with modest commercial and residential development in the mid-1870s and late 1880s concurrent with a boom in the wine industry. Oakville gained a post office in 1857 and Rutherford followed suit in 1871. The 1871 Rutherford post office purportedly now functions as the tasting room for the Elizabeth Spencer Winery. Other downtown Rutherford businesses included a grocery and general merchandise store at the turn of the twentieth century, now the site of the Rutherford Grill at the corner of SR 29 and Rutherford Road.

A total of twelve architectural resources are within the Project's Area of Potential Effect (APE). Of these resources, one had been previously listed in the NRHP, one had been previously determined eligible for listing in the NRHP, and one had been previously determined not eligible for listing in the NRHP. Of the remaining nine resources, none appear eligible for listing in the NRHP or CRHR.

Of these architectural resources, the Oakville Grocery is the only resource listed in the National Register of Historic Places (NRHP) at the local level of significance under Criterion A for its association with events that have made a significant contribution to the broad patterns of our history in the area of commerce. The grocery is also a historical resource for the purposes of CEQA. Locally, the Oakville Grocery is the only surviving example of a 1920s mercantile. Its period of significance is ca. 1921- 1940. The resource boundary is the building and the southwest quarter of the Napa County Assessor's Parcel Number 031-020-010-000, which has historically been associated with the building, excluding non-contributing resources.

The Durant House, located at 7862 SR 29, Oakville, is eligible for the NRHP at the local level of significance under Criterion C as an example of rural interpretation of the Italianate style of architecture. Its period of significance is 1885, the year it was constructed. The house is also a historical resource for purposes of CEQA. The historic

resource boundary includes the building and the northwest quarter of the Napa County Assessor's Parcel Number 031-020-010-000, which has historically been associated with the building.

All resources are also historical resources for purposes of CEQA.

2.2.5.2 ARCHAEOLOGICAL RESOURCES

[redacted]

[redacted]

[redacted]

2.2.5.3 TRIBAL CULTURAL RESOURCES/SACRED LANDS

A Sacred Lands File search was requested from the Native American Heritage Commission (NAHC). A response was received on April 22, 2022, indicating that sacred lands have been identified within the vicinity of the project. The NAHC recommended consultation with tribal entities and other interested parties be conducted as part of the review process and provided a list of contacts specific to Napa County for that purpose. Tribal consultation letters were drafted by MTC and distributed to the identified 13 tribal representatives by email or mail on August 18 and 28, 2022. This letter formally invited tribal representatives to consult on the proposed SR 29 Improvements Project. Scott Gabaldon of the Mishewal-Wappo Tribe of Alexander Valley, responded by email on August 21, 2022, and requested that the Tribe be involved in all ground disturbance aspects of the project. Laverne Bill of the Yocha Dehe Wintun Nation, in a letter dated October 3, 2022, declined to comment on the project, and deferred correspondence to the Mishewal-Wappo Tribe of Alexander Valley and Middletown Rancheria.

[redacted]

Documentation of correspondence with the NAHC and identified tribal representatives is provided in Appendix D. The Mishewal-Wappo Tribe was contacted prior to archaeological field surveys held in November 2022, and invited to accompany the archaeologists. No response was received from the tribe and no tribal monitors accompanied the survey team. MTC will continue to involve the Tribe in monitoring opportunities, including during construction. As of the drafting of this document, no tribal cultural resources have been identified during consultation.

2.2.6 GEOLOGY AND SOILS

The project area is underlain by alluvium and terrace of Pliocene to Holocene age formations[3]. The project is not located in an Alquist-Priolo Earthquake fault zone that requires special studies for structures for human occupancy. The closest fault is the West Napa Fault located approximately 7 miles south from Oakville Intersection, and 9.3 miles south from Rutherford Intersection. The Rodgers Creek Fault Zone is located approximately 13.5 miles to the west. The areas surrounding the project area at the Rutherford and Oakville intersections have a moderate earthquake liquefaction susceptibility rating[4] . Subsurface soils near Rutherford Road are characterized as Bale clay loam with 0 to 2 percent slopes and soils near Oakville Road are Bale loam with 0 to 2 percent slopes. Both soil groups are within Hydrologic Soil Group B and have moderately low runoff potential and moderately high infiltration (USDA, 2023).

2.2.7 HAZARDS AND HAZARDOUS MATERIALS

A Phase I Initial Site Assessment (ISA) (GEOCON 2022) included in Appendix E was generated to identify subsurface conditions and hazardous materials associated in the Project Area. An initial site assessment for the project area identified potential pesticide impacts to soil from historical agricultural land use, potential herbicides, polyaromatic hydrocarbons (PAH), and metals associated with the railroad ROW, potential hydrocarbon impacts from historic roadway uses, and aerially deposited lead (ADL) primarily due to historic leaded fuel emissions from automobile exhaust and typical roadway uses.

Federal, state, and local environmental databases were searched within one mile of the project site (GeoCheck, September 27, 2022). Active groundwater monitoring wells were not identified within ¼-mile of the project limits.

The existing intersection does not appear on regulatory database listings. Two adjacent properties proposed for partial ROW acquisition are included in database listings as former Leaking Underground Storage Tank (LUST) sites. The locations of the LUST facilities are currently operating as The Napa Wine Company located at 7830 St. Helena Highway (APN 031-090-017-000) and a neighboring wine facility at 1187

[3] Caltrans. *Caltrans Water Quality Planning Tool*. 2023, http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx. Accessed July 26, 2023.
[4] Metropolitan Transportation Commission. *MTC/ABAG Hazard Viewer Map*. 2023, https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8. Accessed July 26, 2023.

Oakville Cross Road. One additional adjacent site coinciding with the location of Oakville Grocery at 7856 St. Helena Highway (APN 031-020-010-000) is listed as an Underground Storage Tank (UST) non-release site.

One property is included in database listings as former LUST site within ¼-mile of the project site. The property was a former hardware store with a documented underground gasoline storage tank, located approximately 500 feet east of the site. The property was granted closure by the San Francisco Regional Water Quality Control Board (SFRWQCB) in 1998 and has a low potential to have caused an impact to the project area.

2.2.7.1 7830 ST. HELENA HIGHWAY (SR 29) & 1187 OAKVILLE CROSS ROAD

The property located at the southeast corner of SR 29 and Oakville Cross Road (7830 St. Helena Highway) is currently occupied by The Napa Wine Company. Four gasoline USTs and two septic tanks were removed from a former service station that operated previously at the site. The tanks were previously located in the current parking lot area proposed for partial ROW acquisition and reconstruction. Additionally, one underground diesel and one gasoline UST were removed from a former agricultural maintenance facility adjacent to the east of the former service station (1187 Oakville Cross Road). Petroleum impacts to soil, groundwater, and soil vapor were investigated subsequent to the removal of the tanks. The combined sites were granted low-threat closure from the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) in 2018.

2.2.7.2 7856 ST. HELENA HIGHWAY

The search lists the property near the northeast corner of the SR 29/Oakville Cross Road as a UST facility. The property, currently occupied by Oakville Grocery, does not appear on Geotracker or Envirostor. The southern periphery of the parcel is located within the area of proposed partial ROW acquisition. Property records received from Napa County did not indicate the presence of a permitted UST or indicate environmental concerns.

2.2.7.3 VINEYARDS

Use of the area for agricultural purposes may have resulted in contamination from pesticide applications.

2.2.7.4 RAILROAD RIGHT OF WAY

Soil in the railway area may contain contamination such as metals, herbicides, and polyaromatic hydrocarbons (PAHs) used for weed suppression and railroad tie preservation.

2.2.8 HYDROLOGY AND WATER QUALITY

A Water Quality Assessment Report was produced for the Project and is included in Appendix F. The Project area is entirely contained within an undefined hydrologic sub-

area (206.50) of the Napa River hydrologic area and San Pablo hydrologic unit. The Project's receiving water body is the Napa River. The San Francisco Bay RWQCB lists the Napa River as having beneficial uses and being pollutant impaired. The Project is entirely located within the Napa Valley groundwater subbasin (2-002.01) of the Napa-Sonoma Valley groundwater basin.

Stormwater at the Oakville Cross Road intersection flows away from the roadway's centerline towards the eastern and western edges of the roadway and then through several conveyance systems. South of the intersection, gutter systems run parallel to the roadway, conveying stormwater south. An existing stormwater system composed of several inlets captures the runoff and discharges to a grassy ditch running parallel to the SR 29 northbound lane and adjacent to the right of way line. Stormwater runoff northwest of the intersection along the southbound lane is collected by an existing ditch and conveyed northwest away from the Project limits. Runoff within the stretch of roadway along the northbound lane, northeast of the intersection, sheet flows to the adjacent properties onto the vineyards. Stormwater ultimately drains to the Napa River, which is located about 0.5 mile east of the Oakville Cross Road intersection.

The drainage pattern for the Rutherford Road intersection is similar to that of the Oakville Cross Road intersection. Stormwater sheet flows away from the SR 29 centerline and concentrates along the roadway outer edges to be conveyed away from the Project limits. Stormwater also drains to the Napa River, which is located approximately 0.5 mile east of the Rutherford Road intersection.

2.2.9 LAND USE AND PLANNING

The project is surrounded mostly by parcels zoned for Agricultural Preserve district (AP), and by parcels zoned for commercial limited district (CL) and residential single building site (RS:B-1) at the intersections.[5]

The AP district classification is intended to be applied in the fertile valley and foothill areas of Napa County in which agriculture is and should continue to be the predominant land use, where uses incompatible to agriculture should be precluded and where the development of urban type uses would be detrimental to the continuance of agriculture and the maintenance of open space which are economic and aesthetic attributes and assets of the county.

The intent of the CL district classification is to establish areas, which will provide the tourist, vacationer and highway traveler with needed uses and services.

The RS district classification is intended to be applied in appropriate locations to allow residential developments of varying population density to meet the housing needs of present and future population in the unincorporated area in accordance with the county's general plan. RS districts will be located within established urban areas where existing urban services and facilities are adequate to serve the intended development.

[5] County of Napa. *Zoning Map*, https://www.countyofnapa.org/DocumentCenter/View/8436/Napa-County-Zoning-Map?bidId=. Accessed July 2023.

Limited RS development is intended to assist in the preservation of the natural and agricultural resources of the county. The building site combination district (RS:B-1) classification is intended to be applied in land areas where existing or proposed development, topography, soil conditions or lack of availability of public facilities, utilities and services indicate a need for building sites of greater area than that required in the principal zoning district.

2.2.10 MINERAL RESOURCES

The project is not located on a mineral resource recovery site as identified in the County of Napa General Plan Conservation Element.[6]

2.2.11 NOISE

A Noise Study Report, approved by Caltrans, was generated for the Project and is included in Appendix G. Additionally, a Vibration Damage Risk Assessment to the Oakville Grocery was conducted to specifically address vibration concerns to the only affected structure located beyond the construction limits and is included in Appendix H. The project is located in a semi-rural area on a segment of SR 29 that passes through a tourist focused part of Napa Valley. Uses that line both sides of SR 29 include vineyards, wineries and tasting rooms, storefronts, hotel/motels, residences, and public services such as the fire station.

A field investigation was conducted in September 2022, to identify land uses that could be subject to traffic and construction noise impacts from the project. Land uses in the project area have been grouped into a series of lettered analysis areas that are identified in the Noise Study Report (NSR) prepared for this project and here forth referred to as Noise Study Areas (NSA). Each of these analysis areas is considered to be acoustically equivalent.

- Area A: Area A is located on the east side of SR 29 north of Oakville Cross Road. A single residential unit and an outdoor eating area of the Oakville Grocery Store are located in this area. This area is generally flat and provides no topographic shielding to the residential unit. Vineyards are located in the project area but have no outdoor uses and therefore are not noise sensitive.

- Area B: Area B is located on the west side of SR 29 north of Oakville Cross Road. This area is generally flat. No sensitive land uses were found in this area. The land use is primarily agriculture with no outdoor uses.

- Area C: Area C is located on the east side of SR 29 south of Oakville Cross Road. A commercial winery is located in this area. Outdoor areas immediately adjacent to the commercial land uses are parking lots. Therefore, no outdoor areas associated with the commercial uses are considered to be areas of

[6] County of Napa. *General Plan Conservation Element*. 2009, https://www.countyofnapa.org/DocumentCenter/View/3337/Conservation-Element-PDF. Accessed July 2023.

frequent human use. The ground is generally flat for the majority of this area but slopes away from the highway at the residential developments. An existing six-foot sound barrier is located between the highway and the residential area. No topographic shielding occurs at the residential units.

- Area D: Area D is located on the west side of SR 29 south of Oakville Cross Road. Residential and agricultural land uses are located in this area. An existing eight-foot property wall shields the highway and this area.

2.2.12 POPULATION AND HOUSING

Residential uses abut SR 29 within the project corridor south of the Oakville Cross Road intersection. Residential uses are present along both sides of SR 29 as well as east along Rutherford Road.

2.2.13 RECREATION

The nearest park to the project corridor is the Napa County Regional Park, located approximately 7 miles to the east of the project corridor.

2.2.14 TRANSPORTATION

A Traffic Operations Analysis Report, included in Appendix I, was generated to identify existing transportation facilities as well as evaluate traffic operations for roundabout alternative and a traffic signal alternative.

Transportation Facilities

SR 29 is a two-lane, north-south conventional highway with discontinuous two-way-left-turn lanes (TWLTL) between the two subject intersections. The highway serves residential, commercial and agricultural land uses within the County of Napa. North of Rutherford Road, SR 29 and SR 129 are contiguous. Further south of the study intersection locations, SR 29 and SR 121, as well as SR 29 and SR 12 are contiguous. The posted speed limit along SR 29 within the study area ranges from 40 to 50 miles per hour (mph) between Rutherford Road and just north of Madison Street. Just south of Madison Street, SR 29 becomes a four-lane divided highway, and the speed limit increases to 55 mph.

Rutherford Road, contiguous with SR 128, is a two-lane, east-west highway located in the community of Rutherford that serves residential and commercial land uses. It connects to one of three SR 29 study intersections to the west, forming the east leg of the study intersection, and becomes Conn Creek Road/SR 128 to the east. The posted speed limit on Rutherford Road near the study intersection is 30 mph.

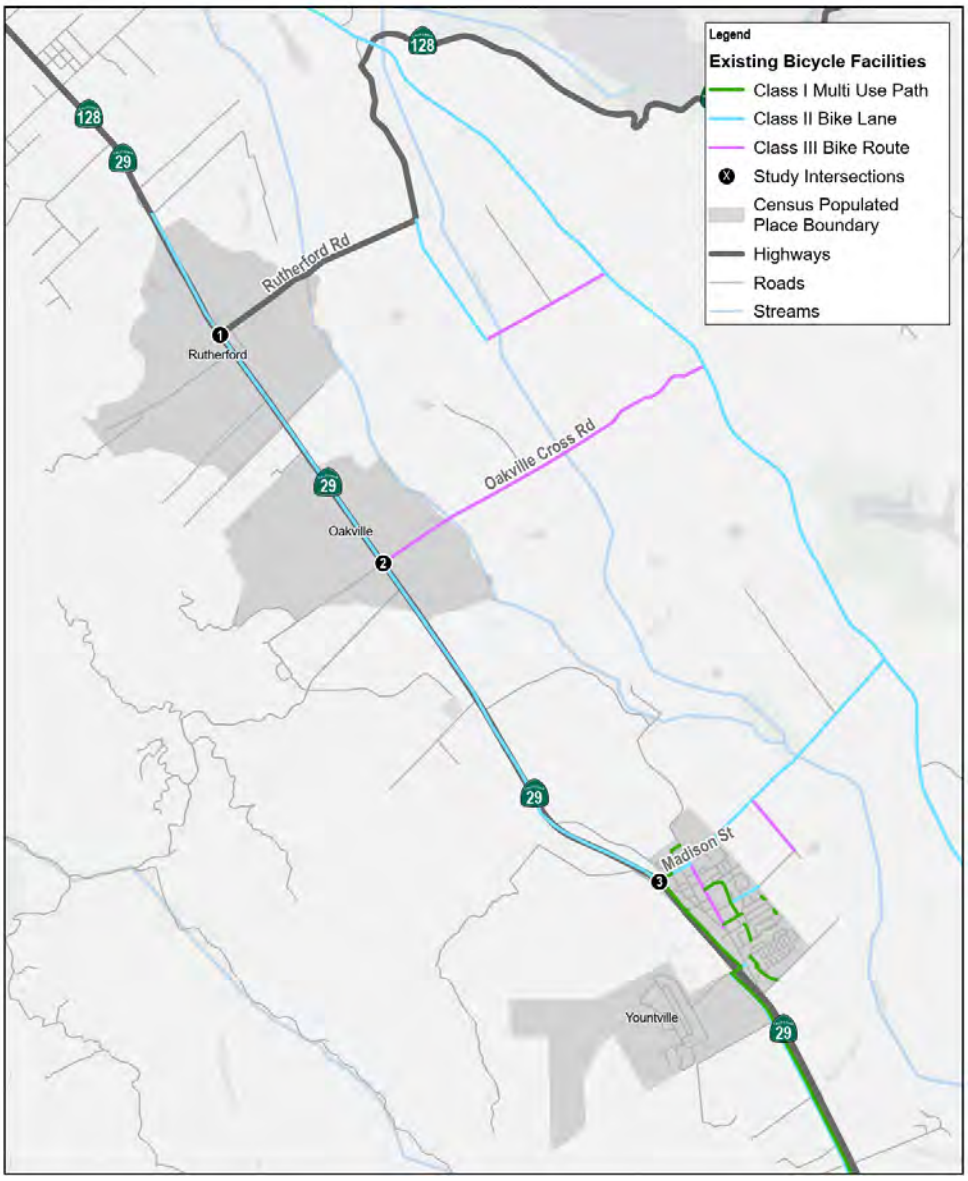
Oakville Cross Road is a two-lane, east-west collector roadway located in the community of Oakville that serves commercial and agricultural uses. It connects to one of three SR 29 study intersections to the west, forming the east leg of the study intersection, and connects to Silverado Trail to the east. There is no posted speed limit

on Oakville Cross Road other than a 25-mph zone near the bridge over the Napa River, about 0.5 miles to the east of SR 29. There are 30 mph advisory signs along the eastern segment of the roadway.

Bicycle Facilities

A Class II bicycle facility exists on SR 29 between Rutherford Road and Madison Street. A Class III bicycle facility exists on Oakville Cross Road between SR 29 and Silverado Trail.

Figure 2-9. Existing Bicycle Facilities



Source: GHD, July 2022

Pedestrian Facilities

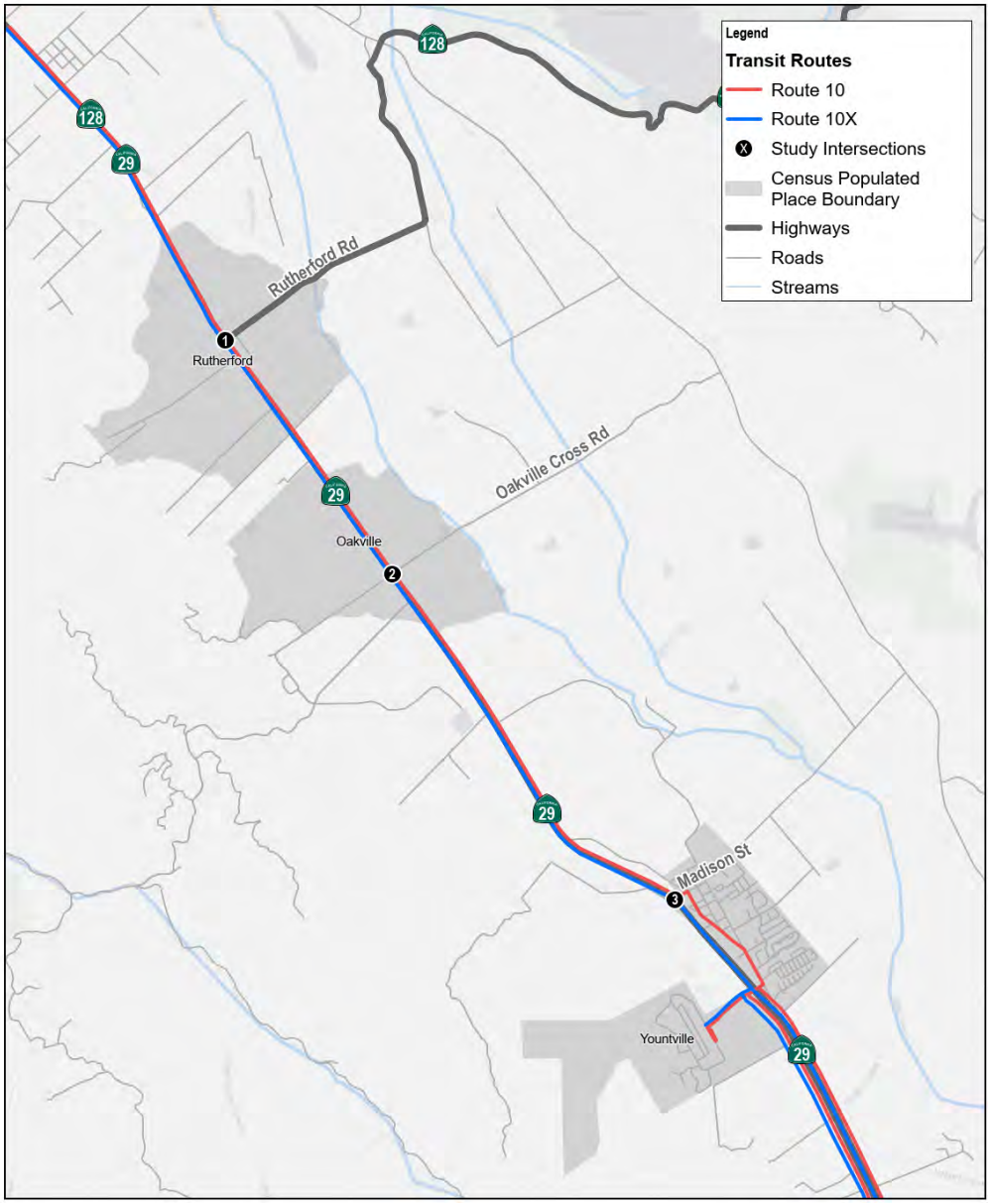
A curb ramp exists at the northeast corner of the SR 29 and Rutherford Road/SR128 intersection with sidewalk segments that wrap around the same corner. The sidewalk continues for about 700 feet to the east along the north side of Rutherford Road and about 150 feet north from the intersection along the east side of SR 29. There are no other sidewalks or curb ramps, and no marked crosswalks at the study intersection.

There is a curb ramp at the southeast corner of the SR 29 and Oakville Cross Road intersection, with sidewalk segments that wrap around the same corner. The sidewalk continues for about 200 feet to the east along the south side of Oakville Cross Road and about 450 feet south from the intersection along the east side of SR 29. There are no other sidewalks or curb ramps, and no marked crosswalks at the study intersection.

Transit Services

Transit service along SR 29 between the study intersection includes two Vine Transit bus routes operated by the NVTA. These routes include Routes 10 and 10X, which both run from Napa to Calistoga. Route 10 provides local service between Napa Valley College and Calistoga, while Route 10x provides express service between the SoCal Gateway Transit Center and Calistoga.

Figure 2-10 Existing Transit Routes



Source: GHD, July 2022

Rail Activity

The Napa Wine Train is a privately owned train operator that serves as a tourist activity for Napa Valley's winemaking region, beginning at the Napa Train Station in downtown Napa and ending in St. Helena. The train runs along the Napa Valley Railroad adjacent to the west side of SR 29. While the Napa Wine Train schedule is adjusted frequently to match customer demands, the train currently facilitates six to nine trains per day with crossings occurring at the study intersections between 10:15 a.m. and 8:20 p.m.

2.2.15 UTILITIES

Existing utilities lines are present within the SR 29 right of way, including telephone, City of Napa (Water), City of Saint Helena (Water), cable, and PG&E natural gas and electric lines. Existing stormdrains also exist within the ROW.

2.2.16 WILDFIRE

The project is located less than a mile from lands classified as very high and high fire hazard severity zones by the State Fire Marshal to the east and west of the corridor.[7]

2.3 PROJECT CHARACTERISTICS

The MTC, in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of SR 29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road, (PM 24.59). In January 2020, MTC completed a traffic operations analysis to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that enhanced intersection control at the two intersections would improve multimodal traffic operations performance along SR 29. ~~Preliminary crash data analysis provided by Caltrans indicates that the total rate of fatal and injury crash at these two intersections are above the average crash rate for similar facilities statewide.~~ Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

The FHWA studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor. A single-lane roundabout is proposed at the intersection of SR 29 and Oakville Cross Road. Due to right of -way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR 29/ Rutherford Road.

2.3.1 RUTHERFORD ROAD INTERSECTION

At the Rutherford Road intersection, the project proposes the construction of a traffic signal, extensions and improvements to bicyclist and pedestrian facilities, and restriping along the mainline. In addition, a bus only pullout would be constructed along SR 29. The limits of improvements on SR 29 would extend approximately 0.5 miles northerly

[7] Office of the State Fire Marshal. *Fire Hazard Severity Zones in State Responsibility Area*, https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/. Accessed February 3, 2023.

and southerly from the center of the Rutherford Road intersection, and approximately 500 feet easterly along Rutherford Road.

Due to the proximity to the Napa Wine Train tracks, railroad crossings improvements will be needed at this intersection as described in Real Property Acquisition Section below.

2.3.2 OAKVILLE CROSS ROAD INTERSECTION

At the Oakville Cross Road intersection, the project proposes the construction of a roundabout, bicyclist and pedestrian infrastructure improvements (including bike route, sidewalk, crosswalks and bulb outs), center medians along the mainline, and the installation of lighting.

The limits of construction on SR 29 extend approximately 0.5 miles northerly and southerly from the center of the Oakville Cross Road intersection, approximately 500 feet in easterly direction along Oakville Cross Road, and approximately 200 feet in the westerly direction at the existing driveway crossing the railroad tracks.

The Oakville roundabout would maintain existing traffic patterns; however, ingress to the Oakville grocery would be modified to right-in and right-out only. The project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather traffic would be routed through the roundabout to access the grocery. Construction of the roundabout also would include the installation of intersection lighting, a pedestrian and bicyclist shared use path with bike ramps, and splitter islands with curb ramps. In addition, the existing drainage system would be used to accommodate the proposed roundabout, and the existing signage within the right of way would be replaced or upgraded.

The existing channelization at the intersection of SR 29 and Oakville Grade Road may be restriped as part of the mainline improvement required for the construction of the roundabout at the intersection of SR 29 and Oakville Cross Road.

Due to the proximity to the Napa Wine Train tracks, railroad crossings improvements will be needed at this intersection as described in Real Property Acquisition Section below.

2.3.3 REAL PROPERTY ACQUISITION

Figures 2.4 and 2.7 illustrate and quantify the anticipated right of way acquisition that would be required from the adjacent parcels.

2.3.3.1 RUTHERFORD ROAD

As shown in Figure 2-4 at the Rutherford Road intersection, right of way would be required from the parcel at the northeast corner, Houston Restaurants Inc., 1180 Rutherford Road. At the southeast corner, all work is anticipated to be completed within the existing right of way. Upon the completion of right of way acquisition, the newly

acquired land becomes part of the state right of way. At the west side, near the existing railroad crossing, the Inglenook Winery driveway would remain at its current location. The anticipated construction activities consist of pavement approaches on both sides of the track and some striping and new signage. Additionally, temporary construction easements (TCE) would be required from NVWT, Houston Restaurants Inc. and the other affected parcels in order to complete all phases of construction. The proposed project would not impact the rails and would not change the rail's elevation. The construction activities at the railroad crossing are proposed to occur during the train's non-operational hours.

a permanent construction easement will be required from NVWT to reconstruct the driveway on the west side of SR 29. Upon the completion of the right of way acquisition, the newly acquired lands would become part of the state highway right of way. The work on the west side of SR 29 at this intersection would not impact the rails, railroad ties, or the elevation of the rails. As part of the traffic signal construction, the project proposes to grind and overlay the existing pavement adjacent to the track on both sides of the crossing, construct curb, gutter, and a sidewalk east of the railroad tracks. The existing drainage culvert under the driveway would be extended and existing utility boxes would be adjusted to grade. The materials used to overlay the pavement will include hot mixed asphalt concrete. All curbs, gutters and sidewalks will be constructed with concrete. The project would reconstruct curb returns to accommodate truck turns and place new striping on the pavement.

2.3.3.2 OAKVILLE CROSS ROAD

As shown in Figure 2-7, the roundabout construction at Oakville Cross Road would require take from the Napa Wine Company (APN-031-090-017), Opus One (APN 031-020-009) properties and Jean-Claude Wines USA Inc. (APN 031-020-009). The Napa Wine Company's parking lot would require reconfiguration and result in the loss of a few of the parking stalls, and access to the parking lot will be limited to one driveway. The Opus One's vineyard will be impacted and would require removal of some of the existing vines. The Jean-Claude Wines USA Inc. southerly driveway would be partially reconstructed to conform to the existing grades and driveway layout. Upon the completion of right of way acquisition, the newly acquired lands would become part of the state right of way. Additionally, a portion of Oakville Cross Road, owned by Napa County, will be transferred to the State as part of the construction of the roundabout. At the west side, at the existing railroad crossing, the private driveway is proposed to remain at its current location. The anticipated construction activities consist of widening the driveway to conform to the proposed roundabout design, constructing pavement approaches on both sides of the track, and installing signage and striping. Additionally, TCEs would be required from the NVWT, Napa Wine Company, Opus One and the other affected parcels in order to complete all phases of construction. The proposed project would not impact the rails and does not change the rails elevation.

As part of the roundabout construction, the project proposes to reconstruct the existing pavement adjacent to the track on both side of the crossing. The project would also construct a curb, gutter, and a sidewalk east of the railroad tracks. The materials used

to reconstruct the pavement will include aggregate and hot mixed asphalt concrete. All curbs, gutters and sidewalks will be constructed with concrete. Additionally, a small traffic island is proposed immediately east of the track. The depth of reconstruction is anticipated to be 3 feet or less. Construction at the driveway will be completed during NVWT's non-operation times; therefore, the construction of the proposed roundabout would not impact the NVWT train operations. CONSTRUCTION INFORMATION

2.3.4 TIMEFRAME

MTC anticipates that project construction would begin in the Summer of ~~2024~~ 2025 and require approximately 16 months to complete. Construction would take place within the hours defined in section 8.16.080 of the Napa Municipal Code, which is generally defined as between the hours of 7:00 a.m. to 7:00 p.m.

2.3.5 CONSTRUCTION ACTIVITIES

Project construction activities would include demolition, site preparation, grading and excavation, and paving. Impact pile driving is not anticipated as a method of construction. Equipment to be used would include, but not necessarily be limited to, excavators, backhoes, front end loaders, scrapers, graders, concrete saws, cranes, jackhammers, winches, chainsaws, forklifts, rollers, asphalt road pavers, compactors, air compressors, generator sets, and pneumatic tools. A variety of trucks including cement mixers, haul trucks, and water trucks would also be required.

Site preparation, including demolition, clearing, and grading of the project site as necessary would require the removal and off-haul of materials. This would include, but not necessarily be limited to, vegetation, concrete, asphalt and fill, and certain existing utilities that may be relocated within the existing right of way. The project does not propose removing trees or existing plants at the Rutherford Road intersection. A portion of the existing landscape area in the southeast corner is proposed to be removed as part of the roundabout construction at the Oakville Cross intersection. The proposed area of landscape removal is included in the right of way acquisition as shown in Figure 2-4 and 2-7.

2.3.6 TEMPORARY CONSTRUCTION EASEMENTS

2.3.6.1 RUTHERFORD ROAD

To construct the proposed traffic signal, the project will require a TCE) from NVWT as well as Houston Restaurants Inc. After the project construction is complete, all TCE areas will be restored in accordance with the agreements made with each property owner. The right of way needed to install the traffic signal would also encroach onto the parcel located on the northeast corner (where Houston Restaurants Inc. is located). The project would reconstruct the irrigation system, stone wall, and landscaping impacted on this parcel.

2.3.6.2 OAKVILLE CROSS ROAD

To construct the proposed roundabout, the project would require TCEs from the NVWT as well as Napa Wine Company, Opus One Winery and the Oakville Grocery store. After the project construction is complete, all TCE areas would be restored in accordance with the agreements made with each property owner.

The roundabout would impact the southeast corner parcel of the intersection, on which the Napa Wine Company is located. The project would result in the temporary loss of all parking during reconstruction of the parking lot as shown in Figure 2-7. Reconstruction of the existing parking lot consists of excavation to a depth of 3 feet or less, removal and disposal of the excavated materials, constructing pavement with hot mixed asphalt, and concrete to construct curb, gutters and sidewalk. In addition to reconstruction of the parking lot, existing parking lot lighting would be relocated. The existing landscape and irrigation on the corner of the parcel would also be temporarily removed and reconfigured during replacement.

The roundabout would impact the northeast corner parcel of the intersection, on which the Oakville Grocery is located. To fit the roundabout, a portion of the established vineyard would be removed and access around the vineyard would be relocated. Due to this acquisition, the existing irrigation system and fence would need to be reconstructed.

2.4 AGENCY APPROVALS NEEDED

The project may require the following approvals:

- Adoption of the Mitigated Negative Declaration by MTC Board;
- Approval of the Project Study Report (PSR)/Project Report (PR) and Supplemental (PSR/PR) by Caltrans;
- Issuance of a NEPA Categorical Exemption (CE) by Caltrans; and
- General Construction Permit approval from the State Water Resources Control Board for disturbance of one or more acres of soil.
- County Right of Way encroachment Permit

2.5 TRIBAL CONSULTATION

Public Resources Code 21080.3.1 and Chapter 532 Statues of 2014 (i.e., AB 52) requires 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.

A Sacred Lands File search was requested from the Native American Heritage Commission (NAHC). A response was received on April 22, 2022, indicating that sacred lands have been identified within the vicinity of the project.

Initial outreach letters were sent to tribal organizations on the NAHC contact list on August 18, 2022. MTC received requests for notification of ground disturbance from tribes, including the Mishewal-Wappo Tribe of Alexander Valley and the Yocha Dehe Wintun Nation. MTC initiated contact with these Native American tribes as part of preparing this MND. Follow-up coordination and emails were sent regarding the project. Please refer to Chapter 3, Tribal Cultural Resources, for additional information.

3 California Environmental Quality Act (CEQA) Evaluation

3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

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

3.2 DETERMINATION

On the basis of this initial evaluation:

☐ I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the proposed project MAY have a “potentially significant impact” on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects: 1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and 2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature: **Date:**

Pamela Kwan, P.E., MTC
Assistant Director, Capital Program Delivery
Metropolitan Transportation Commission

3.3 CEQA ENVIRONMENTAL CHECKLIST

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below.

3.3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

Question	CEQA Determination
a) Have a substantial adverse effect on a scenic vista?	Less Than Significant with Mitigation Incorporated
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less Than Significant Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less Than Significant Impact

3.3.1.1 CEQA SIGNIFICANCE DETERMINATIONS FOR AESTHETICS

a) <u>Less than Significant</u>

Napa County is in the American Viticultural Area (AVA) of the northern California wine region and is known for hillside vineyards. Located within the North Coast appellation of the AVA, Napa Valley is 50 miles northeast of San Francisco and is one of the world's famous wine regions with notable views of the local mountain ranges. The landscape is

characterized by the nearby wineries and vineyards, along with the Mayacamas Mountains visible to the west and natural rural landscaping that offers the area a “wine country” atmosphere. According to the Napa County General Plan, Rutherford Road, Oakville Cross Road and SR 29 are all county-designated scenic roads. Land uses along the project corridor are primarily exurban, supporting low-density housing and commercial businesses, such as wineries, restaurants, grocery stores, and post office. Much of the remaining surrounding area is used for the cultivation and harvest of grapes for wine production. The proposed project would add new visual elements as part of the roadway environment, but they would be contained within the existing roadway right of way and, therefore, would not impact views of the scenic vistas as seen from SR 29.

Development of the roundabout at the Oakville intersection would require the acquisition of additional ROW resulting in removal of the ornamental landscaping in front of the Napa Wine Co. and Opus Winery and a portion of the vineyard south of the Oakville Grocery. The addition of sidewalks at the northeast corner of the Oakville intersection would also result in the removal of a large, mature pine tree located in close proximity to the proposed improvements (as illustrated in Figure 8 of the VIA, included as Appendix A). Additionally, the eastern-most extent of roadway improvements along Oakville Cross Road would be in close proximity to a cluster of oaks. Any grading, trenching or paving work within the dripline of these trees could result in damage to oaks adjacent to the ROW (**Impact AES-1**). It is the intent of the project to retain all oak trees. Implementation of **MM-AES-1** would ensure that the project would not result in impacts to oaks.

Vegetation removal at the Oakville intersection would increase the visual dominance of the roadway. However, aesthetic treatments, including the retention of existing vegetation that blocks or obscures views of the Project and the replacement of affected landscaping, would help neutralize these adverse impacts for most roadway neighbors. Additionally, none of the tree species to be removed as part of the Project are protected under the City of Napa’s tree protection policies.

The installation of new traffic signals at the Rutherford Road intersection would require acquisition of new ROW from Houston Restaurants to accommodate shifting the northside driveway, adjusting utility boxes, and providing new pavement and striping. These improvements are not expected to result in the removal of existing plants or trees.

The overall Resource Change would be low for both intersections. The proposed improvements would be compatible with the existing visual quality of the corridor and would retain the integrity and character of the adjacent architectural resources. Vegetation removal will be limited and where possible, landscaped areas will be restored in a manner that is compatible and consistent with existing landscaping. Therefore, impacts on scenic vistas would be *less than significant with mitigation*.

The following mitigation measure shall be required:

MM-AES-1 Protection of Oaks

During the Plans, Specifications, and Estimate (PS&E) phase, it shall be demonstrated that all oaks will be avoided. Specifically, the roadway improvements along the eastern extent of Oakville Cross Road would taper to an existing meet point just past the maintenance access path that runs perpendicular to Oakville Cross Road and before the first oak tree in that row. The control point for street modifications along Oakville Cross Road is the second driveway into the Napa Wine Co. and Opus Winery, which is about 60' north of the oak trees. Should the roadway taper need to be shifted or shortened to avoid the dripline of the oak trees, there is sufficient room to adjust the taper. Prior to completion of PS&E, the location of the oak trees will be surveyed to identify their exact location and the design shall be adjusted as needed to avoid conflicts.

a) No impact

The project is located on SR 29 and SR-128 (Rutherford Road), both of which are eligible state scenic highways according to the California State Scenic Highway System Map. There would be *no impact* to scenic resources within a state scenic highway because the project is not located on a listed state scenic highway.

b) Less than Significant

The project is located in an unurbanized area of mostly farmland with segments of small communities scattered along SR 29.

The project would add a roundabout, additional medians, and a traffic light to the roadway to ease congestion along the corridor and increase safety for roadway travelers. These improvements would occur within the existing roadway and therefore not impede on the current visual resources. Existing vegetation, land cover, and topography would not change substantially and continue to block or obscure views of the roadway for most roadway neighbors.

Construction activities and equipment can introduce temporary changes that may impact the visual quality and character of the existing environment. Brightly colored construction equipment, construction signage, traffic control devices, flaggers, and other temporary impacts such as dust generation and freshly cleared areas could temporarily reduce visual quality and character. However, these effects would be short-term, limited in scale, and are a relatively common occurrence in urbanized and semi-urbanized areas. Construction site best management practices, such as limiting vegetation removal, keeping the site clean and orderly, and requiring additional street sweepers and water trucks for construction activities likely to produce dust, could be implemented to reduce the effects of construction activities on visual quality and character.

The proposed traffic signal at the Rutherford Road Intersection is anticipated to have a minimal visual impact to present roadway conditions. The project elements would be compatible and unified with the existing visual environment, limiting changes to existing vegetation, landscaping, and trees adjacent to the project area. This vegetation offers natural visual elements and softens or blocks views of the roadway, traffic signal, vehicular traffic, and other roadway elements for roadway neighbors. Likewise, it is not anticipated for the Project to alter the setting or feeling for historic resources in the vicinity.

The proposed roundabout at Oakville Road would add visual elements to present roadway conditions. It is anticipated that roadway users would have direct views to proposed elements such as new pavement, lane striping and signage; however, resource changes are anticipated to remain compatible and unified with the existing visual environment. Vegetation (trees, foliage, ornamental landscaping) will offer natural visual elements and soften views of roadway, signage, vehicular traffic, and other roadway elements for roadway neighbors. Although viewers may be subject to views of project elements, including the installation of new landscaping, intersection lighting, a pedestrian and bicyclist shared use path with bike ramps, and splitter islands with curb ramps, the new elements would be compatible and coherent with the existing roadway corridor.

Therefore, impacts on the existing visual character or quality of public views would be *less than significant*.

c) <u>Less than Significant</u>

The proposed traffic signal would add a new light source; however, it would be of low intensity and hooded to direct light toward vehicles within the corridor. The project is located in an urbanized corridor within the Napa area surrounded by agricultural land with existing light poles at both intersections. New streetlights would be installed at the intersections but would not significantly increase the intensity of lighting in a way that would affect nighttime views. The new streetlights would be installed to comply with Nighttime Sky-Title 24 and Napa County outdoor lighting standards. Therefore, impacts would be *less than significant*.

3.3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and

the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

Question	CEQA Determination
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Less Than Significant Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	No Impact

3.3.2.1 CEQA SIGNIFICANCE DETERMINATIONS FOR AGRICULTURE AND FORESTRY RESOURCES

a) <u>Less than Significant</u>

At the Oakville Cross Road intersection, the project would require right of way from the adjoining established Opus One Winery vineyard at the northeast corner of the intersection. Upon the completion of the right of way acquisition, the newly acquired lands become part of the state highway right of way. The project would also require a TCE from Opus One Winery. After the project construction is complete, all TCE areas will be restored in accordance with the agreements made with each property owner. The remaining vineyard land would not be impacted by construction or operation of the roundabout.

This portion of the Opus One Winery vineyard is categorized as Prime Farmland by the California Department of Conservation as noted on the California Important Farmland Finder.[8] Approximately 0.96-acre is mapped within area of direct impact for the project. This represents 0.002% of Napa County's Prime Farmland. The 0.96 acre take at this location would not impact the viability of the rest of the vineyard's production and

[8] California Department of Conservation. *California Important Farmland Finder*. https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed February 13, 2023.

operation. Therefore, the project would not result in the in the conversion of important farmland to a non-agricultural use.

There are no impacts to agricultural land at the Rutherford Road intersection.

Therefore, impacts would be *less than significant*.

b) No Impact

Multiple parcels under a Williamson Act contract are located within the project footprint. No parcels with an active Williamson Act contract would be impacted by the project. No conflicts with agricultural zoning are anticipated. Therefore, there would be *no impact*.

c, d) No Impact

There are no forests or timberlands within the project limits. Therefore, there would be *no impact.*

e) No Impact

There are no other changes anticipated to farmland or forest land. Therefore, there would be *no impact.*

3.3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

Question	CEQA Determination
a) Conflict with or obstruct implementation of the applicable air quality plan?	Less Than Significant Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Less Than Significant with Mitigation Incorporated
c) Expose sensitive receptors to substantial pollutant concentrations?	Less Than Significant Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less Than Significant Impact

3.3.3.1 REGULATORY SETTING

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality, while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB), set standards for the

concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO); nitrogen dioxide (NO_2); ozone (O_3); particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$); Lead (Pb); and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

The Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the CO Protocol was designed to address federal standards, it has been recommended for use by several air pollution control districts in their CEQA analysis guidance documents and should also be valid for California standards because the key criterion (8-hour concentration) is similar: 9 ppm for the federal standard and 9.0 ppm for the state standard. The transportation conformity requirements for CO ceased to apply on June 1, 2018. In order to determine the project-level CO impacts of the proposed project, guidance from the CO Protocol was applied.

CEQA requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA documents address CCAA requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA and the CCAA.

In 2017, the BAAQMD released the latest update to its CEQA Guidelines. This is an advisory document that provides the Lead Agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components:

1) Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;

2) Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;

3) Methods available to mitigate air quality impacts;

4) Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality regulatory setting, climate, topography[9]

In April 2022, the BAAQMD adopted CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. This document presents thresholds of significance for use in determining whether a proposed project will have a significant impact on climate change and provides the substantial evidence that lead agencies will need to support their use of these thresholds. The BAAQMD is in the process of preparing Updated CEQA Guidelines for applying these thresholds of significance[10].

Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the San Francisco Bay Area Air Basin. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard both in coordination with the MTC and the Association of Bay Area Governments (ABAG).

In April 2017, the BAAQMD adopted the 2017 Clean Air Plan, which provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the BAAQMD will continue progress toward attainment of all state and federal air quality standards and elimination of health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

[9] Bay Area Air Quality Management District (BAAQMD). May 2017. *California Environmental Quality Act Air Quality Guidelines*.
[10] Bay Area Air Quality Management District (BAAQMD). *CEQA Thresholds and Guidelines Update*, 2022, https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-actceqa/updated-ceqa-guidelines. Accessed March 2023.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as PM, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of CO_2 by reducing fossil fuel combustion.

3.3.3.2 CEQA SIGNIFICANCE DETERMINATIONS FOR AIR QUALITY

a) Less than Significant Impact

The BAAQMD 2017 Clean Air Plan, Spare the Air-Cool the Climate (2017 Plan) is the most recently adopted regional air quality plan that pertains to the project. The 2017 Plan focuses on two closely related goals: protecting public health and protecting the climate. The 2017 Plan is a multi-pollutant air quality plan addressing four categories of air pollutants:

- Ground-level ozone and the key ozone precursor pollutants (reactive organic gases and oxides of nitrogen), as required by State law;
- Particulate matter (PM), primarily PM2.5, as well as the precursors to secondary PM2.5;
- Toxic air contaminants; and
- Greenhouse gases.

The 2017 Plan includes 85 control measures in nine economic sectors: 1) stationary sources; 2) transportation (mobile) sources; 3) energy; 4) buildings; 5) agriculture; 6) natural and working lands; 7) waste management; 8) water; and 9) super-GHG pollutants. The project would not prevent the BAAQMD from implementing these actions, and none directly apply to the project. Furthermore, the project is non-VMT inducing and therefore, would not result in additional emissions beyond those accounted for in the Air Quality Plan. The project would not preclude implementation of the 2017 Clean Air Plan. Therefore, the project would have a *less than significant* impact.

b) Less than Significant Impact with Mitigation Incorporated

The project is located within the San Francisco Bay Area Air Basin, which is considered a non-attainment area for the 2008 federal ozone standard, the 2015 federal ozone standard, and the 2006 federal $PM_{2.5}$ standard. Additionally, the proposed project area is nonattainment for the state ozone, PM_{10}, and $PM_{2.5}$ standards. As part of an effort to attain and maintain ambient air quality standards for ozone, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds apply to both construction period and operational period impacts.

Construction

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment would include CO, nitrogen oxide (NO_X), volatile organic compounds (VOCs) / reactive organic gasses (ROG), SO_2, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_X and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, existing asphalt removal, and paving of roadway surfaces. Construction-related effects on air quality would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs to be of concern.

In addition to dust related PM_{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_X, VOCs and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions.

Construction-related air pollutant emissions associated with the proposed project were estimated using the Sacramento Metropolitan Air Quality Management District (SMAQMD)'s Roadway Construction Emissions Model (RCEM), version 9.0.1. The RCEM is used to estimate emissions from construction of roadway projects throughout California. RCEM emissions output is provided in Appendix C of the Air Quality Report (Appendix B). The results were then compared to the BAAQMD thresholds of significance for criteria pollutants. Table 3-1 shows average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. The average daily emissions were calculated using the total construction-generated emissions and an estimated 264 working days (12 months, 22 working days per month). As shown in the table, the project's estimated construction emissions would not exceed the BAAQMD's recommended thresholds of significance. The impact of construction-related activities on local and regional air quality would be less than significant.

Table 3-1. Estimated Short-term Construction Emissions (pounds per day)

	ROG	NO_X	PM_{10}	$PM_{2.5}$
Project Average Daily Construction Exhaust Emissions	3.19	30.53	1.32	1.18
BAAQMD Thresholds	54	54	82	54
Threshold Exceeded?	*No*	*No*	*No*	*No*

The BAAQMD does not recommend a numerical threshold for fugitive dust from construction activities. Instead, the BAAQMD bases the determination of significance for fugitive dust on a consideration of control measures to be implemented. Fugitive dust

impacts are generally considered potentially significant (**Impact AQ-1**) in the absence of those measures. If the basic construction measures recommended by the BAAQMD are implemented for a project, then fugitive dust emissions during construction are not considered significant.

To limit dust, criteria pollutants, and precursor emissions associated with the construction activity, the following BAAQMD recommended Basic Construction Measures will be included in construction contract specifications for the project, along with Caltrans' Standard Specifications in Section 14-9 (2022). Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

The following mitigation measure shall be required:

MM-AQ-1: Final Specifications for the Project shall include the following dust control measures for the Project, as recommended by BAAQMD:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;
- All vehicle speeds on unpaved areas shall be limited to 15 miles per hour (mph);
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph;
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site;
- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel;

- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Caltrans' Standard Specifications Section 14-9:

- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions.

- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.

- Trucks will be washed as they leave the right of way as necessary to control fugitive dust emissions.

- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114.

- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

- Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.

- Areas near sensitive air receptors will be designated environmentally sensitive areas. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.

- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.

- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.

- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions.

- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown PM in the area.

Therefore, with implementation with **MM-AQ-1** the proposed project would meet the BAAQMD's construction-related threshold for fugitive dust (PM_{10} and $PM_{2.5}$). The construction-related impact would be *less than significant with mitigation*.

Operation

The Proposed Project is an intersection safety and operations project that would not increase the capacity of SR 29, VMT or increase diesel traffic. This type of project improves highway operations by reducing traffic congestion at existing intersections and improving merge operations. Regional VMT are expected to increase over time due to regional growth not associated with the project. Despite increases in VMT, emissions are expected to decrease over time due to improvements in fuel efficiency and vehicle technology. The estimated change in pollutant burden with the Project, when compared to the existing conditions, varies by pollutant. Emissions of ROG, NOX, and CO would decrease in the opening year, design year, and Regional Transportation Plan (RTP) horizon year when compared to existing conditions, while emissions of PM10 and PM2.5 would increase. PM emission increases are a result of increased road dust, tire wear, and brake wear emissions tied to increased VMT in future years due to regional growth not associated with the project. The results of the regional emissions analysis provided in Appendix B are shown in Table 3-2.

CO

Based on the criteria listed in the CO Protocol, the project would not significantly increase CO such that there would be significant impact. The project does not include any parking facilities where vehicles would be cold started. Therefore, the proposed project would not affect cold start percentages in the area. The proposed project would not increase traffic volumes and is expected to improve traffic flow. As a result, the Proposed Project does not require further project-level CO hot-spot analysis, and CO impacts from project operations would be *less than significant*.

PM

The estimated $PM_{2.5}$ and PM_{10} pollutant burdens would not change with implementation of the project when compared to the existing condition. However, PM_{10} emissions in the study area would increase approximately 9 percent in the opening year, 19 percent in the design year, and 41 percent in the RTP horizon year with the Project when compared to existing conditions. $PM_{2.5}$ emissions in the study area would increase approximately 7 percent in the opening year, 15 percent in the design year, and 33 percent in the RTP horizon year with the Project when compared to existing conditions. PM emission increases are a result of increased road dust, tire wear, and brake wear

emissions tied to increased VMT in future years due to regional growth not associated with the project.

Table 3-2. Regional Emissions Burden Summary

Scenario	Daily Vehicle Miles Traveled (VMT)[1]	Emission Burdens (pounds/day)					Emission Burdens (MT/day)[2]
		ROG	NO_x	CO	PM_{10}	$PM_{2.5}$	CO_2e
2022 Existing	45,100	5.9	19.7	102.6	14.4	2.8	15.5
2025 No-Build	49,330	5.5	15.6	89.2	15.6	3.0	15.7
2025 Build	49,330	5.5	15.6	89.2	15.6	3.0	15.7
2035 No-Build	54,621	4.2	8.3	65.0	17.2	3.2	13.9
2035 Build	54,621	4.2	8.3	65.0	17.2	3.2	13.9
2050 No-Buil	63,615	3.5	6.0	64.8	20.4	3.7	14.4
2050 Build	63,615	3.5	6.0	64.8	20.4	3.7	14.4
2025 % Change from Existing	9%	-7%	-21%	-13%	9%	7%	1%
2025 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2035 % Change from Existing	21%	-29%	-58%	-37%	19%	15%	-10%
2035 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2050 % Change from Existing	41%	-40%	-70%	-37%	41%	33%	-7%
2050 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

[1] Estimated based on AADT and study area, which includes a 2.2-mile segment of SR-29
[2] MT = metric tons
Source: ARB, http://www.arb.ca.gov/desig/adm/adm.htm

Because the project is in a $PM_{2.5}$ nonattainment area, it was also evaluated to determine whether it would be considered a project of air quality concern (POAQC), requiring a PM hot-spot analysis. The proposed project does not meet the definition of a POAQC as defined in U.S. EPA's Transportation Conformity Guidance. The proposed project is not a new or expanded highway project with a significant number of or significant increase in diesel vehicles (U.S. EPA's Transportation Conformity Guidance defines significant as greater than 125,000 AADT and 8% or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT; significant increase is defined in practice as a 10% increase in heavy duty truck traffic).

The proposed project is an intersection safety and operations project that would not increase the capacity of SR 29 or increase diesel traffic. This type of project improves highway operations by reducing traffic congestion at existing intersections and improving merge operations. The project is not a capacity enhancing or VMT-inducting project; therefore, no VMT analysis was performed for the project pursuant to Caltrans

guidance. The proposed project would not affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. The proposed project would not affect intersections with a significant number of diesel vehicles or increase the number of diesel vehicles at affected intersections. The purpose of the project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds. Furthermore, the proposed project is not in or affecting locations, areas, or categories of sites that are identified in the PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation. The Proposed Project was presented to the air quality conformity task force on February 23, 2023, and IAC participants concurred that the project is not a POAQC. For these reasons, a PM hot-spot analysis was not required, and PM impacts from project operations would be *less than significant*.

NO_2

For project-level analysis, an NO2 assessment protocol is not available. As shown in Table 3-2 above, the estimated NOX pollutant burden under the Project would not change when compared to the future year No Project condition. However, NOX emissions in the study area would decrease by approximately 21 percent in the opening year, 58 percent in the design year, and 70 percent in the RTP horizon year with the Build Alternative when compared to existing conditions due to improvements in vehicle technology and fuel economy regulations.

Cumulative Impacts

Ozone, secondary PM10, and secondary PM2.5 are normally regional issues because they are formed by photochemical and chemical reactions over time in the atmosphere. MTC's RTP for the San Francisco Bay Area, known as Plan Bay Area 2050, includes a list of all regionally significant transportation projects planned in the region to be implemented by 2050. The emissions analysis performed as part of the conformity determination evaluates the cumulative impact of all listed transportation projects.

The 2021 Final Environmental Impact Report (FEIR) evaluated environmental impacts and identified that implementation of Plan Bay Area 2050 would result in significant and unavoidable impacts to air quality in the nine-county Bay Area region even after mitigation. As an intersection channelization project, the proposed project is exempt from regional conformity analysis per 40 CFR 93.127 and would not contribute to the significant and unavoidable cumulative impacts described in the FEIR.

Conclusion

The project would not result in the cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment (i.e., ozone, $PM_{2.5}$, and/or PM_{10}). The project does not cause or contribute to any new localized ozone, $PM_{2.5}$, and/or PM_{10} violations. Therefore, there would be a *less than significant* impact.

c) Less than Significant Impact

Sensitive receptors for air quality include residential areas, schools, hospitals, other health care facilities, child/day care facilities, parks, and playgrounds. Research shows that the zone of greatest concern near roadways is within 500 feet (or 150 meters). Sensitive receptors within 500 feet (or 150 meters) of the two intersections affected by the project include single family homes.

Construction-related effects on sensitive receptors from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

The project would implement measures to reduce potential construction impacts through establishing environmentally sensitive areas near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible. In addition, the project would comply with Caltrans' Standard Specifications in Section 14-9 (~~2015~~ 2023). The specifications include Section 14-9.02, which specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. Other measures to be implemented, per typical construction specifications, would reduce impacts to sensitive receptors, such as through locating equipment and materials storage sites will be located as far away from residential and park uses as practicable and keeping construction areas clean.

The change from a four-way intersection to a roundabout at the Oakville Cross Road intersection would incrementally bring vehicles closer to sensitive receptors at this intersection. However, there is no concern regarding exposing sensitive receptors to substantial pollutant concentrations during operations, especially as the project is designed to reduce idling vehicles along local roads during peak travel times. Federal Highway Administration's guidance on assessing mobile source air toxics (MSAT) impacts from transportation projects recommended additional analysis for projects that create or add significant capacity to facilities where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year. The projected traffic volume, minor changes in flow, and nominal change in location would not result in the exposure of sensitive receptors to substantial pollutant concentrations. According to the traffic analysis, the annual average daily trips is suspected to be below 22,000. This

improvement in operations would reduce Mobile Source Air Toxics from impacting sensitive receptors.

Therefore, impacts would be *less than significant*.

d) Less than Significant Impact

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site. Such odors would quickly disperse to below detectable levels as distance from the site increases. Therefore, there would be *less than significant* impacts.

3.3.4 BIOLOGICAL RESOURCES

Would the project:

Question	CEQA Determination
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?	Less Than Significant with Mitigation Incorporated
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less Than Significant Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No Impact

3.3.4.1 REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

3.3.4.2 CEQA SIGNIFICANCE DETERMINATIONS FOR BIOLOGICAL RESOURCES

a) Less Than Significant with Mitigation Incorporated

CNDDB search results identified one species of concern with the potential to occur in the project area: the foothill yellow-legged frog (*Rana boylii*). There are recorded instances of this species within three miles of the project; therefore, direct impacts to dispersing or migrating foothill yellow-legged frogs were considered. No suitable breeding habitat for the foothill yellow-legged frog was identified during the field survey conducted in 2021, and there are no watershed features in the project area that would provide suitable dispersal corridors for this species. Based on the *Considerations for Conserving the Foothill Yellow-Legged Frog*, adult frogs congregate at breeding sites during the reproductive season and then disperse following reproductive activity. Seasonal movements occur among breeding, post breeding summer, and overwintering habitats. With their patterns of migration, the potential for observations of yellow-legged frogs has the potential to occur during construction depending on the season. Therefore, direct impacts to dispersing or migrating foothill yellow-legged frogs could result from project activities should frogs be present at the time of construction (**Impact BIO-1**).

In addition, Caltrans identified two species of local concern: the California red-legged frog and Swainson’s Hawk due to occurrences of these species on other local projects in the area.

The California red-legged frog is listed under FESA and CESA as Threatened. There are no recorded occurrences of this species recorded in CNDDB within three miles of the project footprint. No suitable breeding habitat for the California red-legged frog was identified in the project footprint during the field survey in 2021. No direct impacts to breeding, dispersing, or migrating California red-legged frogs would result since there is no suitable breeding habitat in the project area and since it is outside this species' known dispersal range.

Swainson's hawks are protected under the MBTA and CFGC § 3503, 3503.5, and 3800 that prohibit the take, possession, or destruction of birds, their nests, or eggs. According to CNDDB, there was one known Swainson's hawk nest that was recorded in 2013, approximately one mile from the project footprint. Direct impacts to Swainson's hawk are unlikely as the project would not impact any suitable nesting trees or foraging habitat found within the project footprint. However, the Project footprint does contain suitable foraging habitat and nesting trees for Swainson's hawk. Therefore, direct impacts to Swainson's hawk could result should hawks be present at the time of construction (**Impact BIO-2**).

The following mitigation measure shall be required:

MM-BIO-1 Pre-construction Field Inspections for Yellow-legged Frog.

Site inspections for the yellow-legged frog species are recommended prior to conducting work. If frogs in any life stage are found during inspections, work should be suspended, and the project proponent should notify CDFW for the purpose of developing coordinated conservation measures prior to recommencing work.

MM-BIO-2 Pre-construction Nest Checks.

If an active Swainson's hawk nest is identified within 0.5 mile of the project area, the following conservation measures are recommended to avoid and minimize impacts to nesting Swainson's Hawk:

> If construction activities occur between February 1 and August 31, surveys for Swainson's hawk in accordance with the current CDFW guidance, e.g., *Swainson's Hawk Technical Advisory Committee 2000 guidelines*, are recommended (SHTAC 2000). Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting Swainson's hawks are detected, CDFW will establish a 0.5-mile no disturbance buffer. Buffers will be maintained until a qualified CDFW biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

If potential nesting trees are to be removed during construction activities, the following conservation measures are recommended:

> Removal will take place outside of Swainson's hawk and nesting season and CDFW will be consulted to determine if nest trees should be replaced offsite. If replacement planting is implemented, monitoring will be conducted annually for

5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.

Therefore, there would be *less than significant impacts with mitigation* incorporated.

b) No Impact

There are no USFWS-designated Critical Habitats, Natural Communities of Concern, or riparian habitat within the Project footprint. Therefore, there is *no impact*.

c, d) No Impact

There are no streams, wetlands, or other bodies of water within the project footprint. The project would not affect any state or federally protected wetlands or any migratory wildlife corridors or the movement of any native resident or migratory fish or wildlife species. The project would not impede the use of native wildlife nursery sites. Therefore, there is *no impact*.

e) Less than Significant Impact

The County of Napa's adopted General Plan Conservation Element contains policies to protect the County's natural resources. These policies include measures to preserve land uses of greenbelts, forests, recreation, flood control, water supply, wildlife movement or natural beauty (Policy CON-1), measures to improve and conserve agricultural land (Policy CON-2), measures to preserve watershed or open space critical to support agriculture (Policy CON-4), measures to improve rangelands (Policy CON-5), limiting development in environmentally sensitive areas (Policy CON-6), protecting native grasslands (Policy CON-17) maintaining and enhancing the existing level of biodiversity (Goal CON-2) and conserving, protecting, and improving habitats for all native species (Goal CON-4). The project does not propose removing trees or existing plants at the Rutherford Road intersection. However, a portion of the existing landscape area in the southeast corner is proposed to be removed as part of the roundabout construction at the Oakville Cross Road intersection. The proposed area of landscape removal is included in the right of way acquisition as shown in Figure 2-7.

As discussed under Issue C, there are no streams, wetlands or other bodies of water within the project footprint or adjacent to the project footprint that would be impacted by the project. As discussed under Issue A above, there is potential for sensitive species to occur within or near the project area including the foothill yellow-legged frog as well as California red-legged frog and Swainson's Hawk due to occurrences of these species on other local projects in the area. However, with MM-BIO-1 and MM-BIO-2 implemented, impacts would be reduced to less than significant for the special status species and therefore would comply with Napa County Goal CON-4 for preserving habitats for native or special status species. Therefore, this project would not conflict with any local policies or ordinances protecting biological resources and would have a *less than significant impact*.

f) No Impact

The project footprint does not lie within the boundaries of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, there is *no impact*.

3.3.5 CULTURAL RESOURCES

Would the project:

Question	CEQA Determination
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	Less Than Significant with Mitigation Incorporated
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Less Than Significant with Mitigation Incorporated
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Less Than Significant Impact

3.3.5.1 REGULATORY SETTING

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term "tribal cultural resources" to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires Caltrans to inventory state-owned structures in its rights of way.

Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) between Caltrans and SHPO, effective January 1, 2015. For most Federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

3.3.5.2 CEQA SIGNIFICANCE DETERMINATIONS FOR CULTURAL RESOURCES

a) Less than Significant with Mitigation Incorporated

Oakville Grocery

As detailed in the Cultural Resources setting in Chapter 2, the Oakville Grocery Store is the only NRHP listed historic property to be potentially impacted by the project.

The proposed roundabout at Oakville Cross Road would maintain existing traffic patterns; however, ingress to the Oakville Grocery would be modified to right-in and right-out only. The Project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather, traffic would be routed through the roundabout to access the grocery. To construct the proposed roundabout, the project will require a TCE from the Oakville Grocery. No permanent construction easement will be required. After the project construction is complete, all TCE areas will be restored in accordance with the agreements made with each property owner. Therefore, the proposed project would not alter the property permanently.

The grocery building is the closest structure that would be affected by the construction activities at the Oakville Cross Road intersection. It is expected that the nearest construction activities to the Oakville Grocery structure would be 10 feet away. Anticipated construction activities include the use of heavy-duty machinery for the demolition and removal of excavated material; grading; spreading of material; compacting; the preparation and placement of pavement; and the construction of curbing, gutters, sidewalk, and hardscape. Although no portions or features of the Oakville Grocery building are to be removed or altered during construction activities, the building would be extremely susceptible to construction vibration damage (**Impact CUL-1**) (refer to Appendix H *Vibration Damage Risk Assessment to the Oakville Grocery During Intersection Construction and Roadway Reconstruction for the SR 29 Intersections Improvement Project,* WSP 2022).

The introduction of a roundabout at this intersection would not result in a change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance as the property's use will not change and the property's setting does not contribute to its historic significance.

The proposed project would not introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features as the significant historical features of the grocery include its exterior and interior architectural features and use, which will not be altered by the construction of or design of the roundabout.

Overall, the Project would not result in any direct impacts on the significance of the historical resource. As noted, indirect vibration impacts to the structural integrity of the building are possible from construction activities. With implementation of **MM-CUL-1** and **MM-NOI-1 through NOI-3**, impacts to the Oakville Grocery would be reduced to less than significant.

Durant House

The NRHP-eligible Durant House is located north of the Oakville Grocery on the east side of State Route 29. No physical destruction or damage to all or part of the property would result from the proposed project because activities are concentrated farther south. Therefore, the proposed project would not cause physical destruction of or damage to the property. The proposed Project would not take any permanent or temporary easements from the Durant House boundary, which includes the building and the northwest quarter of the Napa County Assessor's Parcel Number 031-020-010-000. Therefore, the proposed Project would not alter the property.

The introduction of a roundabout at the Oakville Cross Road intersection would not result in a change of the character or use of the Durant House or of physical features within the property's setting that contribute to its historic significance because the property's use would not change, and the property's setting does not contribute to its historic significance.

The proposed project would not introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features because the significant historic features of the Durant House are its exterior architectural features and use, which will not be altered by the construction of or design of the roundabout.

Overall, the project would have no impact on this historic property.

Therefore, the proposed project's impact to historical resources would be *less than significant with mitigation* incorporated.

b) <u>Less Than Significant with Mitigation Incorporated</u>

There was no indication of subsurface deposits at any of the six sites identified within/adjacent to the APE, and only fragmentary glass was observed. Due to this, periods of occupation could only be generally assigned, information such as diagnostic artifacts addressing specific chronology was not located, and site formation process could not be assessed. All the areas where sites intersected with the ADI were significantly disturbed by the presence of underground utilities, construction of State Route 29 within the ROW, and by the significant landscape alteration of modern vineyards. No subsurface deposits of any of the six sites were encountered within the area of direct impact.

Site P-28-000015/CA-NAP-1/H, the "Goddard Site" near Oakville is assumed eligible for inclusion in the NRHP. The project could result in impacts to this resource (**IMPACT CUL-2**) and would require mitigation in the form of the establishment of an Environmentally Sensitive Area (ESA) per **MM-CUL-1**.

The potential for unrecorded or unrecognized surficial prehistoric era archeological resources exists within the project area. Additionally, the Mishewal-Wappo Tribe has expressed interest in the project indicating that Native American resources could occur within or near the project area. If such resources were to represent unique archaeological resources as defined by CEQA, any substantial change to or destruction of these resources would be a significant impact. Impacts to unknown subsurface resources is potentially significant (**Impact CUL-3**).

The following mitigation measure shall be implemented:

MM CUL-1 Cultural Management Measures within Designated ESA Locations.

1) At least one week prior to work, the contractor shall install a Temporary High-Visibility Fence (THVF) at designated ESA locations, including:

    - ESA 1 at Site P-28-000015 along SR 29 on the east side of Postmile 22; and

    - ESA 2 at Oakville Grocery located on SR 29 on the east side between Postmiles 22.70 and 22.79.,

- No project-related activities may take place within the ESA.

2) At least three weeks in advance of the start of construction, the project Residential Engineer (RE) will contact the Caltrans Archaeologist and Architectural Historian at the District 4 Office of Cultural Resource Studies (OCRS). Caltrans staff archaeologists will delineate the ESA in the field and supervise and monitor fence installation by the contractor. The ESA fence will not block access to private property.

3) Spot monitoring and photo-documentation shall occur at various times throughout project construction to ensure the integrity of the ESA and that the cultural resources are protected. In the event that an ESA is breached, Caltrans OCRS will be notified immediately. As per Attachment 5 of the PA, the Caltrans District PQS shall report all ESA violations to headquarters Cultural Studies Office (CSO) within 48 hours. Caltrans Districts shall report ESA violations where properties are impacted in accordance with Stipulation XV.B. Post-Review Discoveries.

4) Monitoring records will be included in the Environmental Commitments Records (ECR) and the RE File.

5) The ESAs will be clearly delineated on the project plans and included in the specifications and estimates package (PS&E). These conditions shall be considered special provisions to be provided to the RE.

MM-CUL-2 Archaeological and Native American Monitoring.

A qualified archaeological and/or Native American monitor shall be present during construction activities that involve subsurface grading and/or excavation involving the disturbance of native soils more than 3 feet in depth. The monitor(s) would ensure that unanticipated finds are not damaged or destroyed.

MM-CUL-3 Discovery of Archaeological Resources.

In the event of an unanticipated discovery of archaeological resources during construction, construction should stop on the site until a qualified archaeologist can survey the resource and determine potential impacts and necessary preservation measures. Any archaeological resources that are found would be identified, adequately documented in the field, and/or preserved, as recommended by a qualified archaeologist.

With implementation of the above measures, the impacts to archeological resources are *less than significant with mitigation* incorporated.

c) Less Than Significant

There are no known cemeteries within the project footprint. However, as noted in Chapter 2 under Cultural Resources, the project footprint is also within an area of tribal interest with known subsurface archaeological sites. Although available records indicate that no human remains occur, the possibility of encountering human remains during project construction could occur. Therefore, the impact related to the potential disturbance or damage of previously undiscovered human remains, if present, is considered significant. Mitigation Measure CUL-3 is proposed to address the discovery of unanticipated remains, associated grave goods, or items of cultural patrimony consistent with appropriate laws and requirements. Therefore, as regulations are in place to treat any inadvertent uncovering of human remains during grading, impacts to human remains would be *less than significant*.

MM-CUL-3 Discovery of Human Remains.

The County shall ensure the following measures are implemented to protect human remains. If human remains, associated grave goods, or items of cultural patrimony are encountered during construction, work shall halt in the vicinity of the find and the County Coroner shall be notified immediately. The following procedures shall be followed as required by Public Resources Code § 5097.9 and Health and Safety Code § 7050.5. If the human remains are determined to be of Native American origin, the coroner shall notify the Native American Heritage Commission within 24 hours of the determination. The Native American Heritage Commission shall then notify the Most Likely Descendant (MLD). The MLD shall complete an inspection and make its MLD recommendation for disposition of the remains within 48 hours of receiving access to the site. The County and the MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be subject to future. Any reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed.

3.3.6 ENERGY

Would the project:

Question	CEQA Determination
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	No Impact

3.3.6.1 CEQA SIGNIFICANCE DETERMINATIONS FOR ENERGY

a, b) <u>No impact</u>

Equipment required for construction would consume energy, including gasoline/diesel fuels and electricity. As stated in Section 3.3.3 Air Quality, the BAAQMD Basic Construction Measures require provisions the contractor must implement. These measures, although designed to reduce fugitive dust, (i.e., minimizing idling time to 5 minutes or less during construction, requiring construction equipment to be maintained per specifications established by the manufacturer, and using electric equipment and/or equipment using alternative fuels as feasible and appropriate) would also reduce wasteful, inefficient or unnecessary use of energy resources. The project would not utilize energy resources during construction above and beyond a typical roadway improvement project.

Project operation would require only minor use of energy resources, such as electricity for traffic lights and streetlights. The project would not induce additional traffic volumes or VMT that would result in the wasteful or inefficient consumption of vehicle fuel and would instead improve traffic operations in a way that would improve fuel efficiency.

The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The County does not have a standalone local energy plan; however, the County General Plan does include policies focused on energy conservation and efficiency, including policies focused on increasing the use of energy-efficient forms of transportation (Policy CIR-16), conserving energy and producing renewable energy locally (Policy CON-16), and promoting green building designs (Policy CON-67). The project would provide a bicycle and pedestrian pathway, which is consistent with one of the County's General Plan policies that focuses on increasing energy-efficient forms of transportation. The project would not conflict with or obstruct future implementation of the County's energy conservation and efficiency policies included in their General Plan Sustainability Plan. Therefore, there is *no impact.*

3.3.7 GEOLOGY AND SOILS

Would the project:

Question	CEQA Determination
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	No Impact

Question	CEQA Determination
ii) Strong seismic ground shaking?	No Impact
iii) Seismic-related ground failure, including liquefaction?	No Impact
iv) Landslides?	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	Less Than Significant Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less Than Significant Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less Than Significant Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less Than Significant Impact

3.3.7.1 CEQA SIGNIFICANCE DETERMINATIONS FOR GEOLOGY AND SOILS

a) No Impact

Based on a desktop search of the California Earthquake Hazards Zone Application (EQ Zapp), the project is not located in a Alquist-Priolo Earthquake fault zone.[11] The closest fault zone to the Project site is the Rodgers Creek Fault Zone and the West Napa Fault Zone, which is located approximately 13.5 miles west and 7 miles to the south of the Project site, respectively. The project would be constructed on an existing roadway and would not expose users to strong seismic ground shaking, seismic induced ground failure or liquefaction, or landslides. Therefore, there would be *no impact*.

b) Less than Significant Impact

The project would require grading and ground disturbance. Erosion control measures would be implemented during construction activities in accordance with the Best Management Practices (BMPs) outlined in the Stormwater Pollution Prevention Plan (SWPPP) to be completed for the project to minimize soil erosion or the loss of topsoil. Thus, impacts from the project on soil erosion would be *less than significant.*

[11] California Department of Conservation. *Earthquake Zones of Required Investigation.* https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed February 1, 2023.

c) Less than Significant Impact

On a Countywide basis, the potential for liquefaction-induced ground failures is relatively low. A majority of the County is not susceptible to lateral spreading, although limited lateral spreading could occur in alluvial areas adjacent to open stream channels where a bank or terrace face exists. The Project would take place within an existing State Highway, where no unstable geologic units are present. Therefore, impacts from on- or off-site landslides, lateral spreading, subsidence, or collapse would be *less than significant*.

d) Less than Significant Impact

Soils near the Rutherford Road intersection are classified as Bale clay loam, while soils near the Oakville Cross Road intersection are classified as Bale loam. According to the Napa County General Plan EIR Chapter 4.10[12], certain clay-rich soils are known to be expansive in the County, and predominantly occur near Yountville. If expansive soils are anticipated to be present underneath the Project site through map review, their actual presence or absence would be determined prior to construction by site-specific geotechnical investigations. Since the Project proposes intersection improvements within an existing, developed roadway corridor, the potential for risks associated with expansive soils is low. Therefore, the Project would have a *less than significant* direct or indirect risk to life or property due to expansive soils.

e) No Impact

As a roadway improvement project, the project would have no need for a septic tank or wastewater disposal systems.

Therefore, there would be *no impact*.

f) Less than Significant Impact

The project area is underlain by alluvium and terrace of Pliocene to Holocene age deposits [13]. The vertical APE will be 36 inches for the maximum anticipated depth of excavation for repaving work across the project footprint and up to 6 feet deep in areas of utilities and drainages. Due to the limited depth of ground disturbance, the likelihood of modifying or encountering paleontological resources is low. However, the potential still exists with any project requiring ground disturbance. In the unlikely event that a discovery of paleontological resource is identified, then procedures outlined in Public Resource Code Section 5097.5 would be followed. All construction would halt until a professional paleontologist evaluates the finding as well as its recovery. Any fossils collected would be deposited at an accredited and permanent scientific institution where they will be properly preserved. Due to the low potential for paleontological resources

[12] County of Napa. *General Plan – Draft Environmental Impact Report*. February 2007, https://www.countyofnapa.org/1760/General-Plan. Accessed July 2023.
[13] Caltrans. *Caltrans Water Quality Planning Tool*. 2023, http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx. Accessed July 26, 2023.

and measures identified in the unlikely event that a paleontological resource is found, the impacts would be *less than significant*.

3.3.8 GREENHOUSE GAS EMISSIONS

Would the project:

Question	CEQA Determination
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less Than Significant Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less Than Significant Impact

3.3.8.1 CEQA SIGNIFICANCE DETERMINATIONS FOR GREENHOUSE GAS (GHG) EMISSIONS

a) <u>Less than Significant</u>

Global climate change is inherently a cumulative problem, caused by a large number of sources around the world emitting GHGs that collectively create a significant impact. An individual project does not generate enough GHG emissions to significantly influence global climate change but may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.

BAAQMD's approach to developing thresholds of significance for climate impacts is to use a "fair share" approach for determining whether an individual project's GHG emissions would be cumulatively considerable. If a project would contribute its "fair share" of what is needed to achieve the State's long-term GHG reduction goals, then the project would adequately contribute to solving the problem of global climate change and that project's impact would be less than significant.

For a land use project to do its fair share to address the climate crisis, the project cannot include sources that will "lock in" GHG emissions for decades into the future. A project that locks in GHG sources, without a clear path to reduce the emissions from those sources, prevents the State from achieving long-term climate goals. For this reason, the climate impact thresholds of significance specify that certain design elements must be incorporated into the project, or the project must be consistent with a local GHG reduction strategy that meets the criteria under CEQA Guidelines Section 15183.5(b).

The design elements identified in the thresholds of significance for land use projects would not apply to the Proposed Project, as it is a transportation safety enhancement project The Project would not add capacity to the roadway, increase traffic volumes or VMT, or increase the amount of truck traffic in the study area, and therefore, would not directly contribute to operational GHG emissions. VMT would increase in the study area

in future years when compared with existing conditions as a result of regional growth that is not due to the Project. This VMT would result in a 1 percent increase in CO_2e emissions at the time of the Project's opening year in 2025. CO_2e emissions would decrease by approximately 10 percent in the design year of 2035 and 7 percent in the RTP horizon year of 2035 when compared to existing conditions, despite an increase in VMT, due to improvements in vehicle technology and increased use of alternative fuels. None of the changes in GHG emissions are attributable to the Project.

A discussion of the Project's consistency with local and regional GHG reduction strategies is included under issue (b), below.

GHG emissions would occur over the short-term from Project construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There is currently no applicable federal, State, or local standard or significance threshold pertaining to construction related GHG emissions. However, the BAAQMD does recommend that lead agencies quantify and disclose construction-related emissions.

As described in Section 3.3.3 (Air Quality), construction-related emissions associated with the Project were estimated using SMAQMD's RCEM, version 9.0.1. Construction emissions calculated using RCEM were adjusted to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part Two using off-model adjustment factors developed by ARB (ARB, 2020). ARB developed the factors to account for the impact of the rule, which revoked California's authority to set its own GHG emission standards and set zero emission vehicle mandates. The off-model adjustment factors apply to gasoline light duty vehicle CO_2 emissions in EMFAC2014 and EMFAC2017. RCEM utilizes on-road emission factors from EMFAC2017; therefore, ARB's adjustment factors have been applied to CO_2 emissions from gasoline light duty vehicle trips (i.e., construction worker commute trips).

Construction of the project would result in short-term emissions of approximately 818.08 metric tons (MT) of CO_2e. When annualized over an assumed 30-year life, construction emissions would equate to 27.27 MT CO_2e/year.

The Project would not add long-term sources of GHG emissions or conflict with GHG reduction strategies. Therefore, impacts would be *less than significant*.

b) <u>Less than Significant</u>

According to the BAAQMD, if a project is consistent with an adopted qualified GHG Reduction Strategy, it can be presumed that the project will not have significant GHG emission impacts. However, Napa County does not, itself, have an adopted qualified Climate Action Plan or other qualified GHG Reduction Strategy.

The project is listed in the Air Quality Conformity Analysis Report for the MTC's RTP for the San Francisco Bay Area, known as Plan Bay Area 2050 (RTP ID 21-T07-056). In addition, the BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate*, which provides a regional strategy to protect public health and the climate in

the Bay Area. The project would not prevent the BAAQMD from implementing its control strategy to reduce emissions and would support the plan in promoting bicycling and walking through its infrastructure improvements. Therefore, impacts would be *less than significant*.

3.3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

Question	CEQA Determination
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less Than Significant Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less Than Significant with Mitigation Incorporated
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two nautical miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less Than Significant Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	No Impact

3.3.9.1 REGULATORY SETTING

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA,

often referred to as “Superfund,” is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Clean Water Act
- Clean Air Act
- Occupational Safety and Health Act (OSHA)
- Toxic Substances Control Act (TSCA)

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

3.3.9.2 CEQA SIGNIFICANCE DETERMINATIONS FOR HAZARDS AND HAZARDOUS MATERIALS

a) Less than Significant Impact

The project would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.

Construction

Construction activities would involve the use of hazardous materials, such as fuels, lubricants, paints, and solvents. These materials are commonly used during construction, are not acutely hazardous and would be used in small quantities. Regular transport of such materials to and from the project site during construction could result in an incremental increase in the potential for accidents. However, numerous laws and regulations ensure the safe transportation, use, storage, and disposal of hazardous materials. For example, Caltrans and the California Highway Patrol regulate the transportation of hazardous materials and wastes, including container types and

packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover the prevention of exposure to hazardous materials and the release of hazardous materials to the environment. The California Division of Occupational Safety and Health (Cal-OSHA) also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees. As contractors would be required to comply with existing hazardous materials laws and regulations, the impact associated with transport, use, and disposal of hazardous materials during construction would be *less than significant*.

Operations

The project is an intersection improvement project and would not directly involve the routine transport of hazardous materials. Although, as a roadway project, users of the roadway would include vehicles that routinely transport hazardous materials to supply the operations of the various farms and commercial businesses in Napa Valley to which SR 29 provides connections. Commercial vehicle traffic, which may include hazardous loads, would be regulated by all applicable state and federal laws and regulations. Therefore, operational impacts associated with transport, use, and disposal of hazardous materials would be *less than significant*.

b) Less than Significant Impact with Mitigation Incorporated

Construction

Project construction plans call for resurfacing the existing roadways, installing bicycle paths, curbs, ramps, pedestrian cross walks, lighting, and pullouts. Construction of the project could impact soils contaminated with elevated levels of hydrocarbons and aerially deposited lead (ADL) from roadway use, pesticides from agricultural use, herbicides, metals, and Polycyclic Aromatic Hydrocarbons (PAHs) near railroad ROW. The following sites were identified as areas of potential concern in the Phase 1 ISA prepared for the Project.

7830 SR 29 (St. Helena Highway) & 1187 Oakville Cross Road

Residual petroleum may remain at the site at depth greater than 6 feet; however, concentrations in soil have been documented as being below residential land use screening levels. Based on a construction depth of 30 inches, the planned construction activities in the area would not encounter residual petroleum hydrocarbons in soil.

7856 St. Helena Highway

The record search indicating the presence of a UST did not indicate a release at the site. However, an undocumented UST and/or potential associated piping may be present in this location.

Vineyards

Construction activities include partial ROW acquisitions in existing vineyard areas. Use of the area for agricultural purposes may have resulted in impacts from pesticide applications.

Railroad Right of Way

Construction activities also include plans for the excavation and replacement of a rail crossing in the western portion of the intersection. Soil in the railway area may be impacted from metals, herbicides, and polyaromatic hydrocarbons (PAHs) used for weed suppression and railroad tie preservation. Therefore, project construction could result in the accidental upset and release of hazardous materials into the environment (**Impact HAZ-1**).

In order to reduce potential impacts associated with an accidental release or upset of hazardous materials, the following mitigation measure shall occur:

MM-HAZ-1: **Phase II Investigation.**

Prior to ground disturbance, a Phase II investigation, including shallow soil sampling and analytical testing would be required to evaluate concentrations of metals, total petroleum hydrocarbons as gasoline (TPHg), as motor oil (TPHmo), and diesel (TPHd) in the project areas. Additionally, soil adjacent to vineyards should be tested for organochlorine pesticides, and to railroad areas for herbicides and PAHs. Any excess soil generated from construction excavations should be evaluated for the listed constituents prior to offsite reuse or landfill disposal.

MM-HAZ-2: Hazardous Waste Management Plan.

Based on the results of the Phase II testing, a hazardous waste management plan shall be prepared for the project that identifies the appropriate treatment and disposal location of any contaminants found.

The project would have a *less than significant impact with mitigation*.

c, d, e) No impact

The nearest school to the Rutherford Road/ SR 29 Intersection and the Oakville Cross Road/ SR 29 intersection is approximately 3.5 miles away.

The project is not located on any sites listed on the Cortese List.[14] The project is not located in an airport land use plan for Napa County nor is it within 2 miles of a public airport or public use airport.[15] Therefore, there would be *no impact*.

f) Less than Significant Impact

The proposed roundabout and median improvements at Oakville Cross Road/ SR 29 would be designed to accommodate emergency response vehicles per Caltrans' design standards. ~~The proposed traffic signal and median improvements at the Rutherford Road/ SR 29 intersection would widen the road to accommodate the traffic signal poles and would also be designed to accommodate emergency response vehicles per Caltrans' design standards.~~ The proposed traffic signal improvements at the Rutherford Road/ SR 29 intersection would accommodate the traffic signal poles and would also be designed to accommodate emergency response vehicles per Caltrans' design standards.

Therefore, there would be a *less than significant* impact.

g) No Impact

According to the Fire Hazard Severity Viewer (FHSZ) the Project is not located in a Fire Hazard Severity Zone.[16] As the project is a roadway improvement project in an existing area that is not located in a fire severity hazard area, there would be *no impact* in exposing people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

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[14] California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List (Cortese)*, https://dtsc.ca.gov/dtscs-cortese-list/#:~:text=The%20Hazardous%20Waste%20and%20Substances,of%20hazardous%20materials%20release%20sites. Accessed February 1, 2023.

[15] County of Napa. *GIS Data Catalog*, airprt_napa_compat. https://gis.napa.ca.gov/giscatalog/catalog_xml.asp, Accessed February 1, 2023, Napa County Airport Land Use Commission. *Airport Land Use Compatibility Plan.* December 1999, https://www.countyofnapa.org/DocumentCenter/View/1980/Airport-Land-Use-Compatibility-Plan-PDF. Accessed July 2023.

[16] California Office of the State Fire Marshal. *Fire Hazard Severity Zones in State Responsibility Areas.* https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones. Accessed February 1, 2023.

3.3.10 HYDROLOGY AND WATER QUALITY

Would the project:

Question	CEQA Determination
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Less Than Significant Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less Than Significant Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	Less Than Significant Impact
(i) result in substantial erosion or siltation on- or off-site;	Less Than Significant Impact
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	Less Than Significant Impact
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	Less Than Significant Impact
(iv) impede or redirect flood flows?	Less Than Significant Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less Than Significant Impact

3.3.10.1 REGULATORY SETTING

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[17] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as

[17] Metropolitan Transportation Commission. *Napa Valley Forward*. https://mtc.ca.gov/operations/programs-projects/forward-commute-initiatives/napa-valley-forward. Accessed August 1, 2023. [18]San Francisco Bay Regional Water Quality Control Board. *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*. March 2023, Basin Planning | San Francisco Bay Regional Water Quality Control Board (ca.gov). Accessed August 2023.

the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.

- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).

- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S.; Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments

are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then included in a Statewide List for further evaluation in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**

  Municipal Separate Storm Sewer Systems (MS4)

  Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans' MS4 permit covers all Department rights of way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

  Caltrans' MS4 Permit, NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ (adopted on June 22, 2022; effective January 1, 2023) contains four basic requirements:

  1. Caltrans must comply with the requirements of the Construction General Permit (see below);

  2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges;

  3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as

the SWRCB and/or other agency having authority reviewing the stormwater component of the project; and

4. Caltrans must implement trash control measures to meet trash regulation compliance. This requirement is per the California Water Code Section 13383 Order issued by the SWRCB to Caltrans, applicable to all Caltrans projects (SWRCB, 2017). However, per the Caltrans Trash Control Implementation Workplan CTSWRT-21-379.08.4 (2021), full trash capture BMPs are only considered for Significant Trash Generating Areas.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs.

Construction General Permit

The Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ, became effective on September 1, 2023. The CGP regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of 1.0 acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, the applicant is required to hire a Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System at least 30 days prior to construction.

Local Agency Construction Activity Permitting

For local agency transportation projects off the State Highway System (SHS), the local agency (as owner of the land where the construction activity is occurring) is responsible for obtaining the NPDES permit if required and for signing certification statements (when necessary). Local agencies contact the appropriate RWQCB to determine what permits are required for their construction activity. The local agency is also responsible for ensuring that all permit conditions are included in the construction contract and fully implemented in the field.

3.3.10.2 CEQA SIGNIFICANCE DETERMINATIONS FOR HYDROLOGY AND WATER QUALITY

a) Less Than Significant Impact

Construction

Ground disturbing activities, such as cut-and-fill, grading, and excavation would potentially temporarily impact water quality during construction. Sediment laden flow has the potential to enter storm drainage facilities after moving over disturbed soil areas after rainfall events or from water usage on the construction site. Fueling or maintenance of construction vehicles could occur within the Project site during construction, so there would be a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter the local receiving waters and storm drains. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

The contractor would implement construction site BMPs to minimize short-term impacts to water quality and conflicts with waste discharge requirements. Temporary BMPs would be consistent with the practices required under the Caltrans MS4 and Phase II Small MS4 permits. Compliance with the requirements of these permits and adherence to their conditions would reduce or avoid potential construction-related impacts. Therefore, with implementation of standard BMPs, impacts would be *less than significant*.

Operation

The project would create/replace approximately 0.34 acres of impervious surfaces comprised of road widening to accommodate the roundabout and the shared use path (located around the roundabout). Stormwater from impervious surfaces at the project site would drain to the outskirts of the project area, consistent with the current drainage pattern. No new low impact development (LID) techniques are proposed as less than 10,000 square feet of impervious surface would be created or replaced. Once operational, stormwater would be absorbed via existing grassy permeable ground surfaces and drainage pathways. There would be a minor increase in impervious pavement near the northern drainage ditch mostly due to the shared use path. This would result in a potential increase in stormwater conveyance within the intermittent ditch, which has sufficient capacity for this potential increase in stormwater. Project operation related to water quality degradation would be *less than significant*.

b) Less Than Significant Impact

The Project would increase the amount of impervious surface area, which has the potential to reduce the amount of runoff infiltrating through native soil. This reduction could result in loss in volume or amount of water that previously recharged localized aquifers and reduce regional groundwater volumes. These would be *less than significant* because the increase in impervious surface created by the Project is minimal

compared to the overall watershed. In addition, the implementation of stormwater treatment BMPs would allow for stormwater infiltration to minimize impacts to groundwater.

c) Less than Significant Impact

(i) Project cut-and-fill, grading, and excavation activities would temporarily increase localized erosion. Earth moving and other construction activities can cause minor erosion and runoff of topsoil into the drainage systems. Temporary erosion control measures can be applied to all areas during construction, including the trapping of sediment within the construction area through the placement of barriers, such as fiber rolls, to prevent sheet flow from concentrating and establishing gullies. Other methods of minimizing erosion impacts include the implementation of hydromulching and/or limiting the amount and length of exposure of graded soil. Permanent erosion control measures would be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization. These measures may include hydraulically applying a combination of hydroseed with native seed mix, hydromulch, straw, tackifier, and compost to promote vegetation establishment, and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. The Project area is mostly flat; however, for steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving could be considered to provide stabilization. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

(ii), (iii), (iv) The Project would result in an increase in impervious area of 0.34-acre that would minimally reduce infiltration opportunities and would not increase the rate or amount of surface runoff in a way that would result in flooding. The Project has been designed to maintain the watershed's drainage patterns and would convey flows to the existing drainage systems and incorporate water quality treatment elements to reduce the impacts of added impervious area. The Project would not provide any substantial additional sources of polluted runoff during operations, and as described above, would implement BMPs to reduce potential temporary construction impacts. The Proposed Project would not substantially impede or redirect flows.

Therefore, the Project would result in *less than significant* impacts from erosion, siltation, flooding, or runoff from alteration of the existing drainage pattern of the site.

d) No Impact

The Project is located within the FEMA Zone X outside of the 100-year floodplain zone. Zone X areas are classified as being outside of the 0.2 percent-annual-chance flood. The Project is located away from the ocean or any large bodies of water and therefore is not within a tsunami or seiche zone. Therefore, there would be *no impact*.

e) Less than Significant

The project site is located within the area subject to the San Francisco Bay Water Quality Control Board's Basin Plan (Basin Plan). The Basin Plan lists action plans and policies to achieve water quality objectives, protect present and future beneficial water uses, protect public health, and prevent nuisance[18]. As described under Impact 'a', the project would comply with applicable storm water standards and permits that are specifically designed to reduce potential water quality impacts to a less-than-significant level. The project would not conflict with or obstruct implementation of the regional Basin Plan. Therefore, impacts related to obstruction of a water quality control plan would be *less than significant*.

The Napa Valley Groundwater Subbasin is categorized by the Department of Water Resources as a high priority groundwater basin and is subject to the Sustainable Groundwater Management Act requirements. The Napa Valley Subbasin is categorized as high priority due to the amount of irrigate lates, density of wells, population and degree in which people in the area rely on groundwater. The draft Sustainable Groundwater Management Plan was submitted to the Napa County Groundwater Sustainability Agency on November 1, 2021. The Groundwater Stability Plan was adopted on January 11, 2022, and approved by the Department of Water Resources[19]. As described in Impact 'b' above, the project would not utilize or decrease groundwater supplies at the project site, nor substantially interfere with groundwater recharge. There are no site-specific standards for groundwater management within the Napa Valley Subbasin with which the project would conflict. *No impact* would result.

[18]San Francisco Bay Regional Water Quality Control Board. *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*. March 2023, Basin Planning | San Francisco Bay Regional Water Quality Control Board (ca.gov). Accessed August 2023.

[19] California Department of Water Resourced. https://water.ca.gov/News/News-Releases/2023/Jan-23/DWR-Approves-Groundwater-Sustainability-Plans-for-Four-Northern-California-Basins. Accessed August 11, 2023.

3.3.11 LAND USE AND PLANNING

Would the project:

Question	CEQA Determination
a) Physically divide an established community?	No Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less Than Significant Impact

3.3.11.1 CEQA SIGNIFICANCE DETERMINATIONS FOR LAND USE AND PLANNING

a) No Impact

Division of an established community through a physical feature would typically occur in the form of a highway or railroad that would bisect an established community. The project is an intersection improvement project on an existing roadway and would not introduce any features that would limit or preclude access to both sides of the community. Although medians would be introduced along the corridor, they would include access points to local business from and to SR 29. Due to the construction of new sidewalks, bike lanes, and connections to the Napa Valley Wine Trail, pedestrian and bicyclist connectivity would improve. Therefore, the project would have *no impact* on the physical division of the established communities of Rutherford and Oakville.

b) Less than Significant

As a roadway improvement project, the project is not subject to typical land use regulations, as included in the County General Plan and Zoning Code. However, the project is consistent with the County Circulation Element, Agricultural Preservation and Land Use Element, and Community Character Element.

The project is consistent with the County's General Plan Circulation Element policies CIR-31 and CIR-32, which seek to implement operational improvements along SR 29, including roundabouts and infrastructure to reduce conflicts for vehicles, bicyclists and pedestrians.[20] As per Policy CIR-33, the project brings together Caltrans, NVTA, local jurisdictions, and other agencies to implement projects and policies identified in the Countywide Bicycle and Pedestrian Plan. In addition, policy CIR-34 includes a requirement to add bicycle and pedestrian facilities consistent with the Countywide Bicycle and Pedestrian Plans when repaving or upgrading of the roadway occurs. Per the Napa Countywide Bicycle Plan, a Class III Bike Route is proposed for SR 29 between Rutherford Road and Madison St (project no. 154). The bicycle infrastructure being implemented for the segment of the project would be consistent with this

[20] County of Napa. *General Plan Circulation Element*. February 2019, https://www.countyofnapa.org/DocumentCenter/View/3332/Circulation-Element-PDF. Accessed July 2023.

proposed route and would support local efforts to reduce GHG emissions from the transportation system (policy CIR-4). In addition, the project would be consistent with goals of the County to encourage active transportation, as detailed in the Napa Countywide Pedestrian Plan. This includes seeking opportunities to include sidewalk projects and other pedestrian improvements in the unincorporated areas, including through continuing ongoing sidewalk gap closures, per the 2015 CTP Program (Project No. 23).

The project is consistent with the County's General Plan Agricultural Preservation and Land Use Element's policies for the communities of Oakville and Rutherford in which the project is located. While Oakville and Rutherford are two small centers of urban development along SR 29, they are not reflected on the General Plan Land Use Map. Despite this, the project is consistent with Policy AG/LU-98, which states: "The County supports improvements to the intersections of Highway 29 and the Rutherford Road and the Oakville Cross Road to improve safety and accessibility".

The project is consistent with the County's Community Character Element Policy CC-13, which partially states "The County's roadway construction and maintenance standards and other practices shall be designed to enhance the attractiveness of all roadways and in particular scenic roadways."

Therefore, the project would have *a less than significant impact* regarding a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.3.12 MINERAL RESOURCES

Would the project:

Question	CEQA Determination
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	No Impact
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	No Impact

3.3.12.1 CEQA SIGNIFICANCE DETERMINATIONS FOR MINERAL RESOURCES

a, b) No Impact

No mineral resources have been identified on the project site[21]. The project would involve limited site grading and excavation. Materials generated from these activities would be primarily reused on site. Little to no native material off-hauling would occur, as

[21] Napa County. *Napa County General Plan*. https://www.countyofnapa.org/DocumentCenter/View/7936/410-Geology-General-Plan-DEIR-PDF. Accessed August 11, 2023.

described in the Project Description. Therefore, construction and operation of the project would not affect existing mining operations or result in the loss of availability of a known mineral resource. Therefore, there would be *no impact*.

3.3.13 NOISE

Would the project result in:

Question	CEQA Determination
a) 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
b) Generation of excessive groundborne vibration or groundborne noise levels?	Less Than Significant with Mitigation Incorporated
c) 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 nautical 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

3.3.13.1 CEQA SIGNIFICANCE DETERMINATIONS FOR NOISE

a) <u>Less than Significant</u>

<u>Construction</u>

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction equipment is expected to generate noise levels ranging from 80 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced at a rate of about 6 dB per doubling of distance.

Construction would be required to comply with Caltrans Standard Specification Section 14-8.02, “Noise Control,” which states the following:

> *Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.*
>
> *Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.*

Temporary construction noise impacts would be unavoidable at areas immediately adjacent to the Project alignment. However, construction noise would be short-term, intermittent, and typically overshadowed by local traffic noise.

Operations

A significant noise impact would occur if traffic generated by the project would substantially increase noise levels at sensitive receptors in the project vicinity. Existing noise levels at the project site are characterized by motorists at the heavily trafficked Oakville Road and Rutherford Road intersections. The proposed project is expected to improve traffic flow via the roundabout and to reduce stop-and-go at the Oakville Road intersection.

The Napa County General Plan identifies roundabouts as an operational improvement to be explored to improve traffic flow and reduce conflicts (Napa County 2019). Roundabouts favor the reduction of approach speed and fluidity of circulation, as opposed to the stop-and-go of a typical intersection and have been shown to reduce noise by approximately 4-5 dB compared to standard intersections (Distefano and Leonardi 2019).

Operationally, the Proposed Project would not directly induce more vehicles to pass through the corridor. However, reconfiguration of the roadway at the Oakville intersection could result in the flow of traffic occurring in greater proximity to sensitive receptors near the roundabout, thereby resulting in potentially greater noise levels. The NSR modelled future noise levels at four locations within the project area. The vehicular volumes modelled to assess operational noise impacts were based off predicted regional growth. The NSR concluded that the relatively minor increases in noise are not predicted to approach or exceed the noise abatement criterion assigned for each sensitive receptor.

Therefore, impacts to ambient noise levels would be *less than significant*.

b) Less than Significant with Mitigation Incorporated

The project would require construction of additional pavement and reconstruction of existing pavement, which would require the use of heavy-duty machinery. The general activities include demolition and removal of the excavated material, grading, spreading of material, and compacting.

Per the Vibration Study completed for the project (Appendix H), construction activities within 10 feet of the Oakville Grocery structure would exceed the vibration damage risk criteria of 0.20 Peak Particle Velocity (PPV) for fragile historic structures. Therefore, project construction would result in potentially significant indirect impacts associated with vibration (**Impact CUL-1**).

To minimize potentially significant impacts to the structure from vibration, heavy duty equipment would need to be restricted to distances of more than 20 feet from the Oakville Grocery structure. Before construction begins, the Contractor would be

required to prepare a Vibration Control Plan (VCP) specifying construction activities, monitoring locations, equipment, procedures, schedule of measurements and reporting methods to be used. Weekly reports shall indicate whether the vibration monitoring data exceeds the damage risk criteria of 0.20 in/sec PPV allowable limits. If exceeded the activity causing the exceedance shall be immediately halted. Work on that activity shall be suspended until such time as an alternative construction method can be used and additional Abatement Measures can be implemented as specified in the Vibration Control Plans.

Therefore, the project would have a *less than significant impact with mitigation* incorporated on the generation of excessive groundborne vibration.

The following mitigation measures shall be required:

MM-NOI-1 Photo/Visual Documentation

A pre-construction photo survey/video survey of the Oakville Grocery structure would be completed by a qualified architectural historian to document exterior and interior conditions of the structure. In the event of potential concerns regarding vibration induced damage to the structure by the property owner during construction, this photo documentation will serve as a point of comparison for liability claims.

MM-NOI-2 Vibration Control Plan

Prior to construction, the Contractor shall prepare a Vibration Control Plan (VCP) specifying construction activities, monitoring locations, equipment, procedures, schedule of measurements and reporting methods to be used throughout construction for the protection of the Oakville Grocery structure.

MM-NOI-3 Vibration Monitoring

Weekly reports to the Project Engineer by the Contractor shall indicate whether the vibration monitoring data exceeds the damage risk criteria of 0.20 in/sec PPV allowable limits. If exceeded, the activity causing the exceedance shall be immediately halted. Work on that activity shall be suspended until such time as an alternative construction method can be identified by the Project Engineer and Contractor and until additional Abatement Measures can be implemented as specified in the Vibration Control Plan.

c) <u>No Impact</u>

The project is not located in the vicinity of a private airstrip or within an airport land use plan and would not expose residents or workers in the project area to excessive noise levels. Therefore, there would be *no impact*.

3.3.14 POPULATION AND HOUSING

Would the project:

Question	CEQA Determination
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact

3.3.14.1 CEQA SIGNIFICANCE DETERMINATIONS FOR POPULATION AND HOUSING

a) <u>No Impact</u>

The project would implement roadway improvements at two intersections along an existing roadway in Napa. These improvements would not provide access to new areas or widen the existing roadway to accommodate additional capacity that would indirectly induce substantial unplanned population growth. Therefore, there would be *no impact*.

b) <u>No Impact</u>

No housing would be impacted by the project, nor would the project displace any people or businesses. Therefore, there would be *no impact*.

3.3.15 PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Question	CEQA Determination
a) Fire protection?	No Impact
b) Police protection?	No Impact
c) Schools?	No Impact
d) Parks?	No Impact
e) Other public facilities?	No Impact

3.3.15.1 CEQA SIGNIFICANCE DETERMINATIONS FOR PUBLIC SERVICES

a through e) No Impact

As discussed in Population and Housing, the project would not induce population growth and therefore, would not require expansion of public facilities to maintain acceptable service ratios, response times, or other performance objectives.

As a major throughfare for the area, maintenance of traffic will require coordination with local emergency service providers. There would not be a substantial impairment of a local emergency response or evacuation plan. Therefore, there would be *no impact* on public services.

3.3.16 RECREATION

Question	CEQA Determination
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	No Impact

3.3.16.1 CEQA SIGNIFICANCE DETERMINATIONS FOR RECREATION

a, b) No Impact

As noted above in Population and Housing, the project would not directly or indirectly induce population growth and therefore would not increase the use of existing neighborhood and regional parks or other recreational facilities. Therefore, there would be *no impact*.

3.3.17 TRANSPORTATION

Would the project:

Question	CEQA Determination
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Less Than Significant Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Less Than Significant Impact

Question	CEQA Determination
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less Than Significant Impact
d) Result in inadequate emergency access?	Less Than Significant Impact

3.3.17.1 REGULATORY SETTING

Plan Bay Area 2050

Plan Bay Area 2050 is the Bay Area's regional long-range plan adopted by MTC and the Association of Bay Area Governments (ABAG). Thirty-five strategies are included in the plan to improve housing, the economy, transportation, and the environment across the Bay Area's nine counties. Plan Bay Area 2050 serves as the Bay Area's Regional Transportation Plan (RTP), as required by federal regulations, and the Sustainable Communities Strategy (SCS), as required by state statute.

2023 Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) signifies the start of implementation of the programs and policies approved in the Bay Area's long-range regional transportation plan (RTP), Plan Bay Area 2050. All projects included in the TIP are consistent with Plan Bay Area 2050. The Bay Area's 2023 TIP includes more than 300 transportation projects with approximately $11 billion in committed federal, state, and local funding for federal fiscal years 2022-23 through 2025-26, as well as over 200 projects shown for informational purposes.

MTC has developed the 2023 TIP and Conformity Analysis in cooperation with the County Transportation Agencies, Caltrans, individual cities, counties, transit operators, and other project sponsors, and in consultation with the FHWA, FTA and the U.S. Environmental Protection Agency (EPA).

While not required, the project is included in the MTC's 2023 TIP (TIP ID NAP190007), which is included in Caltrans' 2023 Federal Statewide Transportation Improvement Program (FSTIP) by reference.

2023 Federal-Statewide Transportation Improvement Program (FSTIP)

MTC forwarded the 2023 TIP to Caltrans to be included in the 2023 Federal-Statewide Transportation Improvement Program (FSTIP) by reference. The State approved the 2023 FSTIP on November 16, 2022. FHWA and FTA approved the 2023 FSTIP on December 16, 2022.

Napa County General Plan

Napa County General Plan Circulation Element identifies roadway types and uses throughout Napa County. SR 29 is an arterial that is characterized as a two- or four-

lane roadway designated for longer-distance travel between major centers of activity with limited direct driveway access.

Napa Countywide Bike Plan

The Napa Countywide Bike Plan is a local plan generated by Napa County and the Napa Valley Transportation Authority to identify and improve bicycle facilities. The first plan was adopted in 2003 with a most recent updated in 2019.

Napa Countywide Pedestrian Plan

The Napa Countywide Pedestrian Plan was created in 2016 to address pedestrian facilities and opportunities for safety and mobility throughout Napa County. This plan was created with the joint effort between Napa County and the Napa Valley Transportation Authority.

3.3.17.2 CEQA SIGNIFICANCE DETERMINATIONS FOR TRANSPORTATION

a) Less than Significant Impact

The project is consistent with the County's General Plan Circulation Element policy CIR-31 and CIR-32 which seeks to implement operational improvements along SR 29, including roundabouts and infrastructure to reduce conflicts for vehicles, bicyclists and pedestrians.[22] As per Policy CIR-33, the project brings together Caltrans, NVTA, local jurisdictions, and other agencies to implement projects and policies identified in the Countywide Bicycle and Pedestrian Plan. In addition, policy CIR-34 includes a requirement to add bicycle and pedestrian facilities consistent with the Countywide Bicycle and Pedestrian Plans when repaving or upgrading of the roadway occurs. Per the Napa Countywide Bicycle Plan, a Class III Bike Route is proposed for SR 29 between Rutherford Road and Madison St (project no. 154). The bicycle infrastructure being implemented for the segment of the project would be consistent with this proposed route and would support local efforts to reduce GHG emissions from the transportation system (policy CIR-4). In addition, the project would be consistent with goals of the County to encourage active transportation, as detailed in the Napa Countywide Pedestrian Plan. This includes seeking opportunities to include sidewalk projects and other pedestrian improvements in the unincorporated areas, including through continuing ongoing sidewalk gap closures, per the 2015 CTP Program (Project No. 23). The NVTA VINE Transit system operates nine local bus routes, one of which operates on SR 29 including the project areas on Rutherford and Oakville. The project site intersections would continue to operate during construction and would not impact local bus operations. Therefore, the project would result in *less than significant* impacts regarding a conflict with a program, plan, ordinance, or policy.

[22] County of Napa. *General Plan Circulation Element*. February 2019, https://www.countyofnapa.org/DocumentCenter/View/3332/Circulation-Element-PDF. Accessed July 2023.

b) Less than Significant Impact

CEQA Guidelines § 15064.3, Subdivision (b) indicates that land use projects would have a significant impact if the project resulted in vehicle miles traveled (VMT) exceeding an applicable threshold of significance. The Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA[23] notes that the installation of a roundabout would not lead to a substantial or measurable increase in vehicle travel and generally should not require an induced transportation analysis where the lead agency would need to quantify the additional vehicle traffic associated with the project. Since the project is designed to reduce vehicular conflicts at the intersection to improve safety and would not widen roadways to accommodate additional capacity, it would not result in increased VMT. In addition, the improvements to sidewalk infrastructure and the continuation of the bike route on SR 29 would improve opportunities for pedestrian and bicycle travel along the corridor. Therefore, there would be *less than significant* impacts.

c) Less than Significant Impact

During construction, use of SR 29 would consist of construction-related vehicles traveling to and from the project site and construction staging. Materials would be staged within the corridor at a location to be selected by the contractor. The project would be constructed in phases that would allow for traffic control to be routed around the work area utilizing the Caltrans ROW. The re-routing would be temporary and only occur during construction.

The project is designed to improve safety along the SR 29 corridor through the installation of a roundabout at Oakville Cross Road and a traffic signal at Rutherford Road. The intent of the project is to reduce conflicts at these intersections, improve flow, and improve safety through reducing hazards due to an existing design feature. Therefore, the project would have a *less than significant* impact.

d) Less than Significant Impact

The project would be designed to Caltrans and County of Napa standards for roadways, which includes emergency access requirements, such as allowing adequate turning radii for fire trucks and/or other emergency vehicles. Therefore, the project would have *less than significant* impacts.

3.3.18 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and

[23] Office of Planning and Research. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018, https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed July 2023.

scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

Question	CEQA Determination
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	Less Than Significant with Mitigation Incorporated
b) 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 Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	No Impact

3.3.18.1 REGULATORY SETTING

Assembly Bill (AB) 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

3.3.18.2 CEQA SIGNIFICANCE DETERMINATIONS FOR TRIBAL CULTURAL RESOURCES

a) Less than Significant Impact with Mitigation Incorporated

There are no known resources of significance to a local tribe that is also listed in the CRHR or in a local register of historical resources. However, as noted through the tribal consultation process, the corridor was identified as an area of significance to the local Mishewal-Wappo Tribe of Alexander Valley. Therefore, the project could result in potentially significant impacts to unknown subsurface tribal cultural resources (**Impact TCR-1**). The project would incorporate monitoring during ground disturbance to avoid impacts to any unanticipated resources per tribal direction.

The following mitigation measure shall be required:

MM-CUL-1 Archaeological and/or Native American Monitoring.

b) No Impact

Per PRC Section 5024.1 subdivision (c), a resource may be listed as a historical resource in the CRHR if it meets the NRHP criteria. However, as no specific NRHP

resource in the project area with significance to the Tribe has been identified, there would be *no impact* on a resource as defined by PRC Section 5024.1 subdivision (c).

3.3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

Question	CEQA Determination
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less Than Significant Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	No Impact
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less Than Significant Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less Than Significant Impact

3.3.19.1 CEQA SIGNIFICANCE DETERMINATIONS FOR UTILITIES AND SERVICE SYSTEMS

a) <u>Less than Significant Impact</u>

The project would extend the drainage culvert found under the driveway of the west side of the NVWT and would introduce a dike along the borders of SR 29 to prevent flooding of sidewalks. There would be minimal ground disturbance related to the construction of this stormwater infrastructure, and all impacts would be within the project footprint. No relocation or extension of other utilities would be required in conjunction with the Project, and therefore, impacts would be *less than significant*.

b, c) No <u>Impact</u>

The project is an intersection improvement project and would not require water supplies to serve the project during operation, nor would it result in a need for additional capacity for wastewater treatment. Contractors would bring water tanks as needed for the dust

suppression and would not generate any wastewater requiring treatment during construction or operation of the project. Therefore, there would be *no impact*.

d, e) Less than Significant Impact

The project would result in a temporary increase in solid waste during construction, as generated by ground disturbance for pavement removal and for excavation. Debris with no practical reuse or that cannot be salvaged or recycled would be disposed of at a local landfill. Waste generated during construction would be required to be disposed of in accordance with standard County operating procedures pursuant to federal, State, and local regulations. Debris generated during construction would not be in excess of the capacity of local landfills. Local landfills can include Potrero Hills Landfill (13.8 million cubic yards of remaining capacity and 4,330 tons/day max permitted throughput), Redwood Landfill (26 million cubic yards remaining capacity and 2,300 tons/day max permitted throughput), Vasco Road Sanitary Landfill (11.5 million cubic yards of remaining capacity and 2,518 ton/day max permitted throughput), and Keller Canyon Landfill (63.4 million cubic yards remaining capacity and 3,500 tons/day max permitted throughput)[24].

As an intersection improvement project, no solid waste would be generated nor would compliance with laws related to solid waste be required during operation.

Therefore, impacts would be *less than significant*.

3.3.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Question	CEQA Determination
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Less Than Significant Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	No Impact

[24] CalRecycle. *Solid Waste Information System (SWIS) Facility Search*. 2023, https://www2.calrecycle.ca.gov/SolidWaste/Site/Search. Accessed July 28, 2023.

Question	CEQA Determination
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	No Impact

3.3.20.1 CEQA SIGNIFICANCE DETERMINATIONS FOR WILDFIRE

a) Less than Significant Impact

To construct the roundabout at Oakville Cross Road, portions of the intersection and corridor may be required to be temporarily closed off. At the Rutherford Road intersection, traffic signals would be installed within the shoulders and would not be likely to require temporarily closing the intersection to through traffic. Along segments at ~~both~~ Oakville Cross Road intersection~~s~~, medians would be constructed, which may require access to be shifted to an adjacent lane to accommodate construction vehicles and crew. As a major throughfare for the area, ~~detours would be required to allow traffic to continue through the area and would be required to be coordinated~~ maintenance of traffic will require coordination with local emergency service providers. ~~through a Traffic Management Plan.~~ Therefore, there would not be a substantial impairment of a local emergency response ~~of~~ or evacuation plan.

Therefore, the project would have a *less than significant* impact resulting from conflicts with an adopted emergency plan.

b, d) No Impact

Wildfires are dependent on existing environmental conditions, including but not limited to surrounding vegetation, topography, and climate. The project would not exacerbate wildfire risks as the project would be an intersection improvement project mostly within the existing road right of way. Surrounding the project intersections are maintained vineyards and urban structures, including residences and commercial structures. As the purpose of the project is to improve operations at the intersection and would not place residents or other occupants at the intersection, the project would not exacerbate wildfire risks nor expose people or structures to significant risks related to wildfires.

Therefore, there would be *no impact*.

c) No Impact

The project would construct new roadway infrastructure, including a roundabout, installation of traffic lights and light poles. This infrastructure would not exacerbate the risk of a wildfire through its construction or maintenance. No other infrastructure such as roads, fuel breaks, or other utilities would be constructed. Therefore, there would be *no impact*.

3.3.21 MANDATORY FINDINGS OF SIGNIFICANCE

Question	CEQA Determination
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Less Than Significant with Mitigation Incorporated
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	Less Than Significant with Mitigation Incorporated
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Less Than Significant with Mitigation Incorporated

3.3.21.1 CEQA SIGNIFICANCE DETERMINATIONS FOR MANDATORY FINDINGS OF SIGNIFICANCE

a) <u>Less than Significant Impact with Mitigation</u>

There are no streams, wetlands or other bodies of water within the project footprint or adjacent to the project footprint that would be impacted by the project. As discussed under Issue IV, several species of state and local concern have the potential to occur within the vicinity of the project area, including the foothill yellow-legged frog as well as the California red-legged frog and the Swainson's Hawk. However, with MM-BIO-1 and MM-BIO-2 implemented, impacts would be reduced to less than significant for the special status species. The project improvements would be within the existing right of way, with the exception of takes from a part of an adjacent vineyard, and therefore, would not eliminate a plant or animal community.

The historic, NRHP and CRHR-listed Oakville Grocery structure is located at the intersection of Oakville Cross Road and SR 29 where the roundabout will require acquisitions from the adjacent vineyard and in which construction activities will be less than 100 feet away from the structure. Despite this, the project would not eliminate the character defining features or impact the structure itself in a way that would eliminate the historic nature of the resource. In addition, the project has been designed to avoid known archaeological sites and would dispatch a qualified archaeological monitor and/or Native American monitor during ground disturbance. Therefore, impacts would be *less than significant with mitigation*.

b) Less than Significant Impact with Mitigation

The Proposed Project considered effects that would be individually limited, but cumulatively considerable under cultural resources and tribal cultural resources, especially as these resources are non-renewable. However, as detailed in Sections V. Cultural Resources and XVIII. Tribal Cultural Resources above, project design has considered the findings of the site-specific technical studies in order to avoid these resources. In addition, mitigation has been incorporated to avoid, minimize, and mitigate potential impacts. Therefore, impacts would not be cumulatively considerable.

In addition, the Proposed Project considered the potential cumulative impacts of GHG emissions. Per CEQA Guidelines Section 15064.4(b), “In determining the significance of a project’s greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project’s emissions to the effects of climate change. A project’s incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions.” However, as the Project would only generate a temporary and minimal amount of GHG emissions from construction, it can be concluded that the project would not result in cumulatively considerable impacts from GHG emissions.

c) Less than Significant Impact with Mitigation

The Proposed Project would not have substantial environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly. As detailed through Sections I through XXI above, potentially significant impacts would occur to biological resources, cultural resources, hazardous materials, noise and vibration, and tribal cultural resources. However, as discussed under each topic area, these impacts would be mitigated to *less than significant*.

4 List of Preparers

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6 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods. This chapter summarizes the results of MTC's' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

A Notice of Intent for the SR 29 Napa Valley Forward Intersection Improvements Project IS/MND was released on November 29, 2023. The public comment period for the project extended from November 29, 2023, to January 2, 2024.

6.1 NATIVE AMERICAN COORDINATION

MTC sent AB 52 consultation letters on August 18 and 28, 2022, to the following Native American tribes to invite tribal representatives to consult on the proposed SR 29 Improvements Project:

- Cachil Dehe Band of Wintun Indians of the Colusa Indian Community
- Guidiville Indian Rancheria
- Middletown Rancheria of Pomo Indians
- Mishewal-Wappo Tribe of Alexander Valley
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
- Yocha Dehe Wintun Nation

Scott Gabaldon of the Mishewal-Wappo Tribe of Alexander Valley, responded by email on August 21, 2022, and requested that the Tribe be involved in all ground disturbance aspects of the project. Laverne Bill of the Yocha Dehe Wintun Nation, in a letter dated October 3, 2022, declined to comment on the project, and deferred correspondence to the Mishewal-Wappo Tribe of Alexander Valley and Middletown Rancheria. Documentation of correspondence with the NAHC and identified tribal representatives is provided in Appendix D. The Mishewal-Wappo Tribe was contacted prior to archaeological field surveys held in November 2022, and invited to accompany the archaeologists. No response was received from the tribe, and no tribal monitors accompanied the survey team.

6.2 AGENCY COORDINATION

Technical studies for the Draft IS/MND were finalized from March 2023 to October 2023. Where necessary, additional research was conducted in response to Caltrans' request to address potential impacts. All technical studies have been reviewed and approved by Caltrans that were used in support of the MND.

6.3 COMMENTS RECEIVED AND RESPONSES

MTC filed a Notice of Completion for the Draft IS/MND with the State Clearinghouse on November 28, 2023. The filing of the Notice of Completion began a public review and comment period that extended from November 29, 2023, through January 2, 2024. Comments were submitted by one member of the public. The comment letters or emails that were received were reviewed, and substantive comments were identified. This chapter presents the comments that were received and the response to those comments.

Comment 1, Kristen Sullivan at Inglenook

From: Kristen Sullivan <Kristen.Sullivan@Inglenook.com>
Sent: Thursday, January 4, 2024 9:46 AM
To: Ingrid Supit <isupit@bayareametro.gov>
Subject: State Route 29 Intersection Improvement Project at Rutherford Road and Oakville Cross Road

External Email

Dear Ingrid,

Inglenook received notice of intent to adopt a mitigated negative declaration for the state route 29 intersection improvement project. The entry/exit to our property at 1991 St Helena Highway at Rutherford Cross Road is impacted by this project so we have a few questions.

- There will be a significant impact to our property's accessibility during construction. How do you plan to facilitate access to Inglenook so our customers are able to enter easily and not get discouraged by the construction? What are the proposed hours/days of construction?
- We will be required to enhance traffic markers for our guests, employees, vendors (including large transport trucks), etc. For example, landscaping to improve way-finding, clear painted lanes with lane dividers upon entry/exit, paving, movement of utility boxes will need to be addressed. Who will absorb the cost of this?
- The Napa Valley Wine Train passes through our intersection, currently without a signal or cross arm. This is a safety concern. How will this be addressed if a stop light is in place?
- The Vine Trail is planning a bike path running north/south on highway 29 . How does this overlap with the stop light, wine train and our existing traffic flow? We have asked the Vine Trail directly, but have not received any useful information.
- The Rutherford Fire Station is located in the path of travel of the proposed stop light. How will its entry/exit be impacted? We are concerned about their ability to move quickly to protect the safety of our community. Our location is susceptible to wild fires so it is of outmost importance that we provide solid resources for our first responders to do their job.

Thank you for your attention to this matter.

Sincerely,
Kristen

Kristen Sullivan
CEO

Inglenook
PO Box 208 | 1991 Saint Helena Highway, Rutherford, CA 94573
p (707) 968-1150 m (707) 501-7766 f (707) 260-7698

Response to Comment 1, Kristen Sullivan at Inglenook

1-1

Our goal is to keep Inglenook's driveway open to the extent possible during construction. While partial or temporary driveway closures may deem necessary, MTC and Napa Valley Transportation Authority can request temporary driveway access from the adjacent property (Rutherford Fire Department/CalFire) to allow customers to enter/exit Inglenook through the CalFire driveway. Temporary signage will be provided to alert drivers should there be work at the driveway location or temporary change of driveway access. The project also considers scheduling construction work during off-peak season or non-business hours if feasible.

While the hours and days of construction will be determined in the later phase of the project, MTC will have a representative present at the construction site to coordinate with Inglenook on planned construction activities, construction schedule and provide advance notification of planned closures, if any.

1-2

Temporary construction signs and pavement marking will be provided for traffic handling during construction, including driveway access. The project will also install new roadway signs, lane stripes and pavement markings in the final condition. Traffic handling, signing and pavement delineation (striping, marking and markers) will be included as bid items in the construction document and will be paid as part of the construction cost.

1-3

The project is also considering additional safety measures at the Napa Valley Wine Train crossing at the Rutherford intersection, including the potential use of train signals. The proposed safety measures will be reviewed in coordination of the proposed traffic signal.

1-4

This project has been in coordination with the Vine Trail on project development and will continue to coordinate with the Vine Trail for the placement of traffic signals including signal poles and foundation, and electrical equipment locations. We anticipate that the proposed traffic signal will enhance the overall safety of pedestrians and bicyclists crossing highway 29 to and from the Vine Trail.

1-5

The proposed project does not restrict access in and out of the Rutherford volunteer firehouse driveway and therefore will not impact or modify the operation of the firehouse building.

Appendix A Visual Impact Report

VISUAL IMPACT ASSESSMENT

State Route 29 Intersection Improvements at Rutherford Road and Oakville Cross Road

October 2023

California Department of Transportation

04-NAP-29

22.72 to 24.59

04-2W430

Prepared by: Ryan Weston **Date:** 10/18/2023

Ryan Weston
License #6774
Assistant VP, Landscape Architect
WSP

Approved by: Alex McDonald **Date:** 10/11/2023

Alex McDonald
License #5382
Caltrans District Landscape Architect
Design, Office of Landscape Architecture
District 4

Statement of Compliance: Produced in compliance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this Project.

VISUAL IMPACT ASSESSMENT
State Route 29 Intersection Improvements at Rutherford Road and Oakville Cross Road

PURPOSE OF STUDY AND ASSESSMENT METHOD

The purpose of this Visual Impact Assessment (VIA) is to document potential visual impacts caused by the proposed Project and propose measures to lessen any detrimental impacts that are identified. Visual impacts are demonstrated by identifying visual resources in the Project area, measuring the amount of change that would occur because of the Project, and predicting how the affected public would respond to or perceive those changes. This visual impact assessment follows the guidance outlined in the publication *Visual Impact Assessment for Highway Projects* published by the Federal Highway Administration (FHWA) in March 1981.

PROJECT DESCRIPTION

The State Route (SR) 29 Intersections Improvement Project (Project) would address operational and safety concerns at the Rutherford Road (SR 128) intersection in the community of Rutherford and the Oakville Cross Road intersection in the community of Oakville (see Figure 1). These two intersections experience a high number of collisions due to the lack of traffic turning operative measures. To address these concerns, the Project proposes to implement a single-lane roundabout at the Intersection of SR 29 and Oakville Cross Road and a traffic signal at the intersection of SR 29 and Rutherford Road. The construction of the proposed roundabout at the Oakville intersection would include the installation of new hardscape (concrete, stone, brick, etc.), street lighting, a pedestrian and bicyclist shared pathway, and raised islands to separate entering and exiting traffic. Additional bike and curb ramps would also be installed at the proposed roundabout location to accommodate crossing bicyclists and pedestrians. Proposed improvements at the Rutherford Road intersection would include the installation of new traffic signals and construction of additional sidewalks, curbs, and crosswalks.

The Napa Valley Wine Train (NVWT) tracks run along the western side of SR 29 at both intersections. Curb and gutter sidewalks would be constructed east of the railroad tracks. Existing pavement adjacent to the tracks on both sides of the crossing would also be reconstructed. Signage and lighting improvements, lane restriping, curb and gutter improvements, and new paving would be included for both the Rutherford Road intersection and the Oakville roundabout projects. These improvements may occur about 0.5 mile from the proposed intersections along SR 29 and up to approximately 0.25 mile on connecting roads (See Figure 2). Lastly, the current drainage system would be used to convey the flows from the intersection areas, and the existing signage within the right-of-way (ROW) would be replaced or upgraded.

Figure 1. Aerial View of Project Location at each Intersection, 2023

Figure 2. Aerial View of Project Footprint at each Intersection, 2023

PROJECT LOCATION AND SETTING

The Project location and setting provide the context for determining the type of Project changes and the degree to which those changes would affect the existing character and quality of the visual environment. The proposed Project is located on SR 29 at the intersections of Rutherford Road (PM 22.72) and Oakville Cross Road (PM 24.59) in the communities of Oakville and Rutherford in Napa County, California. Napa County is in the northern California wine region federally recognized as an American Viticultural Area (AVA). An AVA is a label that dictates the geographic pedigree of wine, also known as Appellation of Origin (Wine Institute). Napa County, located fifty miles northeast of San Francisco, is within the North Coast appellation of the AVA. It is one of the world's famous wine regions known for stunning landscapes with notable views of the local mountain ranges and hundreds of hillside vineyards.

The Project corridor, or area of visual effect (AVE), is defined as the area of land that is visible from, adjacent to, and outside the highway ROW. It is determined by topography, vegetation, and viewing distance. For this Project, the AVE was determined to be 0.25 mile around the Project footprint. This AVE distance was chosen because of the gently sloping and moderately vegetated nature of the surrounding landscape. The distant rural landscape of the Mayacamas Mountains to the west and scenic views of nearby wineries and vineyards exemplify the area's "wine country" atmosphere. The Napa River flows half a mile from the Oakville Road intersection and a mile from the Rutherford Road intersection, paralleling SR 29. However, the Napa River is outside the AVE and is not visible from the road. Local businesses such as the Oakville Grocery in Oakville and Rutherford Grill in Rutherford create a relaxed community feel. Land uses along the Project corridor are primarily exurban, supporting low-density housing and commercial businesses, such as wineries, restaurants, grocery stores, and the post office. Much of the remaining surrounding area is used for the cultivation and harvest of grapes for wine production (see Figure 2).

According to the California State Scenic Highway System Map (California Department of Transportation, 2021), there are no officially designated State Scenic Highways within the Project vicinity. However, SR 29 is eligible for listing as a State Scenic Highway. Based on Caltrans Scenic Highway criteria, eligibility is determined by how much natural landscape is visible versus obstructed (Scenic Highway Guidelines, 2008). Napa County General Plan additionally institutes policies to protect the integrity of the California Scenic Roadways. For instance, Policy CC-13 states that, "the County's roadway construction and maintenance standards and other practices shall be designed to enhance the attractiveness of all roadways and in particular scenic roadways. New roadway construction or expansion shall retain the current landscape characteristics of County-designated scenic roadways, including retention of existing trees to the extent feasible and required re-vegetation and re-contouring of disturbed areas" (Napa County General Plan, 2008).

VISUAL RESOURCES AND RESOURCE CHANGE

Visual resources of the Project setting are defined by assessing *visual character* and *visual quality* in the Project corridor. Visual character is a description of what the landscape consists of. It is defined by existing natural and built landscape features. Visual resources and features may include landforms, vegetation, land uses, buildings, transportation facilities, historic structures, lighting, and open space. Visual quality is determined by evaluating the landscape's characteristics in terms of natural harmony, order, and coherence. *Resource change* is assessed by evaluating the visual character and visual quality of the Project corridor before and after the construction of the proposed Project.

Key viewpoints (KVPs) were selected to serve as a representation of visual quality and character surrounding the Project corridor (See Figure 3 and Figure 5). KVPs portray views that those who are using the corridor or are seeing the corridor would have. The following section describes the existing visual environment as seen from each KVP and the overall visual change that would occur as a result of the proposed Project.

KEY VIEWPOINT (KVP) #1

Figure 3. Looking Northwest from the Intersection at Oakville Cross Road and SR 29

EXISTING CONDITIONS

The roadway corridor shown in KVP#1 stretches through regionally acclaimed vineyards and local wineries. The lack of condensed urbanization and multi-storied buildings surrounding the corridor provides an unfiltered horizon line with additional views of mountain ridgelines, green hillsides, and valleys in the distance. Late-nineteenth and early-twentieth-century architectural resources, including a rural mercantile and a historic rail line, may also be considered distinct visual features along the roadway. On either side of the corridor, mature trees, ornamental landscaping, and agricultural vineyards obscure direct views of adjacent commercial land use and provide continuity and intactness between the roadway and the vast agricultural landscape.

Figure 4 depicts all surveyed architectural resources found within the Oakville Project Area of Potential Effect (APE). **Table 1** provides a summary of all potential historic resources found near KVP#1. Of those listed in the table, one is listed in the National Register of Historic Places (NRHP), and one is eligible for listing in the NRHP (*Historic Resources Evaluation Report, 2023)*.

The Oakville Grocery was originally built in 1921 and is the only surviving example of an early twentieth century 1920s mercantile in the area. The structure's period of significance is circa (ca.) 1921-1940 for its association and historical contribution to local commerce. The structure retains its integrity and historical significance of feeling, time, and place, and is therefore a historical resource for the purposes of CEQA and is listed in the NRHP at the local level of significance under Criterion A.

The Durant House (located behind the Oakville Grocery on the north side) was built in 1885 and is a local example of an Italianate-style dwelling. Contributing elements include its L-shaped plan with single-story corner porch, square single-story bay window, low- pitched hipped roof, cornice bracketing, one-over-one wood-sash windows, chamfered porch supports, and concrete-capped stone gate posts. The dwelling retains its historical 1885 significance in its exterior integrity that preserves the original rural interpretation of the Italianate-style of architecture. The Durant House is therefore a historical resource for purposes of CEQA and is eligible for NRHP listing under Criterion C.

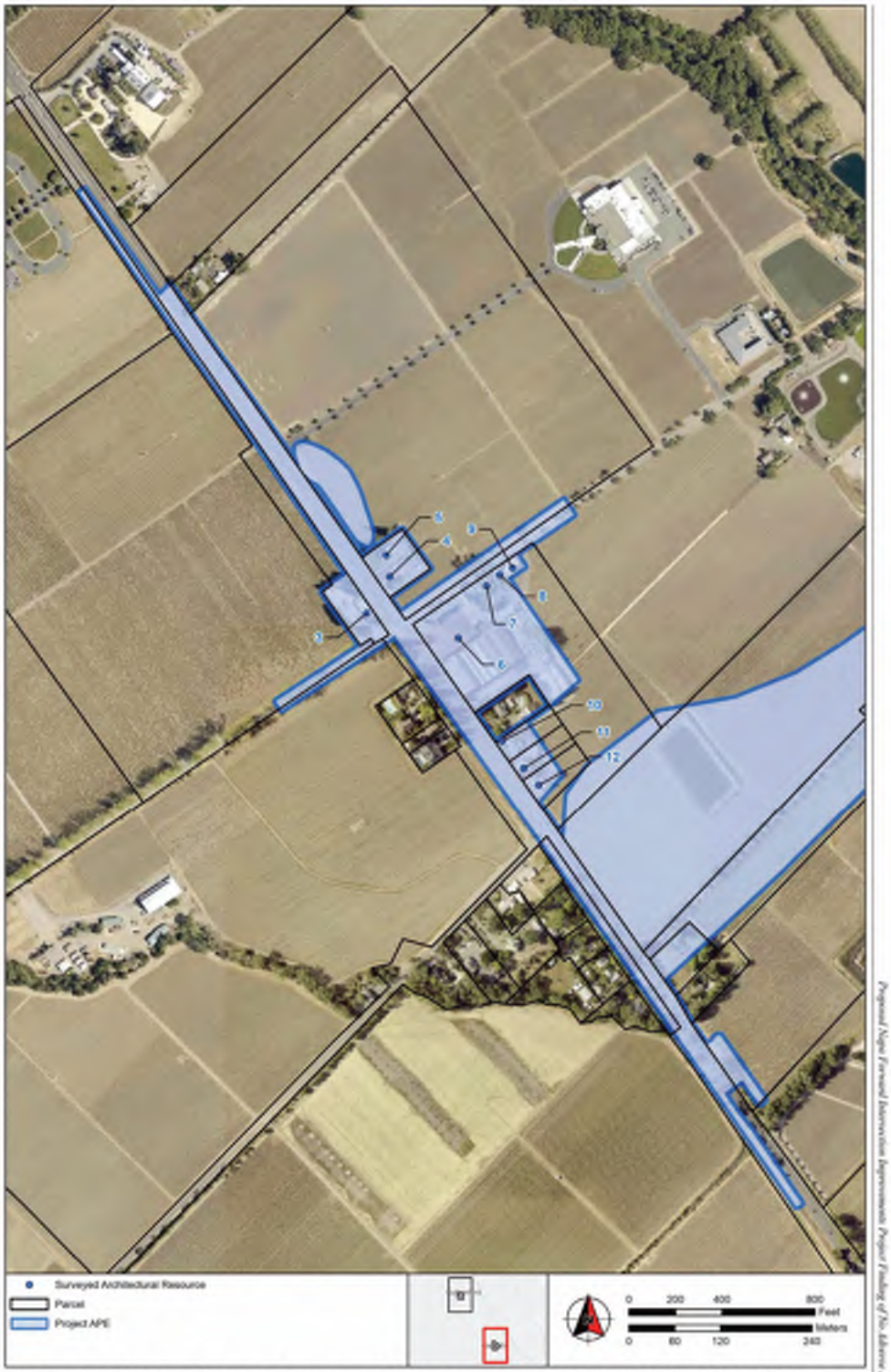

FIGURE 4b: Architectural Survey Results for the Proposed Napa Forward Intersection Improvements Project (Post Miles 22.72 to 24.50), State Route 29, Napa County, California (Project Number EA2W430-SR-29) (ESRI World Imagery 2021)

A-15

Proposed Napa Forward Intersection Improvements Project Finding of No Adverse Effect

Figure 4. Oakville APE and Surveyed Resources

Table 1. Identified Potential Historic Properties Near KVP#1

Map #	Name	Date Built	Eligibility	Significance Criteria	Retains Integrity	Historical Importance	Visible from Roadway	Visible from Neighbor View	Approx. Distance from Intersection (ft)
3	7855 State Highway, 29	1964	NE	N/A	N	Commercial building	YES	YES	40
4	Oakville Grocery	1921-1940	L	A	Y	The only surviving example of a 1920s mercantile	YES	YES	203
5	Durant House	1885	E	C	Y	Rural interpretation of the Italianate style of architecture	YES	YES	295
6	Napa Wine Company	1877, 1892, 1980, 1998, 2000	NE	A, C	N	Viticulture	YES	YES	168
7	1187 Oakville Cross Road	1890	NE	N/A	N	Late-Nineteenth Century Development	NO	NO	387
8	1185 Oakville Cross Road)	1950	NE	N/A	N	Mid-Twentieth Century Development	NO	NO	462
9	1181 Oakville Cross Road	1951	NE	N/A	N	Mid-Twentieth Century Development	NO	NO	542
10	7814 State Highway 29	1927	NE	N/A	N	Early-Twentieth Century Development	NO	NO	666
11	7798 State Highway 29	1928	NE	N/A	N	Early-Twentieth Century Development	NO	NO	821
12	7800 State Highway 29	1952	NE	N/A	N	Mid-Twentieth Century Development	NO	NO	917

*Defined Abbreviations: L= Listed, NE= Not Eligible, E= Eligible, N/A= Not Applicable

KEY VIEWPOINT (KVP) #2

Figure 5. Looking Northwest from the Intersection at Rutherford Road and SR 29

Existing Conditions: The visual character and quality of the existing corridor shown in KVP#2 is characterized by street signs, lighting, ornamental landscaping, as well as the adjacent train tracks and fire station (See Figure 5). The 1902 Rutherford Depot and the Napa Valley Wine Train tracks are present on the western side of the intersection. Roadside vegetation, foliage, as well as ornamental landscaping, provide a focused view of the roadway and blocks the vast agricultural landscape that surrounds the corridor. This dominated view of the roadway provides a strong corridor-focused view with the skyline, surrounding vegetation, and roadway creating a cohesive image. However, from this KVP, roadway signage slightly reduces intactness.

Figure 6 represents the surveyed architectural resources found within the Rutherford Project APE. **Table 2** provides details of all potential historic resources found near KVP#2. The Rutherford Railroad Depot (green building located on the left-hand side in Figure 5), constructed in ca. 1902, is located west of the Napa Valley Wine Train. It served as an international gateway for travelers and stimulated the local economy by encouraging settlement within Napa Valley. Located just southeast of the intersection of SR 29 and Rutherford Road, the Elizabeth Spencer Winery represents the early development of Rutherford at the turn of the twentieth century and the social history of Rutherford from 1946 to 1971 (not visible from KVP #2 as it is located to the right and outside of the view frame in Figure 5). Constructed ca. 1910 with additions in the 1940s and 1967, the Elizabeth Spencer Winery building has insufficient integrity, and therefore, is not eligible under NRHP Criterion A and CRHR Criterion 1.

FIGURE 4a: Architectural Survey Results for the Proposed Napa Forward Intersection Improvements Project (Post Miles 22.72 to 24.56), State Route 29, Napa County, California (Project Number EA2W430-SR-29) (ESRI World Imagery 2021)

Figure 6. Rutherford APE and Surveyed Resources

Table 2. Identified Potential Historic Properties Near KVP#2

Map #	Name	Date Built	Eligibility	Significance Criteria	Retains Integrity	Historical Importance	Visible from Roadway	Visible from Neighbor View	Approx. Distance from Intersection (ft)
1	Napa Valley Wine Train/former Napa Valley Railroad Line (including Rutherford Railroad Depot)	1869; 1902	NE	N/A	N	Local agricultural history and pioneer Samuel Brannan	YES	YES	40
2	Elizabeth Spencer Winery	1940	NE	N/A	N	Commercial Development	YES	YES	166

*Defined Abbreviations: NE= Not Eligible, E= Eligible, N/A= Not Applicable

RESOURCE CHANGE

The Project proposes to improve traffic operations by constructing a single lane roundabout at the intersection of SR 29/Oakville Cross Road (Figure 8) and installing a traffic signal at the intersection of SR 29/Rutherford Road (Figure 9). The proposed improvements would add new visual elements to both intersections. Development of the roundabout at the Oakville intersection would require the acquisition of additional ROW that would affect the driveway area on the west side of the intersection, the parking and landscaped area in front of the Napa Wine Co. and Opus Winery in the southeast corner of the intersection, and a portion of a vineyard in the northeast corner of the intersection. The additional ROW required for the proposed improvements at the Oakville Cross Road would result in removal of the ornamental landscaping in front of Napa Wine Co. and Opus Winery and a portion of the vineyard south of the Oakville Grocery (Figure 7). Likewise, the addition of sidewalks at the northeast corner of the intersection is expected to impact a large, mature pine tree located in close proximity to the proposed improvements. Figure 8, a simulation showing the proposed improvements, is provided as a visual resource to aid in understanding the visual effects of the proposed improvements. Actual improvements may look slightly different after final design. However, as shown in Figure 8, the large pine tree to the left of the image has been removed and to the right of the image the vineyard has been cut back to accommodate the new roundabout. Impacts to trees and ornamental plants in front of Napa Wine Co. and Opus Winery are to the right and outside the viewpoint shown in the simulation. The simulation is a conservative representation of project changes. During final design, impacts to adjacent properties will be further determined and ultimate configuration of the impacted properties will be refined in coordination with affected property owners.

The installation of new traffic signals at the Rutherford Road intersection would require acquisition of new ROW from Houston Restaurants to accommodate shifting the northside driveway, adjusting utility boxes, and providing new pavement and striping (Figure 9). It may additionally entail the construction of additional sidewalks, curbs, and crosswalks. These improvements are not expected to result in the removal of existing plants or trees.

The NVWT tracks run along the western side of SR 29 at both intersections. Proposed improvements east and west of the tracks (curb and gutters, sidewalks, pavement reconstruction) would not impact the rails, railroad ties, or rail elevation.

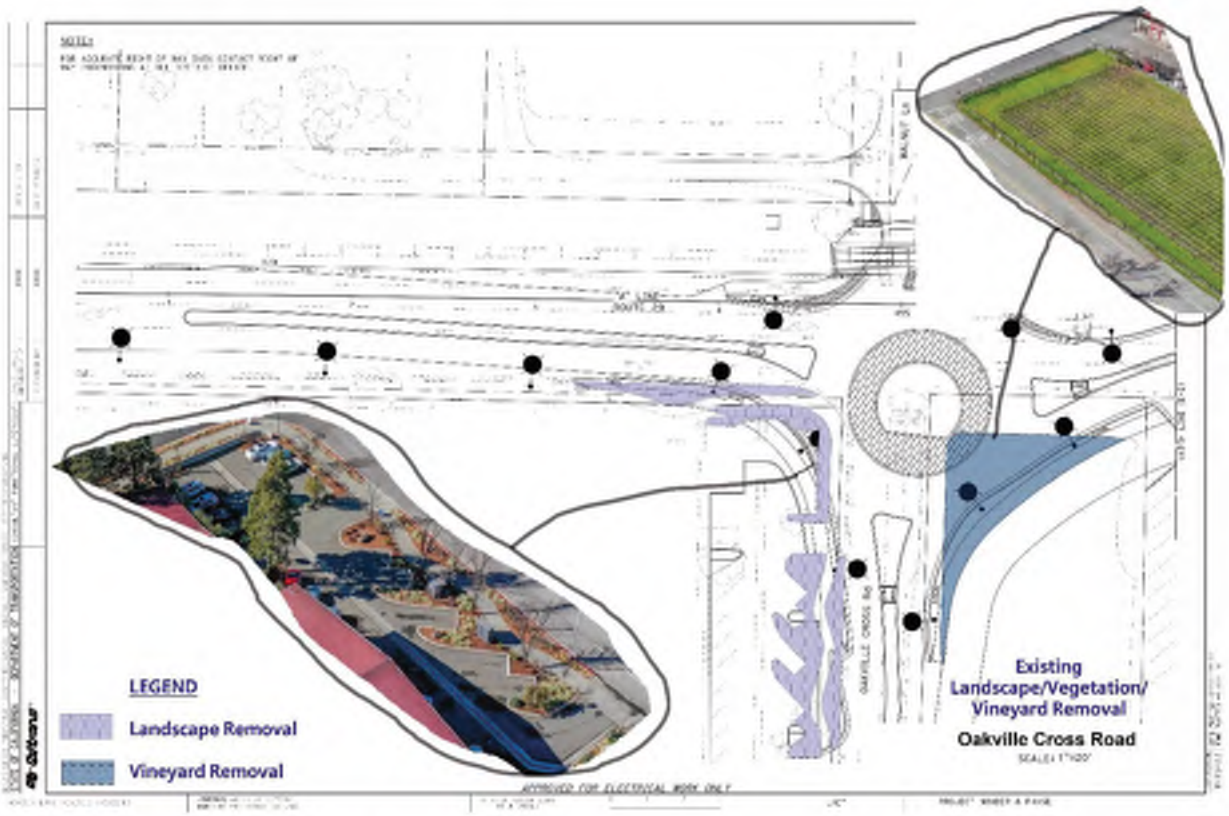

Figure 7. Vegetation and Vineyard Removal at Oakville Cross Road, 2023

Figure 8. Before (Left) and After (Right) Comparison of Simulated Roundabout at Oakville Cross Road, 2023

Figure 9. Before (left) and After (Right) Comparison of Simulated Traffic Signal Rutherford Road, 2023

Vegetation and mature tree removal at the Oakville intersection would increase the horizontal scale and visual dominance of the roadway. However, aesthetic treatments, including the retention of existing vegetation that blocks or obscures views of the Project and the replacement of affected landscaping, would help neutralize these adverse impacts for most roadway neighbors. The City of Napa has several tree programs that protect native trees or trees of historic significance. For this Project, it is expected that the only trees that would require removal are the small ornamental trees in front of Napa Wine Co. and Opus Winery and the large, mature pine tree in the northwest corner of the intersection. None of these tree species are protected under the City of Napa's tree protection policies. Replacement landscaping will be addressed with property owners during the ROW acquisition process.

Resource change at Rutherford Cross Road would involve adding signage and lighting to the roadway environment. The proposed traffic signal at Rutherford Road would add a new light source; however, these light sources would be of low intensity and hooded to direct light toward vehicles within the corridor. The proposed improvements would be compatible with the existing roadway and are anticipated to impact a small number of affected viewers.

The overall Resource Change, as measured by changes in visual character and visual quality, would be low for both intersections. Pavement and roadside elements (crosswalks, street signs, additional medians, etc.), would be compatible with the form, line, color, texture, and continuity of the existing visual environment. Lane restriping, curb and gutter improvements, and paving would also be included for both intersections; however, improvements would be made at, or close to ground level. Additional signage would likely cause noticeable changes to the AVE, particularly to adjacent neighbors with direct views of the existing roadway. However, the proposed improvements would be compatible with the existing visual quality of the corridor and would retain the integrity and character of the adjacent architectural resources (such as vineyards, the NVWT, and bike/ped facilities,). Vegetation removal will be limited and where possible, landscaped areas will be restored in a manner that is compatible and consistent with existing landscaping. Therefore, it is anticipated that the overall resource change at both intersections would be consistent with the existing roadside aesthetic and would have a low impact on roadway users and neighbors.

VIEWERS AND VIEWER RESPONSE

The population that would be affected by the Project is composed of viewers whose perception of the landscape may be altered by the Project—because either the landscape itself has changed or their perception of the landscape has changed. Viewer response to changes in the visual environment can increase the perceived change in visual resources beyond the physical change caused by the construction and operation of a proposed Project. Viewers have distinct and predictable visual concerns based on exposure and sensitivity that help predict response to visual change. Viewer exposure has three attributes: viewer position (location) in relation to an object with proximity (closer) equating to more exposure, number of people seeing an object (quantity), and frequency (duration) with which an object is seen, with greater duration being more exposure. Viewer sensitivity has three attributes: activity (are viewers preoccupied or engaged in observing their surroundings?); awareness (is viewer focus wide and general or narrow and specific?); and local values (what value do viewers place on a particular object?).

There are two major types of viewer groups for roadway projects: roadway neighbors and roadway users. Roadway neighbors are people with views of the road, while roadway users are defined as people with views from the road. Roadway neighbors are identified as potential business owners, retail viewers (Oakville Store, etc.) recreationists, viticulturists, and first responders. These viewers reside and may work within the Project area increasing their duration of exposure to proposed Project changes. Extended view

duration and familiarity with the existing environment would increase this viewer group's sensitivity and perception of changes in existing conditions.

Roadway users consist of travelers on the roadway. These users may include pedestrians, bicyclists, drivers, and passengers traveling in vehicles. These viewers are anticipated to experience a shorter duration within the Project's boundaries; thus, limiting their exposure to changes in existing conditions. The viewer's perception for roadway users is concentrated on abiding traffic laws and interacting with other roadway users. Since the proposed changes are likely to improve traffic flow, roadway users are expected to have a limited duration of exposure to the proposed changes. As a result of limited exposure, their sensitivity to visual changes is expected to be low for this viewer group. Overall, because the Project is restricted to a small-scale segment of the existing corridor that does not go much beyond the existing ROW, viewer response for both groups is anticipated to be low.

VISUAL IMPACT

Visual impacts are determined by assessing changes to visual resources and predicting viewer response to those changes. Visual impact considerations include whether the Project would:

(1) introduce elements that would conflict with the visual character of a federal- or state-listed or eligible historic property, or
(2) substantially affect the scenic value of a park, recreational destination, or other features or areas that have been identified as an important visual resource.

Additionally, the following CEQA thresholds were also used to determine if a significant impact on aesthetics and visual quality would occur as a result of the proposed Project. A significant impact is one that would:

(1) Have a substantial adverse effect on a scenic vista.
(2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a designated State Scenic Highway corridor;
(3) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, a significant impact is one that would conflict with applicable zoning and other regulations governing scenic quality; and
(4) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Visual impacts for the No Build and Build Alternative are discussed below.

ALTERNATIVE 1 – NO BUILD

The current roadway is prone to congestion and traffic collisions. This is due to the lack of traffic calming measures including traffic lights, medians, turn lanes, speedbumps, roundabouts, etc. The absence of regulatory traffic measures threatens the visual quality of the corridor because more vehicles remain on the roadway for longer periods of time. Longer vehicle duration on the roadway also increases air pollutants. Air pollutants degrade the visual quality of the vineyards and the rural roadside character.

The No Build Alternative would not propose a change to the existing visual environment; however, operational efficiency and safety are projected to decline and increasing levels of traffic and congestion would likely result in progressively negative visual impacts.

ALTERNATIVE 2 – BUILD ALTERNATIVE

The Build Alternative would add visual elements to the existing corridor, including a roundabout, additional medians, and traffic signals, to ease congestion along the corridor and increase safety for roadway travelers benefiting first responders as well. These improvements would occur within the existing roadway and therefore not infringe on the current visual resources. These elements are anticipated to remain compatible and unified with the existing visual environment. Existing vegetation, land cover, and topography would not change substantially and continue to block or obscure views of the roadway and proposed project changes for most roadway neighbors. Viewer responses to these changes, therefore, are anticipated to be low and the overall proposed improvements are expected to have low to moderately-low visual impacts.

Oakville Roundabout

The proposed roundabout at Oakville Road would add visual elements to present roadway conditions. It is anticipated that roadway users would have direct views to proposed elements such as new pavement, medians, lighting, lane striping, and signage. Nevertheless, resource changes are anticipated to remain compatible and unified with the existing visual environment. Existing and new vegetation (trees, foliage, ornamental landscaping) would offer natural visual elements. It would soften views of roadway signage, vehicular traffic, and other roadway elements for roadway neighbors. Although viewers may be subject to views of Project elements, including the installation of new landscaping, intersection lighting, a pedestrian and bicyclist shared-use path with bike ramps, and splitter islands with curb ramps, the new elements would be compatible and coherent with the existing roadway corridor. Therefore, visual impacts in KVP #1 would generally be low or neutral for most roadway neighbors and users. It is also not anticipated for the Project to alter the setting or feeling of historic resources in the vicinity. Thus, allowing historic resources to retain integrity and eligibility for listing in the NRHP.

Rutherford Road Intersection

The proposed traffic signal at the Rutherford Road Intersection is anticipated to remain compatible and unified with the existing visual environment. The proposed Project elements would limit changes to existing vegetation, landscaping, and trees adjacent to the Project area. This vegetation offers natural visual elements and softens or blocks views of the roadway, traffic signal, vehicular traffic, and other roadway elements for roadway neighbors. By limiting changes to existing vegetation, landscaping, and trees adjacent to the Project area, Project elements are anticipated to have a minimal visual impact on existing conditions. The proposed traffic signal is also anticipated to increase roadway user safety by slowing down traffic. Traffic calming measures, such as traffic lights and proposed flashing beacons and traffic signs, slow down vehicular traffic, and increase accessibility from the adjacent streets to the main corridor. Since traffic calming measures will lessen congestion, visual impacts in KVP #2 are anticipated to be generally low or neutral for most roadway neighbors and users. Likewise, it is not anticipated for the Project to alter the setting or feeling for historic resources in the vicinity.

TEMPORARY CONSTRUCTION IMPACTS

Project construction is expected to last about 12 months and would include demolition, site grading, repaving, and installation of street signage and lighting. Heavy-duty construction equipment, such as dump trucks, bulldozers, and graders would be needed to remove existing materials, haul away debris, and lay new materials. Construction activities and equipment can introduce temporary changes that may impact the visual quality and character of the existing environment. Brightly colored construction equipment, construction signage, traffic control devices, flaggers, and other temporary impacts such as dust generation and freshly cleared areas could temporarily reduce visual quality and character. However, these effects would be short-term, limited in scale, and are a relatively common occurrence in urbanized and

semi-urbanized areas. Construction site best management practices, such as limiting vegetation removal, keeping the site clean and orderly, and requiring additional street sweepers and water trucks for construction activities likely to produce dust, could be implemented to reduce the effects of construction activities on visual quality and character.

AVOIDANCE AND MINIMIZATION MEASURES

Avoidance or minimization measures have been identified to lessen visual impacts caused by the Project. The following measures will be designed and implemented with the concurrence of the District Landscape Architect and will be incorporated into the Project:

VIA-1 Preserve existing trees and vegetation where feasible.

VIA-2 Use existing roadway ROW for storage and laydown areas. Construction equipment in staging area will be covered or placed in areas with limited visibility to alleviate impacts to aesthetics. Erosion control measures will be applied in all unpaved areas of soil disturbance.

VIA-3 Limit construction to daylight hours when feasible and minimize the use of lighting to only what is required for directional and safety purposes.

VIA-4 Coordinate paving design with historic and local architectural resources. Paving design will be reviewed and approved by the District 4 Office of Landscape Architecture.

CONCLUSIONS

As discussed above, the State Route 29 Intersections Improvement Project would implement a single-lane roundabout at the Intersection of SR 29 and Oakville Cross Road and a traffic signal at the intersection of SR 29 and Rutherford Road. These proposed improvements would slightly increase the horizontal scale and visual dominance of the roadway. However, the magnitude of visual change associated with the Project would be low. Minor roadway improvements (new paving, stripping, reconstructed curbs, etc.) will require ROW acquisition. However, the existing vegetation, land cover, and topography are expected to remain compatible and unified with the existing visual environment. Therefore, the Project would not infringe on the current visual resources, nor alter the historic setting. Due to the proposed changes remaining compatible and unified with the existing visual environment, the corridor is anticipated to retain its existing visual quality and roadside aesthetic. As a result of these findings, it is anticipated that the proposed Project would result in neutral visual impacts and a low number of affected viewers.

VIA Minor Level SR-29_TrackChanges_2023-10-11_Final

Final Audit Report 2023-10-11

Created:	2023-10-11
By:	Sallie Holt (s157726@dot.ca.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAA6q1pPRHzV0d54BUvbLwf_e9_6zH-thDp

"VIA Minor Level SR-29_TrackChanges_2023-10-11_Final" History

Document created by Sallie Holt (s157726@dot.ca.gov)
2023-10-11 - 10:39:49 PM GMT

Document emailed to Alex Mcdonald (s130924@dot.ca.gov) for signature
2023-10-11 - 10:42:05 PM GMT

Email viewed by Alex Mcdonald (s130924@dot.ca.gov)
2023-10-11 - 10:59:22 PM GMT

Document e-signed by Alex Mcdonald (s130924@dot.ca.gov)
Signature Date: 2023-10-11 - 10:59:31 PM GMT - Time Source: server

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Appendix B Air Quality Report

AIR QUALITY REPORT

State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections

Napa County, California

04-NAP-29-22.72/24.59
EA 04-2W430/Project ID 421000200

Prepared by

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Prepared for

METROPOLITAN TRANSPORTATION COMMISSION

Caltrans

June 2023

This document contains blank pages to accommodate two-sided printing.

AIR QUALITY REPORT

NAPA COUNTY, CALIFORNIA

CALIFORNIA DEPARTMENT OF TRANSPORTATION DISTRICT 4

E.A. 04-2W430

Project ID 421000200

Reviewed by: Shilpa Mareddy Date: 6/16/2023

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Contents

List of Appendices v
List of Tables vi
List of Figures vii
Acronyms and Abbreviations viii

1. Proposed Project Description 11
   1.1 Introduction 11
   1.2 Location and Background 11
   1.3 Purpose and Need 12
   1.4 Baseline and Forecasted Conditions for No-Build and Project Alternatives 12
      1.4.1 Existing Roadways and Traffic Conditions 12
      1.4.2 No-Build Alternative 14
      1.4.3 Project Build Alternative 14
      1.4.4 Comparison of Existing/Baseline and Build Alternative 15
   1.5 Construction Activities and Schedule 16

2. Regulatory Setting 17
   2.1 Pollutant-Specific Overview 17
      2.1.1 Criteria Pollutants 17
      2.1.2 Mobile Source Air Toxics 21
      2.1.3 Greenhouse Gases 23
      2.1.4 Asbestos 24
   2.2 Regulations 25
      2.2.1 Federal and California Clean Air Act 25
      2.2.2 Transportation Conformity 25
      2.2.3 National Environmental Policy Act (NEPA) 26
      2.2.4 California Environmental Quality Act (CEQA) 26
      2.2.5 Local 27

3. Affected Environment 28
   3.1 Climate, Meteorology, and Topography 28
   3.2 Existing Air Quality 29
      3.2.1 Criteria Pollutants and Attainment Status 29
      3.2.2 Mobile Source Air Toxics 32
      3.2.3 Greenhouse Gas and Climate Change 33
   3.3 Sensitive Receptors 33
   3.4 Conformity Status 34
      3.4.1 Regional Conformity 34
      3.4.2 Project-Level Conformity 34
      3.4.3 Interagency Consultation 34
   3.5 NEPA Analysis/Requirement 35

3.6 CEQA Analysis/Requirement....35

4. Environmental Consequences....36
4.1 Impact Criteria....36
4.2 Short-Term Effects (Construction Emissions)....36
4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust....36
4.2.2 Asbestos....39
4.2.3 Lead....40
4.3 Long-Term Effects (Operational Emissions)....40
4.3.1 CO Analysis....42
4.3.2 PM Analysis....43
4.3.3 NO_2 Analysis....45
4.3.4 Mobile Source Air Toxics Analysis....46
4.3.5 Greenhouse Gas Emissions Analysis....47
4.4 Cumulative/Regional/Indirect Effects....49

5. Minimization Measures....50
5.1 Short-Term (Construction)....50
5.2 Long-Term (Operational)....50

6. Conclusions....51

7. References....52

8. Appendices....54

List of Appendices

Appendix A RTP and TIP Listings for the Project

Appendix B Interagency Consultation Documentation

Appendix C RCEM Input and Output

Appendix D CT-EMFAC2021 Input and Output

Appendix E EPA CO Letter and CO Flow Chart (Based on the CO Protocol)

List of Tables

Table 1-1. Summary of Existing Traffic Conditions. 13
Table 1-2. Posted Speed Limit Data. 13
Table 1-3. Summary of Future No-Build Traffic Conditions. 14
Table 1-4. Construction Duration by Phase. 16
Table 2-1. Table of State and Federal Ambient Air Quality Standards. 18
Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources. 20
Table 3-1. State and Federal Attainment Status. 30
Table 3-2. Air Quality Concentrations for the Past 3 Years Measured at Napa-Valley College. 30
Table 4-1. Estimated Short-term Construction Emissions 38
Table 4-2. Regional Emission Burden Summary 42
Table 4-3. MSAT Emission Summary 47

List of Figures

Figure 1-1. Map of the Project Location. 11
Figure 2-1. Projected National MSAT Trends, 2010-2050. 22
Figure 3-1. Projected Bay Area GHG Emissions by Sector Based on State Policies 32
Figure 3-2. Projected Bay Area GHG Emissions by Sector Based on State Policies 33
Figure 4-1. Comparison of Annual Statewide GHG Emissions to the 2020 GHG Limit. 48

Acronyms and Abbreviations

Term	Definition
AADT	Average annual daily traffic
AB	Assembly bill
ADL	Aerially Deposited Lead
ARB	California Air Resources Board
CAAA	Clean Air Act Amendments
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CO Protocol	Transportation Project-Level Carbon Monoxide Protocol
EO	Executive Order
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FMS	Fund Management System
FSTIP	Federal Statewide Transportation Improvement Program
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global Warming Potential
H_2S	Hydrogen sulfide
IAC	Interagency Consultation

Term	Definition
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of service
MMT	Million metric tons
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MT	Metric tons
MTC	Metropolitan Transportation Commission
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NOP	Notice of Preparation
NO_x	Nitrogen oxide
NVTA	Napa Valley Transportation Authority
O_3	Ozone
Pb	Lead
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
POAQC	Project of air quality concern
ppb	Parts per billion
ppm	Parts per million
RCEM	Road Construction Emissions Model
ROG	Reactive organic gases

Term	Definition
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SR-29	State Route 29
TIP	Transportation Improvement Program
TOAR	Traffic Operations Analysis Report
USC	United States Code
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled
VOCs	Volatile organic compounds

1. Proposed Project Description

1.1 Introduction

The Metropolitan Transportation Commission (MTC), in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of State Route (SR-29) at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59). The proposed project is located along a 2.2-mile segment of SR-29 in an unincorporated area of Napa County. A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road and installation of a traffic signal and/or other traffic calming measures are proposed at the intersection of SR-29 and Rutherford Road. Caltrans is the National Environmental Policy Act (NEPA) Lead Agency. Caltrans has delegated the MTC as California Environmental Quality Act (CEQA) Lead Agency, with Caltrans acting as a responsible agency.

1.2 Location and Background

The proposed project is located along a 2.2-mile segment of SR-29 in an unincorporated area of Napa County. The project proposes the improvement of two intersections at: SR-29/Rutherford Road (SR-128) in the community of Rutherford and SR-29/Oakville Cross Road in the community of Oakville. Figure 1-1 shows the project location.

The proposed project is included in the MTC's 2023 Transportation Improvement Program (TIP) (TIP ID NAP190007) (MTC, 2022). It is also listed in the Air Quality Conformity Analysis Report for the MTC's Regional Transportation Plan (RTP) for the San Francisco Bay Area, known as Plan Bay Area 2050 (RTP ID 21-T07-056), as an exempt intersection channelization project (MTC and ABAG, 2021).

Figure 1-1. Map of the Project Location.

In March 2023, MTC completed a Traffic Operations Analysis Report (TOAR) to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that

enhanced intersection control at the two intersections would improve multimodal traffic operations performance along SR-29. Preliminary crash data analysis provided by Caltrans indicates that the total rate of fatal and injury crash at these two intersections are above the average crash rate for similar facilities statewide. Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

Federal Highway Administration (FHWA) studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor.

1.3 Purpose and Need

The purpose of the project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road.

- Improve travel time and reduce delay for side streets accessing SR-29.
- Enhance traffic safety.
- Improve turning movements.

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed the statewide average for similar type of facility.
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume.
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming.

1.4 Baseline and Forecasted Conditions for No-Build and Project Alternatives

The proposed alternatives include the No-Build Alternative and proposed project Build Alternative. These alternatives are discussed below.

1.4.1 Existing Roadways and Traffic Conditions

Under CEQA, the baseline for environmental impact analysis consists of the existing conditions (referred to in this document as Baseline) at the time of the Notice of Preparation (NOP) or at the

time the environmental studies began. The baseline year being used for analysis in this Air Quality Report is 2022, consistent with the TOAR (GHD, 2023).

SR-29 is one of the two major north-south corridors that provides connectivity through the cities of Calistoga, St. Helena, Yountville, Napa, and American Canyon within Napa County. It is a primary freight, agricultural, and commute corridor accessing the San Francisco Bay Area and Sacramento, as well as nearby Solano and Lake Counties. As the gateway to the Napa Valley Wine Country, SR-29 is a main route that brings tens of thousands of tourists to the region each year. Within the project limits, SR-29 between Whitehall Lane and Oakville Cross Road experiences heavy congestion during peak periods. The existing SR-29 corridor is uncontrolled within the project study area. Traffic on SR-29 is not required to stop, creating a continuous traffic flow and leaving no gap for side streets to make turns. Therefore, vehicles at many of the side-street stop-controlled intersection approaches along the corridor experience difficulty turning onto SR-29.

Existing traffic conditions for the study area, which includes a 2.2-mile segment of SR-29 as shown in Figure 1-1, are summarized in Table 1-1. The project is not a capacity enhancing or vehicle miles traveled (VMT)-inducting project; therefore, no VMT analysis was performed for the project pursuant to Caltrans guidance. Posted speed limits for roads within the project study area are presented in Table 1-2.

Table 1-1. Summary of Existing Traffic Conditions.

Scenario/ Analysis Year	Location	AADT		% Truck
		Total	Truck	
Existing/Baseline Year 2022	SR-29 between Oakville Cross Road and Rutherford Road	20,500	328 – 1,661 Average: 1,353	1.6% - 8.1% Average: 6.6%

Notes:
- Percentage of vehicles that are trucks presented as a range to capture traffic data collected during weekday AM, weekday PM, and weekend mid-day peak periods.
- AADT = Average annual daily traffic

Source: TOAR (GHD, 2023)

Table 1-2. Posted Speed Limit Data.

Roadway within Study Area	Posted Speed Limit
SR-29	40-50 mph
Rutherford Road/SR-128	30 mph
Oakville Cross Road	25-30 mph

Source: TOAR (GHD, 2023)

1.4.2 No-Build Alternative

The No-Build (No Action) Alternative consists of those transportation projects that are already planned for construction by or before the project's opening and design years (2025 and 2035, respectively) and the RTP horizon year (2050). Consequently, the No-Build alternative represents future travel conditions in the project study area without the project and is the baseline against which the project Build Alternative will be assessed to meet NEPA requirements.

Under the No-Build Alternative, no improvements are proposed, and the intersection geometries would remain the same as existing conditions. Existing and projected future increases in traffic congestion would not be addressed and traffic volumes would continue to increase.

No-Build traffic conditions for the project opening year (2025), project design year (2035), and RTP horizon year are summarized in Table 1-3. As noted above, the project is not a capacity enhancing or VMT-inducting project; therefore, no VMT analysis was performed for the project pursuant to Caltrans guidance.

Table 1-3. Summary of Future No-Build Traffic Conditions.

Scenario/ Analysis Year	Location	AADT		% Truck
		Total	Truck	
No-Build Year 2025	SR-29 between Oakville Cross Road and Rutherford Road	22,423	359 – 1,816 Average: 1,480	1.6% - 8.1% Average: 6.6%
No-Build Year 2035	SR-29 between Oakville Cross Road and Rutherford Road	24,828	397 – 2,011 Average: 1,639	1.6% - 8.1% Average: 6.6%
No-Build Year 2050	SR-29 between Oakville Cross Road and Rutherford Road	28,916	463 – 2,342 Average: 1,908	1.6% - 8.1% Average: 6.6%

Notes:
- Percentage of vehicles that are trucks assumed to be the same as Existing.
- AADT = Average annual daily traffic

Source: TOAR (GHD, 2023). 2050 values were not available in the TOAR and were extrapolated based on average annual growth rate.

1.4.3 Project Build Alternative

The proposed project would improve the operation and safety of SR-29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59). A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR-29 and Rutherford Road.

Oakville Cross Road Intersection

The Oakville roundabout would maintain existing traffic patterns; however, ingress to the Oakville grocery would be modified to right-in and right-out only. The project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather traffic would be routed through the roundabout to access the grocery. Construction of the roundabout also would include the installation of intersection lighting, a pedestrian and bicyclist shared use path with bike ramps, and splitter islands with curb ramps. In addition, the existing drainage system would be used to accommodate the proposed roundabout, and the existing signage within the right-of-way would be replaced or upgraded.

The existing channelization at the intersection of SR-29 and Oakville Grade Road may be restriped as part of the mainline improvement required for the construction of a roundabout at the intersection of SR-29 and Oakville Cross Road.

Rutherford Road Intersection

At the Rutherford Road intersection, the project proposes improvements such as a traffic signal, active transportation (improvements include bicyclist and pedestrian facilities that make it safer for pedestrian and bicyclist movements at the intersection), and traffic calming measures along the mainline at the intersection.

Due to the proximity to the Napa Wine Train tracks, railroad crossings improvements will also be needed at both intersections.

The proposed project Build Alternative would not add capacity, increase traffic volumes, or increase the amount of truck traffic in the study area. As such, the traffic data presented in Table 1-3 for the No-Build Alternative is also representative of traffic conditions for the project Build Alternative. The purpose of the project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds.

1.4.4 Comparison of Existing/Baseline and Build Alternative

Average annual daily traffic (AADT) is expected to increase approximately 9 percent by 2025, 21 percent by 2035, and 41 percent by 2050 with the No-Build and proposed project Build Alternatives. The fleet mix (trucks compared to light-duty automobiles) would remain the same as Baseline conditions with the No-Build and Build Alternatives (between 2 and 8 percent). The proposed project Build Alternative would not add capacity, increase traffic volumes, or increase the amount of truck traffic in the study area. The purpose of the project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds.

1.5 Construction Activities and Schedule

Project construction is anticipated to begin in October 2024 and last for approximately 12 months. In order to estimate emissions from construction of the proposed project using the Sacramento Air Quality Management District's Road Construction Model (RCEM), construction activities were characterized for the four default RCEM phases: Grubbing/Land Clearing (including mobilization), Grading/Excavation, Drainage/Utilities/Sub-Grade, and Paving. Details regarding the anticipated construction schedule by phase are presented in Table 1-3. It was assumed that there would be 22 workdays per month. Construction equipment usage and activity assumptions are included in the RCEM input and output, presented in Appendix C.

Table 1-4. Construction Duration by Phase.

Phase	Estimated Start Date	Estimated End Date	Duration
Grubbing/Land Clearing	10/2024	11/2024	1 month
Grading/Excavation	11/2024	4/2025	5 months
Drainage/Utilities/Sub-Grade	4/2025	8/2025	4 months
Paving	8/2025	9/2025	2 months

Source: RCEM phase duration defaults with project start date and overall duration provided by GHD, September 2022.

Oakville Cross Road Intersection

Limits of construction on SR-29 extend approximately 0.5 miles northerly and southerly from the center of the Oakville Cross Road intersection, approximately 500 feet in easterly direction along Oakville Cross Road, and approximately 200 feet in the westerly direction at the existing driveway crossing railroad tracks.

Rutherford Road Intersection

Limits of improvements on SR-29 would extend approximately 0.5 miles northerly and southerly from the center of the Rutherford Road intersection, and approximately 500 feet easterly along Rutherford Road.

Construction activities are not anticipated to last more than five years at any individual site. Emissions from construction-related activities are thus considered temporary as defined in 40 *Code of Federal Regulations* (CFR) 93.123(c)(5); and are not required to be included in particulate matter (PM) hot-spot analyses to meet conformity requirements.

2. Regulatory Setting

Many statutes, regulations, plans, and policies have been adopted at the federal, state, and local levels to address air quality issues related to transportation and other sources. The proposed project is subject to air quality regulations at each of these levels. This section introduces the pollutants governed by these regulations and describes the regulations and policies that are relevant to the proposed project.

2.1 Pollutant-Specific Overview

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) (particulate matter less than 2.5 microns in diameter [$PM_{2.5}$] and particulate matter less than 10 microns in diameter [PM_{10}]), and sulfur dioxide (SO_2). The United States Environmental Protection Agency (U.S. EPA) has also identified nine priority mobile source air toxics: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter (https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/). In California, sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride are also regulated.

2.1.1 Criteria Pollutants

The Clean Air Act requires the U.S. EPA to set NAAQS for six criteria air contaminants: O_3, PM ($PM_{2.5}$ and PM_{10}), CO, NO_2, lead, and SO_2. It also permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants. Table 2-1 documents the current air quality standards while

Table 2-2 summarizes the sources and health effects of the six criteria pollutants and pollutants regulated in the state of California.

Table 2-1. Table of State and Federal Ambient Air Quality Standards. Accessed February 2023, www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

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

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

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

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

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

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

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

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

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

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

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

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

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

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

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

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Table 2-2. State and Federal Criteria Air Pollutant Effects and Sources.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

2.1.2 Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. EPA regulate 188 air toxics, also known as hazardous air pollutants. The U.S. EPA has assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of U.S. EPA's Integrated Risk Information System (IRIS) (https://www.epa.gov/iris). In addition, the U.S. EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-hazard contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are *1,3-butadiene*, *acetaldehyde*, *acrolein*, *benzene*, *diesel particulate matter (diesel PM)*, *ethylbenzene*, *formaldehyde*, *naphthalene*, and *polycyclic organic matter*. While the FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future U.S. EPA rules.

The 2007 U.S. EPA rule mentioned above requires controls that will dramatically decrease Mobile Source Air Toxics (MSAT) emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using U.S. EPA's MOtor Vehicle Emission Simulator (MOVES)2014a model, even if vehicle activity (VMT) increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emission rate for the priority MSATs is projected for the same time period, as shown in Figure 2-1.

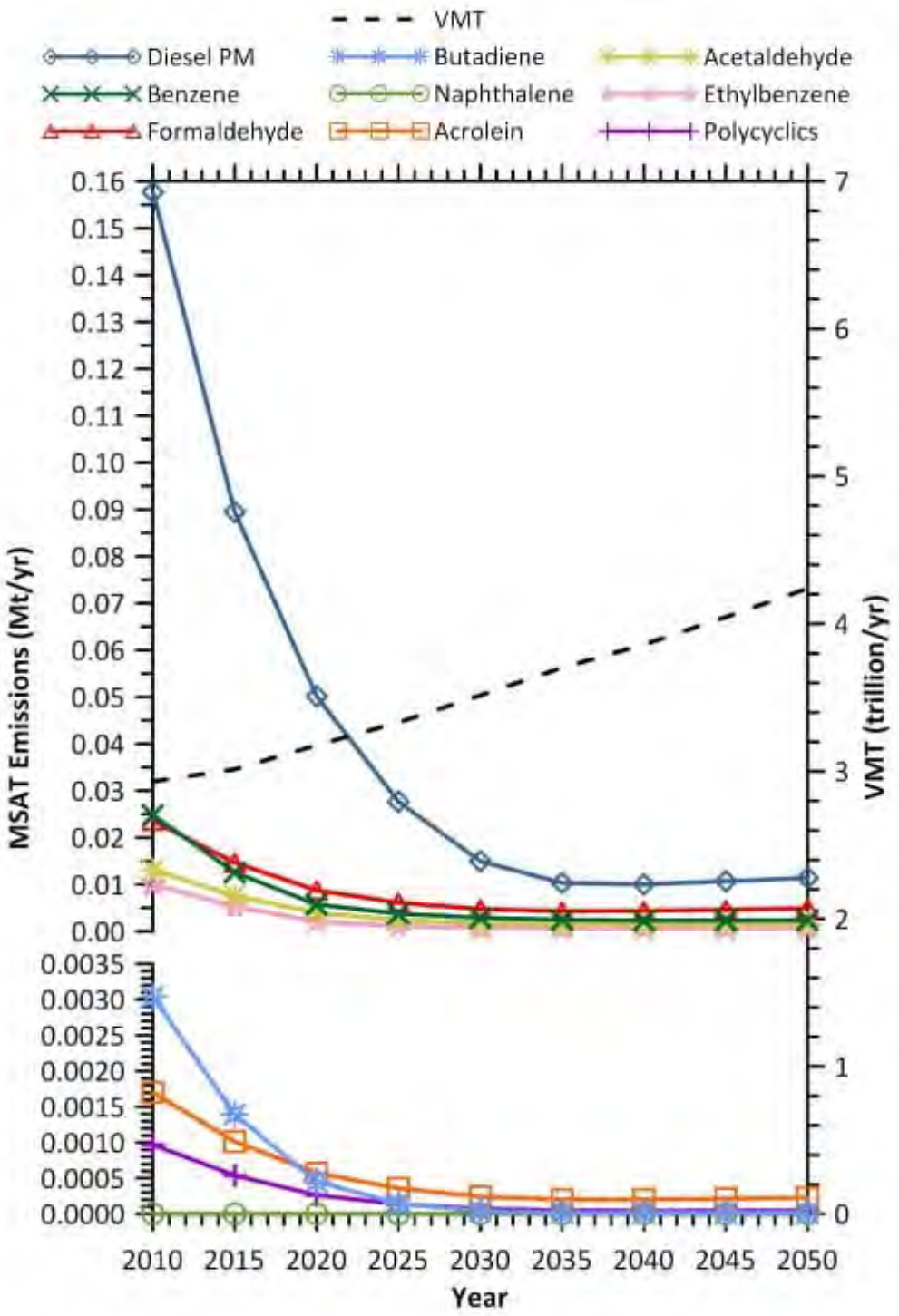

Figure 2-1. Projected National MSAT Trends, 2010-2050.
(Source: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/)

2.1.3 Greenhouse Gases

The term greenhouse gas (GHG) is used to describe atmospheric gases that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of Earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases.

GHGs differ in how much heat each traps in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the warming potential of other gases is assessed as multiples of CO_2. For example, the 2007 Intergovernmental Panel on Climate Change (IPCC) *Fourth Assessment Report* calculates the GWP of CH_4 as 25 and the GWP of N_2O as 298, over a 100-year time horizon.[1] Generally, estimates of all GHGs are summed to obtain total emissions for a project or given time period, usually expressed in metric tons ($MTCO_2e$), or million metric tons ($MMTCO_2e$).[2]

As evidence has mounted for the relationship of climate changes to rising GHGs, federal and state governments have established numerous policies and goals targeted to improving energy efficiency and fuel economy and reducing GHG emissions. Nationally, electricity generation is the largest source of GHG emissions, followed by transportation. In California, however, transportation is the largest contributor to GHGs.

At the federal level, NEPA (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. However, the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) issued the first corporate fuel economy (CAFE) standards in 2010, requiring cars and light-duty vehicles to achieve certain fuel economy targets by 2016, with the intention of gradually increasing the targets and the range of vehicles to which they would apply.

California has enacted aggressive GHG reduction targets, starting with Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 is California's signature climate change legislation. It set the goal of reducing statewide GHG emissions to 1990 levels by 2020 and required the California Air Resources Board (ARB) to develop a Scoping Plan that describes the approach

[1] See Table 2.14 in IPCC Fourth Assessment Report: Climate Change 2007 (AR4): The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter2.pdf.

[2] See http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools.

California will take to achieve that goal and to update it every 5 years. In 2015, Governor Jerry Brown enhanced the overall adaptation planning effort with Executive Order (EO) B-30-15, establishing an interim GHG reduction goal of 40 percent below 1990 levels by 2030, and requiring state agencies to factor climate change into all planning and investment decisions. Senate Bill 32, approved in September 2016, enacted EO B-30-15 and required the ARB to prioritize emissions reductions to consider the social costs of the emissions of GHGs.

Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008, furthered state climate action goals by mandating coordinated transportation and land use planning through preparation of sustainable communities strategies (SCS). The ARB sets GHG emissions reduction targets for passenger vehicles for each region. Each regional metropolitan planning organization must include in its regional transportation plan an SCS proposing actions toward achieving the regional emissions reduction targets.[3]

With these and other State Senate and Assembly bills and executive orders, California advances an innovative and proactive approach to dealing with GHG emissions and climate change.

2.1.4 Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the ARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentine and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos-bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentine may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology has developed a map showing the general location of ultramafic rock in the state (https://www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos).

[3] https://www.arb.ca.gov/cc/sb375/sb375.htm

2.2 Regulations

2.2.1 Federal and California Clean Air Act

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws and related regulations by the U.S. EPA and the ARB set standards for the concentration of pollutants in the air. At the federal level, these standards are called NAAQS. NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: CO, NO_2, O_3, PM, which is broken down for regulatory purposes into PM_{10} and $PM_{2.5}$, and SO_2. In addition, national and state standards exist for lead, and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

2.2.2 Transportation Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming level—and the project level. The proposed project must conform at both levels to be approved.

Section 107 of the 1977 Clean Air Act Amendments requires that the U.S. EPA publish a list of all geographic areas in compliance with the NAAQS, plus those not in compliance with the NAAQS. Areas not in NAAQS compliance are deemed non-attainment areas. Areas that have insufficient data to make a determination are deemed unclassified and are treated as attainment areas until proven otherwise. An area’s designation is based on the data collected by the state monitoring network on a pollutant-by-pollutant basis.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. The U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO_2, O_3, PM (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), SO_2. California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead; however, lead is not

currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of RTPs and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and the TIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP and the project has a design concept and scope[4] that has not changed significantly from those in the RTP and TIP. If the design concept and scope have changed substantially from that used in the RTP Conformity analysis, RTP and TIP amendments may be needed. Project-level conformity also needs to demonstrate that project analyses have used the latest planning assumptions and U.S. EPA-approved emissions models; the project complies with any control measures in the SIP in PM areas. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.3 National Environmental Policy Act (NEPA)

NEPA requires that policies and regulations administered by the federal government are consistent with its environmental protection goals. NEPA also requires that federal agencies use an interdisciplinary approach to planning and decision-making for any actions that could impact the environment. It requires environmental review of federal actions including the creation of Environmental Documents that describe the environmental effects of a proposed project and its alternatives (including a section on air quality impacts).

2.2.4 California Environmental Quality Act (CEQA)

CEQA[5] is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA documents address CCAA requirements for transportation projects. While state standards are often more strict than federal standards, the state has no conformity process.

[4] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

[5] For general information about CEQA, see: http://resources.ca.gov/ceqa/more/faq.html.

2.2.5 Local

The U.S. EPA has delegated responsibility to air districts to establish local rules to protect air quality. Caltrans' Standard Specification 14-9.02 (Caltrans, 2015) requires compliance with all applicable air quality laws and regulations including local and air district ordinances and rules.

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, CAAA, and the CCAA (BAAQMD, 2017a).

In 2017, the BAAQMD released the latest update to its CEQA Guidelines. This is an advisory document that provides the Lead Agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components:

1. Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
2. Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
3. Methods available to mitigate air quality impacts;
4. Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography (BAAQMD, 2017a).

In April 2022, the BAAQMD adopted *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*. This document presents thresholds of significance for use in determining whether a proposed project will have a significant impact on climate change and provides the substantial evidence that lead agencies will need to support their use of these thresholds. The BAAQMD is in the process of preparing Updated CEQA Guidelines for applying these thresholds of significance (BAAQMD, 2022).

Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the San Francisco Bay Area Air Basin. The BAAQMD prepares ozone attainment plans for the national ozone

standard and clean air plans for the California standard both in coordination with the MTC and the Association of Bay Area Governments (ABAG) (BAAQMD, 2017a).

In April 2017, the BAAQMD adopted the 2017 Clean Air Plan, which provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the BAAQMD will continue progress toward attainment of all state and federal air quality standards and elimination of health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets (BAAQMD, 2017b).

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as PM, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of CO_2 by reducing fossil fuel combustion (BAAQMD, 2017b).

3. Affected Environment

The topography of a region can substantially impact air flow and resulting pollutant concentrations. California is divided into 15 air basins of similar topography and meteorology to better manage air quality throughout the state. Each air basin has a local air district that is responsible for identifying and implementing air quality strategies to comply with ambient air quality standards.

The SR-29 Improvements at Rutherford and Oakville Intersections project site is located in proximity to the communities of Rutherford and Oakville in Napa County, an area within the San Francisco Bay Area Air Basin, which also includes Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. Air quality regulation in San Francisco Bay Area Air Basin is administered by the BAAQMD. Current population for Napa County is 138,000 based on 2020 Census Data (U.S. Census Bureau, 2020).

3.1 Climate, Meteorology, and Topography

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The Napa Valley is bordered by relatively high mountains. With an average ridge line height of about 2000 feet, with some peaks approaching 3000 to 4000 feet, these mountains are effective barriers to

the prevailing northwesterly winds. The Napa Valley is widest at its southern end and narrower in the north (BAAQMD, 2017a).

During the day, the prevailing winds flow up valley from the south about half of the time. A strong up valley wind frequently develops during warm summer afternoons, drawing air in from the San Pablo Bay. Daytime winds sometimes flow down valley from the north. During the evening, especially in the winter, down valley drainage often occurs. Wind speeds are generally low, with almost 50 percent of the winds less than 4 miles per hour (mph). Only 5 percent of the winds are between 16 and 18 mph, representing strong summertime up valley winds and winter storms (BAAQMD, 2017a).

Summer average maximum temperatures are in the low 80's at the southern end of the valley and in the low 90's at the northern end. Winter average maximum temperatures are in the high- 50's and low-60's, and minimum temperatures are in the high to mid-30's with the slightly cooler temperatures in the northern end (BAAQMD, 2017a).

The air pollution potential in the Napa Valley could be high if there were sufficient sources of air contaminants nearby. Summer and fall prevailing winds can transport ozone precursors northward from the Carquinez Strait Region to the Napa Valley, effectively trapping and concentrating the pollutants when stable conditions are present. The local upslope and downslope flows created by the surrounding mountains may also recirculate pollutants already present, contributing to buildup of air pollution. High ozone concentrations are a potential problem to sensitive crops such as wine grapes, as well as to human health. The high frequency of light winds and stable conditions during the late fall and winter contribute to the buildup of particulate matter from motor vehicles, agriculture and wood burning in fireplaces and stoves (BAAQMD, 2017a).

3.2 Existing Air Quality

This section summarizes existing air quality conditions near the proposed project area. It includes attainment statuses for criteria pollutants, describes local ambient concentrations of criteria pollutants for the past 3 years, and discusses MSAT and GHG emissions.

3.2.1 Criteria Pollutants and Attainment Status

Table 3-1 lists the state and federal attainment status for all regulated pollutants. The proposed project is located in an area that is nonattainment for the 2008 federal ozone standard, the 2015 federal ozone standard, and the 2006 federal $PM_{2.5}$ standard. Additionally, the proposed project area is nonattainment for the state ozone, PM_{10}, and $PM_{2.5}$ standards.

Table 3-2 lists air quality trends in data collected at Napa-Valley College for the past 3 years. The Napa-Valley College station is the closest monitoring station to the project site, located 13 miles to the southeast (Figure 3-1). Several exceedances of the State 1-hour ozone, State and Federal 8-hour ozone, State 24-hour PM_{10} and Federal 24-hour $PM_{2.5}$ standards were recorded during the 2019 – 2021 period.

The applicable SIP is the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757). The most recent SIP revision was adopted in April 2020, approved by ARB in May 2021, and submitted to the U.S. EPA for final action (MTC and ABAG, 2021).

Table 3-1. State and Federal Attainment Status.

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment	Marginal Nonattainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment-Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Moderate Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment-Unclassified
Nitrogen Dioxide (NO_2)	Attainment	Attainment-Unclassified
Sulfur Dioxide (SO_2)	Attainment	Attainment-Unclassified
Lead (Pb)	Attainment	Attainment-Unclassified
Visibility-Reducing Particles	Unclassified	N/A
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Vinyl Chloride	N/A	N/A

Source: ARB, http://www.arb.ca.gov/desig/adm/adm.htm

Table 3-2. Air Quality Concentrations for the Past 3 Years Measured at Napa-Valley College.

Pollutant	Standard	2019	2020	2021
Ozone				
Max 1-hr concentration		0.095	0.091	0.070
No. days exceeded: State	0.09 ppm	1	0	0
Max 8-hr concentration: State		0.077	0.077	0.064
Federal		0.076	0.076	0.064
No. days exceeded: State	0.070 ppm	2	1	0
Federal	0.070 ppm	2	1	0
PM_{10}				
Max 24-hr concentration: State		39.0	125.0	24.0
Federal		37.5	122.9	22.9
No. days exceeded: State	50 µg/m^3	0	2	0
Federal	150 µg/m^3	0	0	0
Annual average concentration		*	19.0	*
No. days exceeded: State	20 µg/m^3	-	-	-
$PM_{2.5}$				

Pollutant	Standard	2019	2020	2021
Max 24-hr concentration		21.5	148.5	17.6
No. days exceeded: Federal	35 µg/m^3	0	14.7	*
Annual average concentration: State		6.0	10.4	*
Federal		5.9	10.3	*
No. days exceeded: State	12 µg/m^3	-	-	-
Federal	12.0 µg/m^3	-	-	-
Nitrogen Dioxide				
Max 1-hr concentration: State		36	29	29
Federal		36.6	29.9	29.0
No. days exceeded: State	0.18 ppm	0	0	0
Federal	100 ppb	0	0	0
Annual average concentration: State		4	4	*
Federal		-	-	-
No. days exceeded: State	0.030 ppm	-	-	-
Federal	53 ppb	-	-	-

Notes:

2022 data is not yet available from ARB.

* Insufficient data available to determine the value

- Not available

Source: California Air Resources Board: http://www.arb.ca.gov/adam/welcome.html

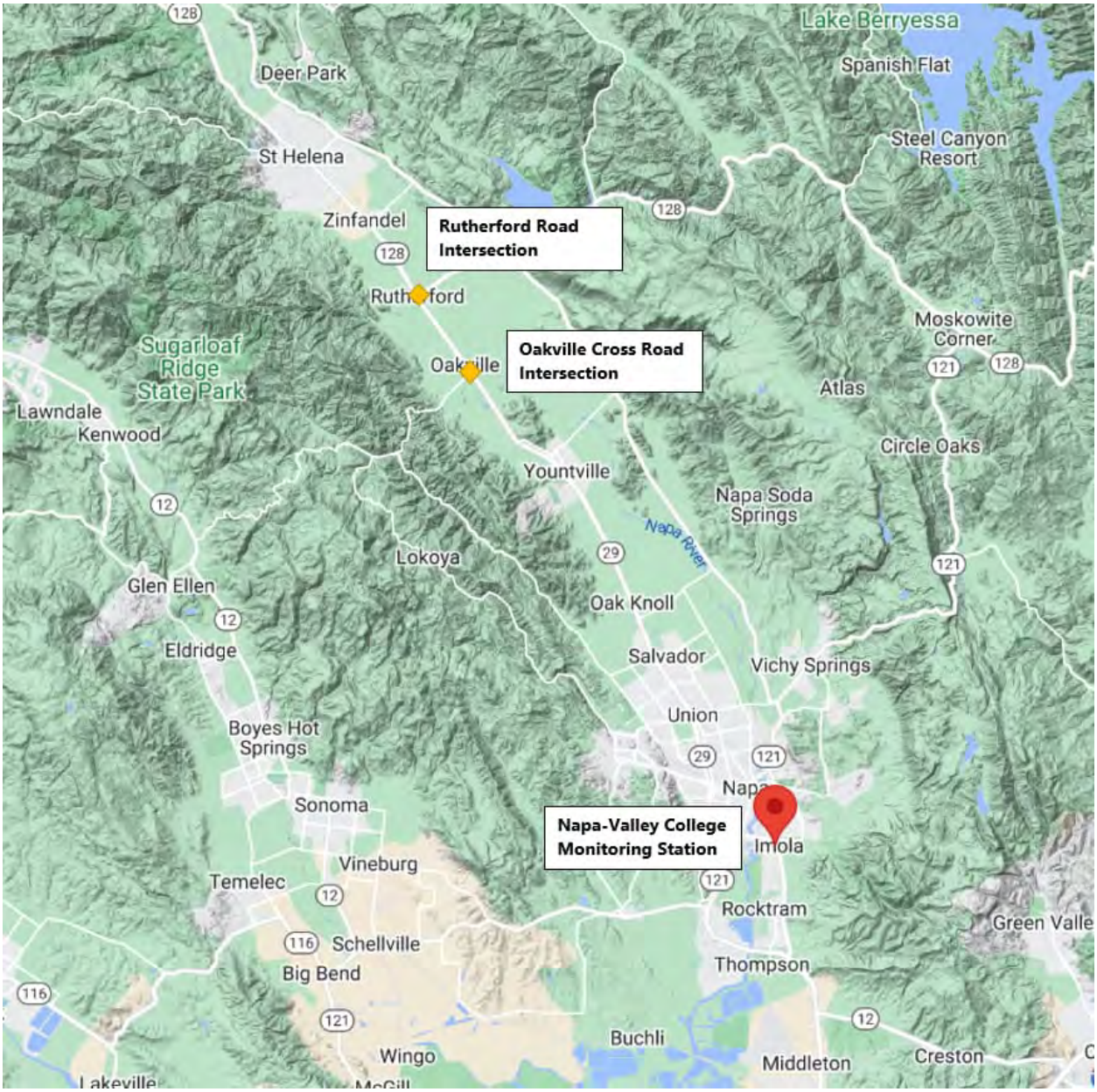

Figure 3-1. Projected Bay Area GHG Emissions by Sector Based on State Policies.
(Source: California Air Resources Board: http://www.arb.ca.gov/adam/welcome.html)

3.2.2 Mobile Source Air Toxics

Sources of emissions of priority MSAT pollutants in the project area are from passenger and freight vehicles traveling on roadways. There are no other nearby facilities that serve on- or off-road motor vehicles, such as rail yards or transit terminals. There is no ambient MSAT concentration data available in the project vicinity (ARB, 2023).

3.2.3 Greenhouse Gas and Climate Change

CO_2, as part of the carbon cycle, is an important compound for plant and animal life, but also accounted for 84% of California's total GHG emissions in 2015. Transportation, primarily on-road travel, is the single largest source of CO_2 emissions in the state.

The proposed project is located in Napa County, in the northern part of the 9-county region covered by the Plan Bay Area 2050, MTC's RTP/SCS for the San Francisco Bay Area. In 2017, the BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate*, which provides a regional strategy to protect public health and the climate in the Bay Area (BAAQMD, 2017b). According to the 2015 GHG inventory in the *2017 Clean Air Plan*, the transportation sector contributed 40 percent of the estimated CO_2e GHG emissions in the Bay Area that year. Figure 3-2 shows estimated changes in GHG emissions since 1990 and projected emissions through 2050 by sector, accounting for adopted and expected GHG reduction policies and regulations.

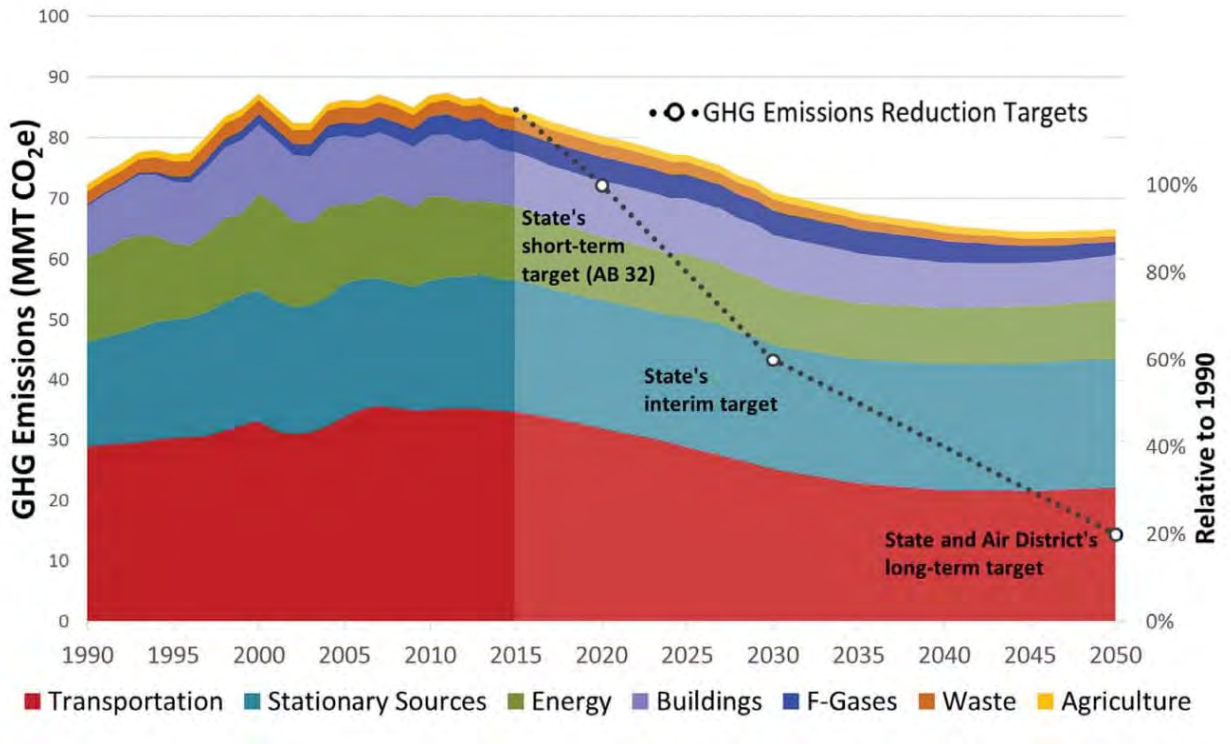

Figure 3-2. Projected Bay Area GHG Emissions by Sector Based on State Policies.
(Source: BAAQMD, 2017b: Figure 3-9)

3.3 Sensitive Receptors

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive populations that are in proximity to localized sources of toxics are

of particular concern. Sensitive receptors for air quality include residential areas, schools, hospitals, other health care facilities, child/day care facilities, parks, and playgrounds. Research shows that the zone of greatest concern near roadways is within 500 feet (or 150 meters). Sensitive receptors within 500 feet (or 150 meters) of the two intersections affected by the proposed project include single family homes.

3.4 Conformity Status

Transportation Conformity applies in areas that are “nonattainment” or “attainment-maintenance” for the NAAQS, and only for the standards that are or previously were violated. Conformity analysis and determinations are done at regional and project-level scales.

3.4.1 Regional Conformity

The proposed project is located within the NVTA planning area. Intersection channelization and intersection signalization projects are exempt from regional conformity requirements (40 CFR 93.127). Separate listing of the project in the RTP and TIP, and their regional conformity analyses, is not necessary. The project would not interfere with timely implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis.

While not required, the proposed project is included in the MTC’s 2023 TIP (TIP ID NAP190007), which is included in Caltrans’ 2023 Federal Statewide Transportation Improvement Program (FSTIP) by reference (MTC, 2022). It is also listed in the Air Quality Conformity Analysis Report for the MTC’s RTP for the San Francisco Bay Area, known as Plan Bay Area 2050 (RTP ID 21-T07-056) (MTC and ABAG, 2021). The proposed project is identified as exempt from regional conformity analysis per 40 CFR 93.127 because it is an intersection channelization project, and as such, does not need to be individually considered in the regional conformity modeling. Excerpts of relevant pages from the RTP and TIP are included in Appendix A.

3.4.2 Project-Level Conformity

The project is located in Napa County, which is in nonattainment for $PM_{2.5}$, thus a project-level hot-spot analysis for $PM_{2.5}$ is required under 40 CFR 93.109. As discussed in the following sections, the project does not cause or contribute to any new localized CO, $PM_{2.5}$, and/or PM_{10} violations, or delay timely attainment of any NAAQS or any required interim emission reductions or other milestones during the timeframe of the transportation plan (or regional emissions analysis).

3.4.3 Interagency Consultation

The interagency consultation (IAC) process for project-level conformity involves the following steps:

1. Project proponent completes and submits the "Project Assessment Form" and "Example Assessment Form Cover Page" for task force review. Project proponent may also prepare an optional PowerPoint presentation for review during the consultation meeting.

2. Project proponent attends a consultation meeting with the air quality conformity task force members (U.S. EPA, FHWA, Caltrans and FTA). Consultation meetings are held the fourth Thursday of each month.

3. Task force determines whether the project is a project of air quality concern (POAQC). If the project is determined not to be a POAQC, the project has completed the project-level conformity process and this information is updated in MTC's Fund Management System (FMS). FMS then generates an email confirming the completion of the process and this email is used for the environmental documentation for Caltrans' field reviews.

The project was presented to the air quality conformity task force on February 23, 2023, and IAC participants concurred that the project is not a POAQC. Documentation confirming completion of the IAC process is included in Appendix B.

3.5 NEPA Analysis/Requirement

NEPA applies to all projects that receive federal funding or involve a federal action. NEPA requires that all reasonable alternatives for the project are rigorously explored and objectively evaluated. The air quality analysis addresses federal criteria pollutants (O_3, $PM_{2.5}$, PM_{10}, CO, NO_2, SO_2, and lead), MSATs, and asbestos. Emissions from the future year Build Alternative were compared to those from the future year No-Build Alternative.

3.6 CEQA Analysis/Requirement

CEQA applies to most California transportation projects (certain projects are statutorily exempt). The air quality analysis addresses pollutants for which California has established air quality standards (O_3, PM_{10}, $PM_{2.5}$, carbon monoxide, NO_2, SO_2, lead, visibility-reducing particles, sulfates, H_2S, and vinyl chloride), as well as GHGs, MSATs, and asbestos. Emissions from the future year Build Alternative were compared to emissions from the Baseline (existing conditions). The difference between the future No-Build Alternative and Build Alternative were also presented to help inform significance determinations.

4. Environmental Consequences

This section describes the methods, impact criteria, and results of air quality analyses of the proposed project. Analyses in this report were conducted using methodology and assumptions that are consistent with the requirements of NEPA, CEQA, the CAAAs of 1990, and the CCAA of 1988. The analyses also use guidelines and procedures provided in applicable air quality analysis protocols, such as the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Garza et al., 1997), Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{10} and $PM_{2.5}$ Nonattainment and Maintenance Areas (U.S. EPA, 2021), and the FHWA Updated Interim Guidance on Air Toxics Analysis in NEPA Documents (FHWA, 2023).

4.1 Impact Criteria

Project-related emissions will have an adverse environmental impact if they result in pollutant emissions levels that either create or worsen a violation of an ambient air quality standard (identified in Table 2-1) or contribute to an existing air quality violation.

Additionally, the project will have an adverse environmental impact if GHG emissions are generated directly or indirectly that may have a significant impact on the environment, or that would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

4.2 Short-Term Effects (Construction Emissions)

4.2.1 Construction Equipment, Traffic Congestion, and Fugitive Dust

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment also are expected and would include CO, nitrogen oxide (NO_X), volatile organic compounds (VOCs) / reactive organic gasses (ROG), SO_2, directly emitted PM_{10} and $PM_{2.5}$, and toxic air contaminants such as diesel exhaust particulate matter. Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors. Ozone is a regional pollutant that is derived from NO_X and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, existing asphalt removal, and paving of roadway surfaces. Construction-related effects on air quality would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could

temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs to be of concern.

Sources of fugitive dust associated with construction of the proposed project would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The Department's Standard Specifications (Section 14-9.03) on dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust related PM_{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_X, VOCs and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. Construction activities are expected to increase traffic congestion in the area, resulting in increases in CO and other emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 parts per million [ppm] sulfur), so SO_2-related issues due to diesel exhaust will be minimal.

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site. Such odors would quickly disperse to below detectable levels as distance from the site increases.

Construction activities would last for approximately 12 months. As they will not last for more than 5 years at one general location, construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

For disclosure purposes, construction-related emissions associated with the proposed project have been estimated using SMAQMD's RCEM, version 9.0.1 (SMAQMD, 2022). The RCEM was developed by SMAQMD and is used to analyze construction emissions for roadway projects throughout California. Project-specific construction activity details and assumptions are presented in Section 1.5.

Construction emissions calculated using RCEM were adjusted to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part Two using off-model adjustment factors developed by ARB (ARB, 2020). ARB developed the factors to account for the impact of the rule, which revoked California's authority to set its own GHG emission standards and set zero emission vehicle mandates. The off-model adjustment factors apply to gasoline light duty vehicle CO_2 emissions in EMFAC2014 and EMFAC2017. RCEM utilizes on-road emission factors from EMFAC2017; therefore, ARB's adjustment

factors have been applied to CO_2 emissions from gasoline light duty vehicle trips (i.e. construction worker commute trips).

The estimated short-term emissions from construction are presented by project phase in Table 4-1. RCEM input and output details are provided in Appendix C.

Table 4-1. Estimated Short-term Construction Emissions

Phase	ROG	NO_X	CO	Total PM_{10}[1]	Total $PM_{2.5}$[1]	CO_2e
Daily Emissions (pounds/day)						
Grubbing/Land Clearing	1.07	9.37	10.74	2.43	0.79	2,386
Grading/Excavation	4.68	45.95	44.71	3.95	2.15	10,041
Drainage/Utilities/ Sub-Grade	2.85	26.42	29.41	3.14	1.45	5,907
Paving	1.39	13.11	18.39	0.66	0.57	3,388
Maximum (pounds/day)	4.68	45.95	44.71	3.95	2.15	10,041
Total Emissions (tons/MT)[2]						
Grubbing/Land Clearing	0.01	0.12	0.14	0.03	0.01	28.58
Grading/Excavation	0.25	2.43	2.36	0.21	0.11	481.03
Drainage/Utilities/ Sub-Grade	0.13	1.22	1.36	0.14	0.07	247.61
Paving	0.03	0.26	0.36	0.01	0.01	60.86
Total Project	0.42	4.03	4.23	0.40	0.20	818.08

[1] Total PM Emissions include fugitive and exhaust emissions

[2] CO_2e emissions are reported as metric tons (MT)

Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce air quality impacts resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related emissions, these reductions cannot be quantified at this time.

- The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2022).
    - Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Water or a dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions.
- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.

- Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations (CCR) Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.
- Areas near sensitive air receptors will be designated environmentally sensitive areas. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.
- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to reduce PM emissions.
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown PM in the area.

4.2.2 Asbestos

Asbestos minerals occur in rock and soil as the result of natural geologic processes, often in veins near earthquake faults in the coastal ranges and the foothills of the Sierra Nevada Mountains and other areas of California. Naturally occurring asbestos (NOA) takes the form of long, thin, flexible, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, easily suspended in air. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses.

Asbestos is a known human carcinogen. It causes cancers of the lung and the lining of internal organs, as well as asbestosis and pleural disease that inhibit lung function. The U.S. EPA is working to address concerns about potential effects of NOA in a number of areas in California.

The California Geological Survey identifies ultramafic rocks in California to be the source of NOA, and in August of 2000 they published a report titled A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (available at https://filerequest.conservation.ca.gov/?q=ofr_2000-019.pdf). According to the map on the second page of this document, the project area does not contain ultramafic rocks and therefore is not an NOA area.

The proposed project does not include demolition or structural modification of bridges or other major structures/buildings, so structural asbestos is not a concern.

4.2.3 Lead

Lead is normally not an air quality issue for transportation projects unless the project involves disturbance of soils containing high levels of aerially deposited lead (ADL) or painting or modification of structures with lead-based coatings. The proposed project would not include painting or modification of any structures; therefore, lead-cased coatings would not be a potential source of lead emissions. The Initial Site Assessment conducted for the project found that soil in the project area may contain elevated levels of ADL, primarily due to historic leaded fuel emissions from automobile exhaust and typical roadway uses (Geocon, 2022).

Soil determined to contain lead concentrations exceeding stipulated thresholds would be managed in accordance with the 2016 *Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils* between Caltrans and the California Department of Toxic Substances Control and Caltrans' Standard Specifications and Standard Special Provisions for ADL. These documents require implementation of fugitive dust control measures using water or other palliatives during handling of ADL-contaminated soil, compliance with local air quality management district dust control requirements, prevention of visible dust migration beyond project limits, and security measures to keep people from coming into contact with ADL-contaminated soil.

4.3 Long-Term Effects (Operational Emissions)

Operational emissions take into account long-term changes in emissions due to the project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, the No-Build Alternative, and the Build Alternative.

The project-area emissions were estimated using Caltrans' CT-EMFAC2021 emissions model, which is based on ARB's EMission FACtor 2021 (EMFAC2021) model. EMFAC is a California-specific project-level analysis tool that models on-road and off-road vehicle emissions for criteria pollutants and GHGs. Combined with project-level travel activity data, CT-EMFAC can be used to estimate on-road vehicle emissions for an existing or proposed transportation project.

The emissions burden was estimated for the project study area, which includes a 2.2-mile segment of SR-29. Emissions were estimated for existing conditions (2022), opening year Build Alternative and

No-Build Alternative (2025), design year Build Alternative and No-Build Alternative (2035), and RTP horizon year Build Alternative and No-Build Alternative (2050). The AADT data and average truck percentages used to estimate emissions are presented in Table 1-1 and Table 1-3. The lower of the posted speed limits presented in Table 1-2 for SR-29 was used as representative of speeds in the study area in the absence of actual or modeled project-specific speed data.

CT-EMFAC2021 was used to generate an emissions inventory for the Napa (SF) Sub-Region for each analysis year. AADT and truck percentages are the same for the Build Alternative and No-Build Alternative in each analysis year, so only one run was needed per year to estimate emissions.

The results of the regional emissions analysis are shown in Table 4-2. The project would not increase regional VMT or emissions when compared to the No-Build Alternative. Regional VMT is expected to increase over time due to regional growth not associated with the project. Despite increases in VMT, emissions are expected to decrease over time due to improvements in fuel efficiency and vehicle technology. The estimated change in pollutant burden under the Build Alternative, when compared to the existing conditions, varies by pollutant. Emissions of ROG, NO_X, and CO would decrease in the opening year, design year, and RTP horizon year when compared to existing conditions while emissions of PM_{10} and $PM_{2.5}$ would increase. PM emission increases are a result of increased road dust, tire wear, and brake wear emissions tied to increased VMT in future years due to regional growth not associated with the project. Emission calculation details and CT-EMFAC output are provided in Appendix D.

Table 4-2. Regional Emission Burden Summary

Scenario	Daily Vehicle Miles Traveled (VMT)[1]	Emission Burdens (pounds/day)					Emission Burdens (MT/day)[2]
		ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	CO_2e
2022 Existing	45,100	5.9	19.7	102.6	14.4	2.8	15.5
2025 No-Build	49,330	5.5	15.6	89.2	15.6	3.0	15.7
2025 Build	49,330	5.5	15.6	89.2	15.6	3.0	15.7
2035 No-Build	54,621	4.2	8.3	65.0	17.2	3.2	13.9
2035 Build	54,621	4.2	8.3	65.0	17.2	3.2	13.9
2050 No-Build	63,615	3.5	6.0	64.8	20.4	3.7	14.4
2050 Build	63,615	3.5	6.0	64.8	20.4	3.7	14.4
2025 % Change from Existing	9%	-7%	-21%	-13%	9%	7%	1%
2025 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2035 % Change from Existing	21%	-29%	-58%	-37%	19%	15%	-10%
2035 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2050 % Change from Existing	41%	-40%	-70%	-37%	41%	33%	-7%
2050 % Change from No-Build	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

[1] Estimated based on AADT and study area, which includes a 2.2-mile segment of SR-29
[2] MT = metric tons

4.3.1 CO Analysis

The Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21) (CO Protocol) was developed for project-level conformity (hot-spot) analysis and was approved for use by the U.S. EPA in 1997 (Garza et al., 1997). It provides qualitative and quantitative screening procedures, as well as quantitative (modeling) analysis methods to assess project-level CO impacts. The qualitative screening step is designed to avoid the use of detailed modeling for projects that clearly cannot cause a violation, or worsen an existing violation, of the CO standards. Although the CO Protocol was designed to address federal standards, it has been recommended for use by several air pollution control districts in their CEQA analysis guidance documents and should also be valid for California standards because the key criterion (8-hour concentration) is similar: 9 ppm for the federal standard and 9.0 ppm for the state standard.

The transportation conformity requirements for CO ceased to apply on June 1, 2018 (see Appendix E). In order to determine the project-level CO impacts of the proposed project, the flowcharts on pages 3-2 and 4-10 of the CO Protocol were used. The following series of questions and answers can be followed along with the flowcharts (highlighted in yellow in Appendix E).

Is this project exempt from all emissions analyses? NO

According to Table 1 on page 2-6 of the CO Protocol, this project is not exempt from all emissions analyses.

Is project exempt from regional emissions analyses? YES

According to Table 2 on page 2-7 of the CO Protocol, intersection channelization and intersection signalization projects are exempt from regional emissions analyses.

Examine local impacts.

Local CO impacts are examined in the section below.

Is the project in a CO non-attainment area? NO

The project is in a federal and state CO attainment area.

Was the area re-designated as "attainment" after the 1990 Clean Air Act? NO

Areas other than urbanized areas within Napa County were designated unclassifiable/attainment prior to enactment of the CAAA of 1990 (40 CFR 81).

Does project worsen air quality? NO

- Project would not significantly increase cold start percentage.
- Project would not significantly increase traffic volumes.
- Project would not worsen traffic flow.

Project satisfactory, no further analysis needed.

The proposed project would not be likely to worsen air quality based on the criteria listed in Section 4.7.1 of the CO Protocol. The project does not include any parking facilities where vehicles would be cold-started. Therefore, the proposed project would not affect cold start percentages in the area. The proposed project would not increase traffic volumes and is expected to improve traffic flow. As a result, the proposed project does not require further project-level CO hot-spot analysis.

4.3.2 PM Analysis

Emissions Analysis

PM emissions were estimated for Baseline (2022), and for the No-Build Alternative and the Build Alternative for the opening year of 2025, project design year of 2035, and the RTP horizon year of 2050. As shown in Table 4-2, the estimated $PM_{2.5}$ and PM_{10} pollutant burdens under the Build Alternative would not change when compared to the No-Build Alternative. However, PM_{10} emissions in the study area would increase approximately 9 percent in the opening year, 19 percent in the

design year, and 41 percent in the RTP horizon year with the Build Alternative when compared to existing conditions. $PM_{2.5}$ emissions in the study area would increase approximately 7 percent in the opening year, 15 percent in the design year, and 33 percent in the RTP horizon year with the Build Alternative when compared to existing conditions. PM emission increases are a result of increased road dust, tire wear, and brake wear emissions tied to increased VMT in future years due to regional growth not associated with the project.

Hot-Spot Analysis

In October 2021, the U.S. EPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010 and released a revised version in November 2013 to reflect the approval of EMFAC2011 and U.S. EPA's 2012 PM NAAQS final rule. The next revision, released in November 2015, was updated to reflect MOVES2014 and to revise design value calculations to be more consistent with other U.S. EPA programs. The newest October 2021 version has been updated to reflect MOVES3, including new guidance on the number of MOVES runs; to reflect that AERMOD is the required model for PM hot-spot analyses; and to reflect guidance implementation and experience in the field (U.S. EPA, 2021). Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a hot-spot analysis to be completed for a POAQC. The final rule in 40 CFR 93.123(b)(1) defines a POAQC as:

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

(ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project is not considered a POAQC for $PM_{2.5}$ because it does not meet the definition of a POAQC as defined in U.S. EPA's Transportation Conformity Guidance.

The proposed project is not a new or expanded highway project with a significant number of or significant increase in diesel vehicles (U.S. EPA's Transportation Conformity Guidance defines significant as greater than 125,000 AADT and 8% or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT; significant increase is defined in

practice as a 10% increase in heavy duty truck traffic). The proposed project is an intersection safety and operations project that would not increase the capacity of SR-29 or increase diesel traffic. This type of project improves highway operations by reducing traffic congestion at existing intersections and improving merge operations. As such, the traffic details for the No-Build Alternative are also representative of traffic conditions for the project Build Alternative. The project is not a capacity enhancing or VMT-inducting project; therefore, no VMT analysis was performed for the project pursuant to Caltrans guidance. AADT and truck traffic details for the study area are presented in Tables 1-1 and 1-3.

The proposed project would not affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. As shown in Tables 1-1 and 1-3, the proposed project would not affect intersections with a significant number of diesel vehicles or increase the number of diesel vehicles at affected intersections. The purpose of the project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds.

The project does not involve new or expanded bus and rail terminals and transfer points that have a significant number of or increase in diesel vehicles congregating at a single location.

Furthermore, the proposed project is not in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

As such, PM hot-spot analysis is not required. The project was presented to the air quality conformity task force on February 23, 2023, and IAC participants concurred that the project is not a POAQC. Documentation confirming completion of the IAC process is included in Appendix B.

4.3.3 NO_2 Analysis

The U.S. EPA modified the NO_2 NAAQS to include a 1-hr standard of 100 parts per billion (ppb) in 2010. Currently there is no federal project-level NO_2 analysis requirement. However, NO_2 is among the near-road pollutants of concern.

For project-level analysis, an NO_2 assessment protocol is not available. As shown in Table 4-2, the estimated NO_X pollutant burden under the Build Alternative would not change when compared to the No-Build Alternative. However, NO_X emissions in the study area would decrease approximately 21 percent in the opening year, 58 percent in the design year, and 70 percent in the RTP horizon year with the Build Alternative when compared to existing conditions due to improvements in vehicle technology and fuel economy regulations. NO_X emissions are a combination of NO and NO_2 and can serve as a useful analysis surrogate for NO_2.

4.3.4 Mobile Source Air Toxics Analysis

FHWA released updated guidance in January 2023 (FHWA, 2023) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA identified three levels of analysis:

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Projects with no impacts generally include those that a) qualify as a categorical exclusion under 23 CFR 771.117, b) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, and c) are not exempt, but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. The majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of Diesel Particulate Matter in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Are proposed to be located in proximity to populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Based on the FHWA's recommended tiering approach, this project falls within the Tier 1 approach (i.e., for projects with no potential for meaningful MSAT effects). The proposed project Build Alternative would not add capacity, increase traffic volumes, or change the vehicle mix in the study area. As a result, the proposed project would have no potential for meaningful MSAT effects and quantitative analysis is not required. Additionally, emissions are expected to be lower than present levels in the project opening year, design year, and RTP horizon year as a result of U.S. EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great that MSAT emissions in the study area are expected to be lower in the future in nearly all cases.

For informational purposes, CT-EMFAC2021 was used to estimate quantitative MSAT emissions for the project study area, which includes a 2.2-mile segment of SR-29. Emissions were estimated for existing conditions (2022), opening year Build Alternative and No-Build Alternative (2025), design year Build Alternative and No-Build Alternative (2035), and RTP horizon year Build Alternative and No-Build Alternative (2050). The AADT data and average truck percentages used to estimate

emissions are presented in Table 1-1 and Table 1-3. The lower of the posted speed limits presented in Table 1-2 for SR-29 was used as representative of speeds in the study area in the absence of actual or modeled project-specific speed data.

CT-EMFAC2021 was used to generate an emissions inventory for the Napa (SF) Sub-Region for each analysis year. AADT and truck percentages are the same for the Build Alternative and No-Build Alternative in each analysis year, so only one run was needed per year to estimate emissions.

The results of the MSAT emissions analysis are shown in Table 4-3. The project would not increase regional VMT or emissions when compared to the No-Build Alternative. Despite increases in regional VMT over time due to regional growth not associated with the project, MSAT emissions would decrease over time as expected based on U.S. EPA's national projects and control programs. Emission calculation details and CT-EMFAC output are provided in Appendix D.

Table 4-3. MSAT Emission Summary

Scenario	MSAT Emissions (pounds/day)								
	1,3-Butadiene	Acetaldehyde	Acrolein	Benzene	Diesel PM	Ethylbenzene	Formaldehyde	Naphthalene	POM
2022 Existing	0.01	0.05	0.00	0.16	0.12	0.07	0.12	0.01	0.00
2025 No-Build	0.01	0.05	0.00	0.14	0.11	0.06	0.10	0.01	0.00
2025 Build	0.01	0.05	0.00	0.14	0.11	0.06	0.10	0.01	0.00
2035 No-Build	0.00	0.02	0.00	0.09	0.06	0.04	0.06	0.00	0.00
2035 Build	0.00	0.02	0.00	0.09	0.06	0.04	0.06	0.00	0.00
2050 No-Build	0.00	0.01	0.00	0.07	0.04	0.04	0.03	0.00	0.00
2050 Build	0.00	0.01	0.00	0.07	0.04	0.04	0.03	0.00	0.00

4.3.5 Greenhouse Gas Emissions Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The Global Warming Solutions Act of 2006 (AB32) requires that the ARB determine the statewide GHG emissions level in 1990. The act also requires that the Board approve a statewide GHG emissions limit, equal to the 1990 level, as a limit to be achieved by 2020. The 2020 GHG emissions limit is 431 million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Senate Bill 32, California Global Warming Solutions Act of 2006: Emissions Limit (SB32), was signed in 2016 and further requires California to reduce statewide GHG emissions to 40% below the 1990 level by 2030. Assembly Bill 1279, the California Climate Crisis Act (AB1279), was signed in 2022 and requires California to reduce statewide GHG emissions by 85% compared to 1990 levels. AB1279 also requires California to achieve net zero GHG emissions by 2045 and achieve and maintain net negative GHG emissions thereafter. ARB's developed a Scoping Plan outlining the path to achieve California's climate targets, which must be updated every five years.

ARB's *California Greenhouse Gas Emissions for 2000 to 2020: Trends of Emissions and Other Indicators* summarizes information presented in the 2022 California GHG Emission Inventory, which covers GHG emissions released during calendar years 2000 through 2020 (ARB, 2022). As shown in Figure 4-1, emissions dropped below the 2020 GHG emissions limit in 2014 and have remained below the limit since that time.

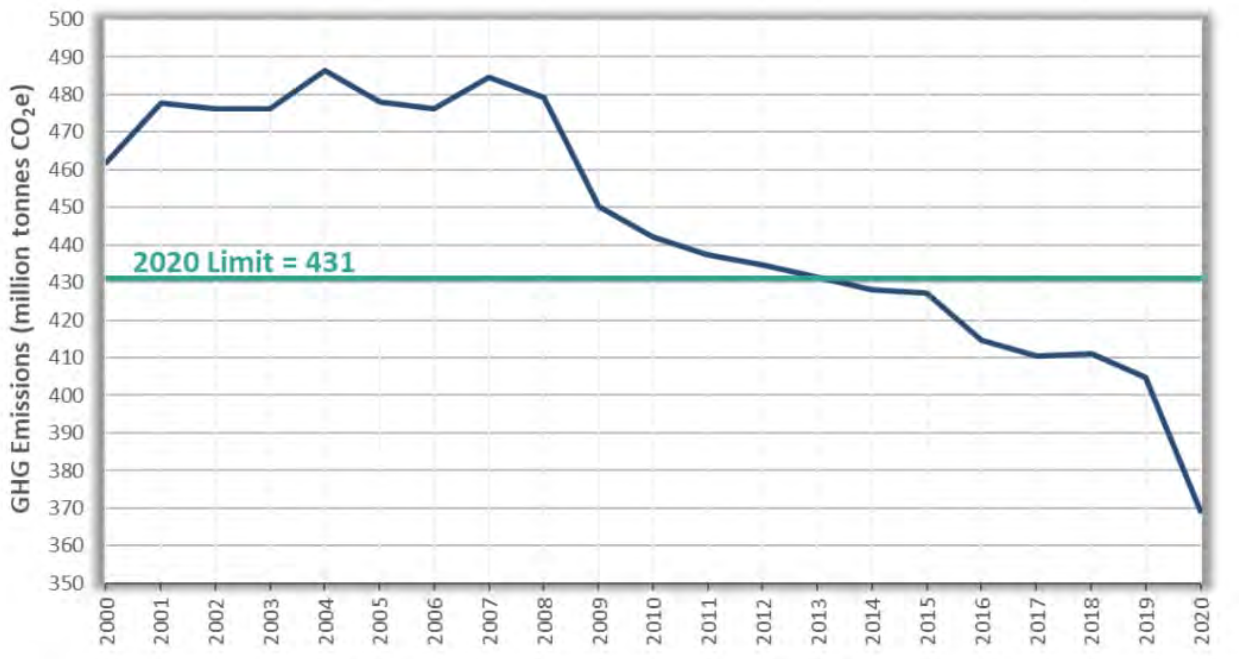

Figure 4-1. Comparison of Annual Statewide GHG Emissions to the 2020 GHG Limit.
(Source: https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000-2020_ghg_inventory_trends.pdf)

As shown in Table 4-2, the estimated CO_2e pollutant burden under the Build Alternative would not change when compared to the No-Build Alternative since the project would not add capacity, increase vehicle traffic, or change the vehicle mix in the study area. However, VMT would increase in the study area in future years when compared with existing conditions, resulting in a 1 percent increase in CO_2e emissions with the Build Alternative in the opening year of 2025. CO_2e emissions would decrease by approximately 10 percent in the design year of 2035 and 7 percent in the RTP

horizon year of 2050 despite an increase in VMT due to improvements in vehicle technology and increased use of alternative fuels. As such, the project is not expected to affect regional GHG emission levels. Construction of the project would produce temporary GHG emissions from the operation of equipment, as shown in Table 4-1.

4.4 Cumulative/Regional/Indirect Effects

Ozone, secondary PM_{10}, and secondary $PM_{2.5}$ are normally regional issues because they are formed by photochemical and chemical reactions over time in the atmosphere. MTC's RTP for the San Francisco Bay Area, known as Plan Bay Area 2050, includes a list of all regionally significant transportation projects planned in the region to be implemented by 2050. The emissions analysis performed as part of the conformity determination evaluates the cumulative impact of all listed transportation projects.

The 2021 Final Environmental Impact Report (FEIR) evaluated environmental impacts and identified that implementation of Plan Bay Area 2050 would result in significant and unavoidable impacts to air quality in the nine-county Bay Area region even after mitigation. As an intersection channelization project, the proposed project is exempt from regional conformity analysis per 40 CFR 93.127 and would not contribute to the significant and unavoidable impacts described in the FEIR.

Global climate change is inherently a cumulative issue and the proposed project's contribution to climate change is only addressed cumulatively. As described in Section 4.3.5, the proposed project is not expected to affect regional GHG emission levels or result in cumulatively considerable effects.

5. Minimization Measures

5.1 Short-Term (Construction)

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. No adverse construction impacts are expected with the project, and no mitigation measures are recommended. The Caltrans standard specifications described in Section 4.2.1 will be implemented during construction activities.

5.2 Long-Term (Operational)

Intersection channelization and intersection signalization projects are exempt from regional conformity requirements (40 CFR 93.127). Separate listing of the project in the RTP and TIP, and their regional conformity analyses, is not necessary. The project would not interfere with timely implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis.

This project would not affect cold start percentages in the area, would not affect traffic volumes, and is expected to improve traffic flow when comparing Build conditions to No-Build conditions in the project opening year of 2025, project design year of 2035, and RTP horizon year of 2050. As such, no microscale CO impacts are anticipated. The project was presented to the air quality conformity task force on February 23, 2023, and IAC participants concurred that the project is not a POAQC. The project would not affect regional VMT and is therefore not anticipated to have any MSAT or GHG impacts.

As such, no operational impacts are expected with the project, and no mitigation measures are recommended.

6. Conclusions

Short-term impacts may occur during construction from the release of particulate emissions as well as construction equipment exhaust. Construction emissions were estimated, and no adverse construction impacts are expected with the project.

Regional long-term impacts from operational emissions were estimated for the baseline (2022) and the No-Build Alternative and Build Alternative in the project opening year (2025), project design year (2035), and RTP horizon year (2050). The estimated NAAQS emissions burdens under the Build Alternative would not change when compared to the No-Build Alternative since the proposed project would not increase capacity, increase vehicle traffic, or change the vehicle mix in the study area. However, VMT in the study area is expected to increase over time due to regional growth independent of the proposed project, resulting in changes to regional emissions for the Build Alternative when compared to existing conditions.

The estimated change in pollutant burden under the Build Alternative, when compared to the existing conditions, varies by pollutant. Despite increases in VMT, operational emissions of ROG and NO_X for the Build Alternative would decrease over time when compared to the existing conditions due to improvements in fuel efficiency and vehicle technology. Build Alternative CO emissions would decrease over time when compared to the existing conditions through 2035, then remain constant at a level below existing conditions through 2050. Emissions of PM_{10} and $PM_{2.5}$ would increase in the opening year, design year, and RTP horizon year compared to existing conditions as a result of increased road dust, tire wear, and brake wear emissions tied to increased VMT. The regional GHG emissions burdens under the Build Alternative are predicted to increase slightly in the opening year of 2025 when compared to existing conditions, then decrease below existing levels in the design year of 2035. GHG emissions would increase again in the RTP horizon year of 2050, but still remain below existing levels. The project is considered to have no potential for meaningful MSAT effects.

Localized PM analysis is required for this project to satisfy conformity requirements. The air quality conformity task force concluded that the project is not a POAQC during IAC, and the project is not expected to cause any adverse PM impacts.

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8. Appendices

Appendix A - RTP and TIP Listings for the Project

Napa County

Local Road Projects

TIP ID: **NAP110029** **County:** Napa **System:** LOCAL_ROA **RTP ID:** 21-T08-060 **CTIPS** 20600005557

Sponsor: American Canyon **Implementing Agency:** American Canyon

Project Name: Eucalyptus Drive Realignment Complete Streets

Description: American Canyon : Eucalyptus Dr. from Theresa Rd to Hwy 29 : Extend roadway and reconfigure intersection of Eucalyptus Dr and Hwy 29 and Eucalyptus Drive and Theresa Road. Create complete street areas for pedestrians and bicyclist along the extension.

Air Quality Exempt Code: 40 CFR 93.101 - Non-Exempt - Not Regionally Significant Project

Route: **Post Mile From:** **Post Mile To:** **Toll Credits:**

All funding in thousands of dollars

Phase	Fund Source	Prior Years	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	Future Years	Total Programmed
PSE	OTHER LOCAL	$ 1,240						$ 1,240
PE	OTHER LOCAL	$ 528						$ 528
ROW	OTHER LOCAL	$ 776						$ 776
CON	OTHER LOCAL	$ 826						$ 826
CON	RTP-LRP						$ 2,819	$ 2,819
Total Programmed Funding:		$ 3,370					$ 2,819	$ 6,189

TIP ID: **NAP130006** **County:** Napa **System:** LOCAL_ROA **RTP ID:** 21-T08-060 **CTIPS** 20600005809

Sponsor: American Canyon **Implementing Agency:** American Canyon

Project Name: Devlin Road and Vine Trail Extension

Description: American Canyon : Devlin Road from the southern terminus 2,500 feet south to Green Island Road : Construct roadway extension and Class I multipurpose path

Air Quality Exempt Code: 40 CFR 93.101 - Non-Exempt - Not Regionally Significant Project

Route: **Post Mile From:** **Post Mile To:** **Toll Credits:**

All funding in thousands of dollars

Phase	Fund Source	Prior Years	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	Future Years	Total Programmed
ENV	RIP	$ 297						$ 297
ROW_SU	OTHER LOCAL	$ 800						$ 800
CON	OTHER LOCAL	$ 120						$ 120
CON	PRIVATE	$ 2,200						$ 2,200
CON	RIP	$ 4,151						$ 4,151
Total Programmed Funding:		$ 7,568						$ 7,568

TIP ID: **NAP190007** **County:** Napa **System:** LOCAL_ROA **RTP ID:** 21-T07-056 **CTIPS** 20600006705

Sponsor: Metropolitan Transportation Commission (MTC) **Implementing Agency:** Metropolitan Transportation

Project Name: Napa Valley Forward: Safety and Operational Impv

Description: Napa (City) : SR-29 Up Valley Corridor : Provide safety and operational improvements for multimodal corridor.

Air Quality Exempt Code: 40 CFR 93.127 - Intersection channelization projects

Route: 37 **Post Mile From:** **Post Mile To:** **Toll Credits:** $ 917,600

All funding in thousands of dollars

Phase	Fund Source	Prior Years	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	Future Years	Total Programmed
PE	STP	$ 3,700						$ 3,700
CON	RTP-LRP						$ 6,900	$ 6,900
CON	STP		$ 4,300					$ 4,300
Total Programmed Funding:		$ 3,700	$ 4,300				$ 6,900	$ 14,900

TIP ID: **NAP110026** **County:** Napa **System:** LOCAL_ROA **RTP ID:** 21-T01-004 **CTIPS** 20600005558

Sponsor: Napa County **Implementing Agency:** Napa County

Project Name: Hardin Rd Bridge Replacement - 21C0058

Description: Napa County : On Harding Rd at Maxwell Creek, 1.6M SE of Pope Cyn Rd : Replace existing one lane bridge with new 2-lane bridge to meet standards. Toll credits are used in lieu of match for all phases.

Air Quality Exempt Code: 40 CFR 93.126 - Safety - Projects that correct, improve, or eliminate a hazardous location or feature

Route: **Post Mile From:** **Post Mile To:** **Toll Credits:** $ 507,720

All funding in thousands of dollars

Phase	Fund Source	Prior Years	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	Future Years	Total Programmed
PE	HBP			$ 797				$ 797
PE	OTHER LOCAL			$ 103				$ 103
ROW	HBP					$ 177		$ 177
ROW	OTHER LOCAL					$ 23		$ 23
CON	HBP						$ 4,426	$ 4,426
CON	OTHER LOCAL						$ 574	$ 574
Total Programmed Funding:				$ 900		$ 200	$ 5,000	$ 6,100

County	Sponsor	Project Title	Project Description	TIP ID	Air Quality Description	RTP ID	Conformity Analysis Year
Marin	San Rafael	Francisco Boulevard East Sidewalk Widening	In San Rafael: Francisco Blvd East and Grand Ave from Vivian St to Grand Avenue Bridge: Widen existing sidewalk and provide streetscape elements	MRN170012	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Marin	San Rafael	Grand Avenue Bicycle Pedestrian Improvements	San Rafael: Grand Ave accross the San Rafael Canal: Construct bridge and sidewalk improvements for bicyclists and pedestrians	MRN150008	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Marin	San Rafael	San Rafael Transit Center Pedestrian Access Imps.	San Rafael: In the vicinity of the Bettini Transit Center and the future SMART station: Upgrade existing traffic signal equipment to be compliant with rail and improve pedestrian facilities	MRN130005	EXEMPT (40 CFR 93.127) - Intersection signalization projects at individual intersections	21-T07-056	Not Modelled
Marin	Sausalito	Sausalito - Bridgeway/US 101 Off Ramp Bicycle Imps	Sausalito: Highway 101 Off Ramp/Bridgeway/Gate 6 Intersection: Implement bicycle improvements	MRN110010	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Marin	TAM	North-South Greenway Gap Closure	Marin County: Northern Segment: US101 off-ramp over Corte Madera Creek and along Old Redwood Highway to US101 overcrossing: widen to add bike/ped path. Southern Segment: From Northern	MRN170011	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Marin	Various	GL: Marin County - TOS-Mobility	Marin County: Various Locations: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and 40 CFR Part 93.127 Table 3 categories	MRN170018	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature	21-T06-048	Not Modelled
Napa	American Canyon	Devlin Road and Vine Trail Extension	American Canyon: Devlin Road from the southern terminus 2,500 feet south to Green Island Road: Construct roadway extension and Class I multipurpose path	NAP130006	NON-EXEMPT - Not Regionally Significant Project	21-T07-056	Not Modelled
Napa	American Canyon	Eucalyptus Drive Realignment Complete Streets	American Canyon: Eucalyptus Dr. from Theresa Rd to Hwy 29: Extend roadway and reconfigure intersection of Eucalyptus Dr and Hwy 29 and Eucalyptus Drive and Theresa Road. Create complete street	NAP110029	NON-EXEMPT - Not Regionally Significant Project	21-T07-056	Not Modelled
Napa	American Canyon	Green Island Road Class I	American Canyon: Green Island Road in the Green Island Industrial District (GRID): Construct new Class 1 multi-use trail.	NAP170006	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Napa	Calistoga	SR 128 and Petrified Forest Intersection Imp	In Calistoga: On SR 128 and Petrified Forest Road, convert 4-way stop controlled intersection to a traffic signal.	NAP150001	EXEMPT (40 CFR 93.127) - Intersection signalization projects at individual intersections	21-T07-056	Not Modelled
Napa	MTC	Napa Valley Forward	Napa County: SR 29 and Silverado Trail Corridor: Assist Napa Valley employees to try alternative options for their commutes to work.	NAP190004	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-EN09-132	Not Modelled
Napa	MTC	Napa Valley Forward: Safety & Operational Impv	Napa: SR-29 Up Valley Corridor: Provide safety and operational improvements for multimodal corridor.	NAP190007	EXEMPT (40 CFR 93.127) - Intersection channelization projects	21-T07-056	Not Modelled
Napa	MTC	Regional Planning Activities and PPM - Napa	Napa: Countywide: Regional Planning Activities and Planning, Programming and Monitoring (PPM)	NAP170001	EXEMPT (40 CFR 93.126) - Planning activities conducted pursuant to titles 23 and 49 U.S.C	21-T07-058	Not Modelled
Napa	Napa	California Boulevard Roundabouts	City of Napa: At First Street/ California Blvd. and Second Street/ California Blvd: Construct roundabouts Caltrans: Construct roundabout at Northbound off-ramp of SR 29 and First Street	NAP110028	EXEMPT (40 CFR 93.127) - Intersection channelization projects	21-T07-056	Not Modelled
Napa	Napa	Silverado Trail Five-Way Intersection Improvements	City of Napa: At the intersection of Silverado Trail, Third St, Coombsville Rd, and East Ave: Construct roundabout. Project will be constructed in phases.	NAP170009	EXEMPT (40 CFR 93.127) - Intersection channelization projects	21-T07-056	Not Modelled
Napa	Napa	State Route 29 Bicycle & Pedestrian Undercrossing	Napa: On the North side of Napa Creek under Highway 29: Construct a Class 1 bicycle and pedestrian path	NAP130004	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Napa	Napa	Vine Trail Gap Closure - Soscol Avenue Corridor	Napa: Between Third St and Vallejo St in Downtown Napa: Construct a Class I multi-use trail to close a gap in the Napa Valley Vine Trail	NAP170007	EXEMPT (40 CFR 93.126) - Bicycle and pedestrian facilities	21-T08-060	Not Modelled
Napa	Napa County	Hardin Rd Bridge Replacement - 21C0058	Napa County: On Harding Rd at Maxwell Creek, 1.6M SE of Pope Cyn Rd: Replace existing one lane bridge with new 2-lane bridge to meet standards. Toll credits are used in lieu of match for all phases.	NAP110026	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature	21-T01-004	Not Modelled
Napa	Napa County	Loma Vista Dr Bridge Replacement - 21C0080	Napa County: Loma Vista Dr over Soda Creek, 1.4 miles north of Silverado Trail: replace existing one lane bridge with new two lane bridge to meet standards. Toll credits are used in lieu of match for all	NAP110027	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature	21-T01-004	Not Modelled

Appendix B - Interagency Consultation Documentation

Schwing, Elizabeth

From:	Fund Management System <fms@bayareametro.gov>
Sent:	Wednesday, March 22, 2023 9:23 AM
To:	dschmitz@nvta.ca.gov
Cc:	Fund Management System; Harold Brazil
Subject:	FMS POAQC Project TIP ID: NAP190007 (Napa Valley Forward: Safety and Operational Impv) update: Project is a not a POAQC

Dear Project Sponsor

Based on the recent interagency consultation with the Air Quality Conformity Task force, Project TIP ID NAP190007 (FMS ID: 7162) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level Conformity Frequently Asked Questions (FAQ): http://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/faqs/pm25faqs.cfm

If you have any questions, please direct them to Harold Brazil at hbrazil@bayareametro.gov or by phone at 415-778-6747

Air Quality Conformity Task Force
Summary Meeting Notes
February 23, 2023

Participants:

Rodney Tavitas – Caltrans
Abhijit Bagde – Caltrans
Michael Dorantes – EPA
Emma Maggioncalda – Caltrans
Cidney Chiu – Caltrans
John Saelee – MTC
Patrick Pittenger – FHWA
Jacqueline Kahrs – Caltrans
James Zandian – GHD
Erika Vaca – Caltrans
Stephanie Whitmore – WSP
Andrea Gordon – BAAQMD
Elizabeth Schwing – WSP
Adam Crenshaw – MTC
Harold Brazil – MTC
Karishma Becha – Caltrans
Erika Espinosa Araiza – Caltrans

1. **Welcome and Self Introductions**: Harold Brazil (MTC) called the meeting to order at 9:35 am.

2. **$PM_{2.5}$ Project Conformity Interagency Consultation**

   a. **Consultation to Determine Project of Air Quality Concern Status**

      i. State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections Project

Elizabeth Schwing (WSP) began the presentation for the State Route 29 Improvements at Rutherford and Oakville Intersections project by identifying the project location which is a 2.2-mile segment of SR-29 in an unincorporated area of Napa County. Ms Schwing added that the project proposes the improvement of two intersections at:

- SR-29/Rutherford Road (SR-128) in the community of Rutherford (PM 24.59)
  - Improvements include – Traffic signal and/or other traffic calming measures
- SR-29/Oakville Cross Road in the community of Oakville (PM 22.72)
  - Improvements include – Single-lane roundabout

Ms. Schwing discussed the purpose of the project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road as to:

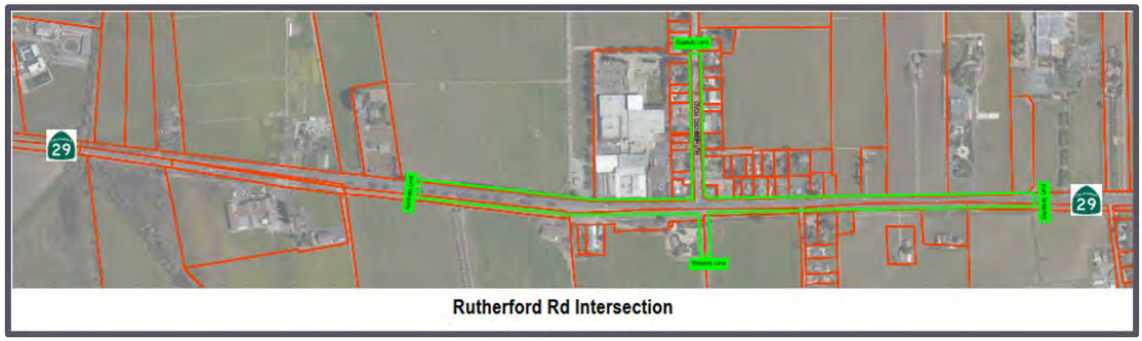
- Improve travel time and reduce delay for side streets accessing SR-29.
- Enhance traffic safety.
- Improve turning movements.

Ms. Schwing added that the needs of the State Route 29 Improvements at Rutherford and Oakville Intersections project include intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements and:

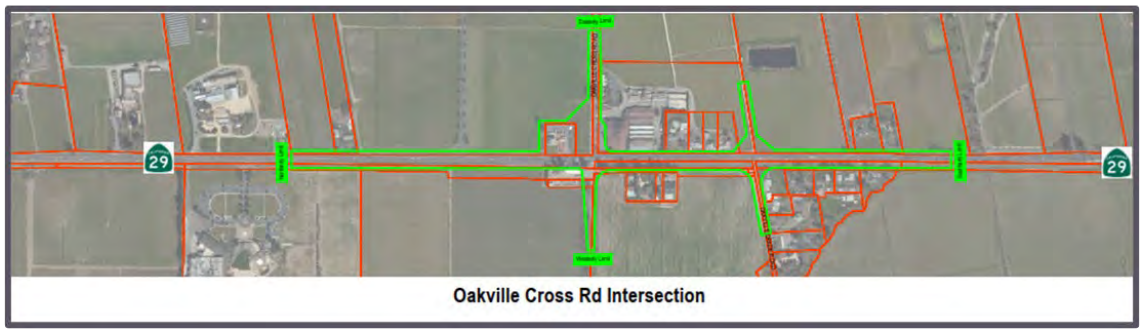
- The number of collisions exceed statewide average for similar type of facility.

- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume.
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming.

Project Area Limits at Each Intersection



Rutherford Rd Intersection



Oakville Cross Rd Intersection

Michael Dorantes (EPA) asked, for study area traffic data, to confirm that there is no/zero difference between the build and no build projected ADTs and Ms. Schwing concurred that the values were the same.

Harold Brazil (MTC) asked about weekend traffic data collected for the State Route 29 Improvements at Rutherford and Oakville Intersections project and Ms. Schiwing indicated that the traffic data was available and could follow-up with the information.

Final Determination: With input from EPA, FTA, Caltrans and FHWA (deferring their determination to Caltrans), the Task Force concluded the State Route 29 Improvements at Rutherford and Oakville Intersections project was not of air quality concern.

3. Projects with Regional Air Quality Conformity Concerns

a. Regional Conformity Status for New and Revised Projects

Adam Crenshaw (MTC) stated MTC is proposing to add one bike and ped project to the TIP through a future amendment. Mr. Crenshaw asked if any Task Force members had any questions or comments and the members had none.

4. Consent Calendar

a. February 23, 2023 Air Quality Conformity Task Force Meeting Summary

Final Determination; With input from all members, the Task Force concluded that the consent calendar was approved.

5. Other Items

Patrick Pittenger (FHWA) noted the promotion of planner Jasmine Aman and will be responsible for MTC Task Force meetings after a transition period.

Adam Crenshaw (MTC) provided an informational item from the OA management meeting he recently attended where there was discussion about the carbon reduction program and the programming process for that. Mr. Crenshaw added that right now, the projects need to be reviewed by Caltrans before they are included in the TIP.

Patrick Pittenger (FHWA) mentioned that any funds allocated to any urbanized area within the boundaries of a TMA or an MPO may be used anywhere within the boundaries of that MPO and there will be a regional competitive decision-making process similar to how the STP and CMAQ funding programs are conducted. Mr. Pittenger went on to say the funding eligibility for the carbon reduction program is a work in progress and the Task Force should stay tuned for updates.

Application of Criteria for a Project of Air Quality Concern
Project Title: State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections
Project Summary for Air Quality Conformity Task Force Meeting: February 23, 2023

Description

- Proposed project would improve the operation and safety at two currently unsignalized intersections
- A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road.
- Installation of a traffic signal and/or other traffic calming measures is proposed at the intersection of SR-29 and Rutherford Road.
- The proposed project would not add capacity, increase traffic volumes, or change the vehicle mix in the study area.

Background

- Documented Categorical Exclusion is being prepared for the proposed project pursuant to 23 USC 326.
- Circulation for public comment is not required because the NEPA determination for this project is a Categorical Exclusion.
- Proposed project is an intersection channelization project, and as such, is exempt from regional conformity analysis pursuant to 40 CFR 93.127.

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- Not a new or expanded highway project
- intersection safety and operations project - would not increase the capacity of SR-29
- No change in traffic volume or truck percentages on SR-29

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- Diesel vehicles represent 2 - 8% of traffic volume in the study area (AADT of 359 – 1,816 in opening year of 2025; AADT of 397 – 2,011 in design year of 2035; AADT of 463 – 2,342 in RTP Horizon Year of 2050)
- No change in traffic volume or truck percentages at intersections
- Proposed project would improve congestion at affected intersections

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- Proposed project not in an area identified as a site of violation

RTIP ID# *(required)* 21-T07-056

TIP ID# *(required)* NAP190007

Air Quality Conformity Task Force Consideration Date
February 23, 2023

Project Description *(clearly describe project)*
The Metropolitan Transportation Commission (MTC), in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of SR-29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59). Currently, neither of these intersections are signalized and only have stop signs on streets intersecting SR-29. A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR-29 and Rutherford Road.

Type of Project: Intersection channelization project

County	*Narrative Location/Route & Postmiles*
Napa	SR-29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59) **Caltrans Projects – EA#** 2W430-SR-29

Lead Agency: MTC

Contact Person	*Phone#*	*Fax#*	*Email*
Ingrid Supit	(415) 778-6691		isupit@bayareametro.gov

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

	Categorical Exclusion (NEPA)	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	*Other*
X					

Scheduled Date of Federal Action:

NEPA Delegation – Project Type *(check appropriate box)*

	X	**Section 326 – Categorical Exclusion**

Section 327 – Non-Categorical Exclusion

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	8/19/2021	8/19/2021	9/5/2022	7/9/2024
End	9/14/2023	4/4/2024	4/4/2024	1/19/2026

Project Purpose and Need (Summary): *(please be brief)*
The purpose of the project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road. The proposed project is needed because the intersections under study have been experiencing poor traffic operation and a higher number of collisions due to lack of protected turning movements.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

Land use in the project area is primarily agricultural (vineyards); tourism draws additional traffic to the area.

Brief summary of assumptions and methodology used for conducting analysis
The project is not a capacity enhancing or VMT-inducting project; therefore, no VMT analysis was performed for the project pursuant to Caltrans guidance. The proposed project is an intersection safety and operations project that would not increase the capacity of SR-29, increase traffic volumes, or change the vehicle mix in the study area. As such, the traffic details for the No-Build Alternative are also representative of traffic conditions for the project Build Alternative.

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

N/A

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
N/A

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

AADT and truck traffic details for the study area, which includes a 2.2-mile segment of SR-29, are presented below. Intersection-level traffic modeling was not performed for the proposed project.

Location	2025 AADT		% Truck
	Total	Truck	
SR-29 between Oakville Cross Road and Rutherford Road	22,423	359 – 1,816	1.6% - 8.1%

Percentage of vehicles that are trucks presented as a range to capture traffic data collected during weekday AM, weekday PM, and weekend mid-day peak periods.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Extrapolated AADT and truck traffic details for the study area, which includes a 2.2-mile segment of SR-29, are presented below. Intersection-level traffic modeling was not performed for the proposed project.

Location	2050 AADT		% Truck
	Total	Truck	
SR-29 between Oakville Cross Road and Rutherford Road	28,916	463 – 2,342	1.6% - 8.1%

Percentage of vehicles that are trucks presented as a range to capture traffic data collected during weekday AM, weekday PM, and weekend mid-day peak periods.

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
N/A

RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
N/A

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
The proposed project would not add capacity, increase traffic volumes, or change the vehicle mix in the study area. While the proposed project is anticipated to reduce traffic congestion at existing intersections and improve merge operations, these effects are expected to be localized and no traffic redistribution effects are anticipated.

Comments/Explanation/Details (please be brief)

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS

Intersection Channelization Project

Project Location: 2.2-mile segment of SR-29 in an unincorporated area of Napa County

The project proposes the improvement of two intersections at:

- SR-29/Rutherford Road (SR-128) in the community of Rutherford (PM 24.59)
- SR-29/Oakville Cross Road in the community of Oakville (PM 22.72)

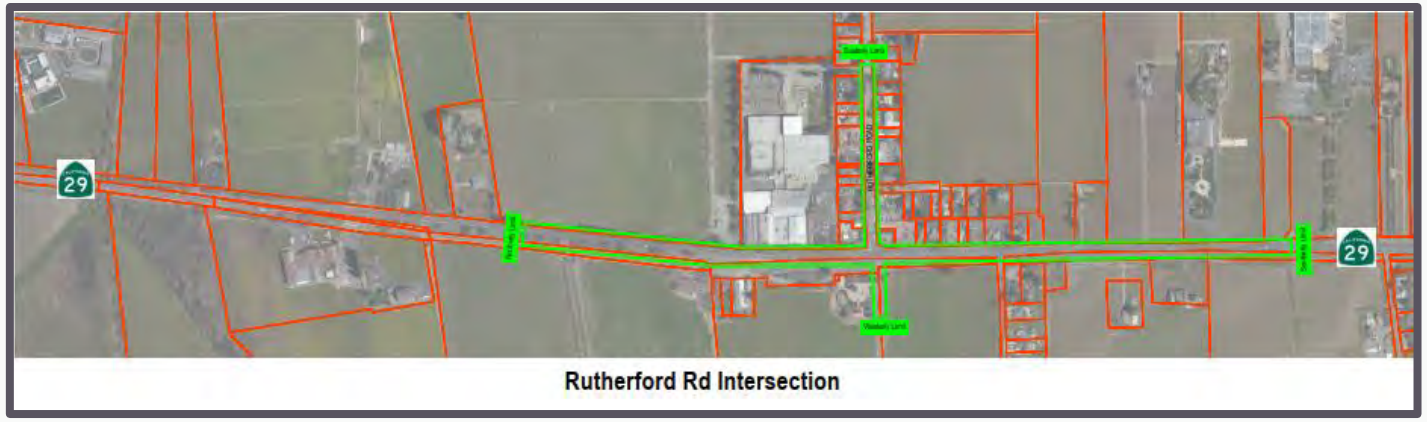
Source: Traffic 2025 and 2035 Forecasts Memorandum (GHD 2022)

Proposed Improvements:

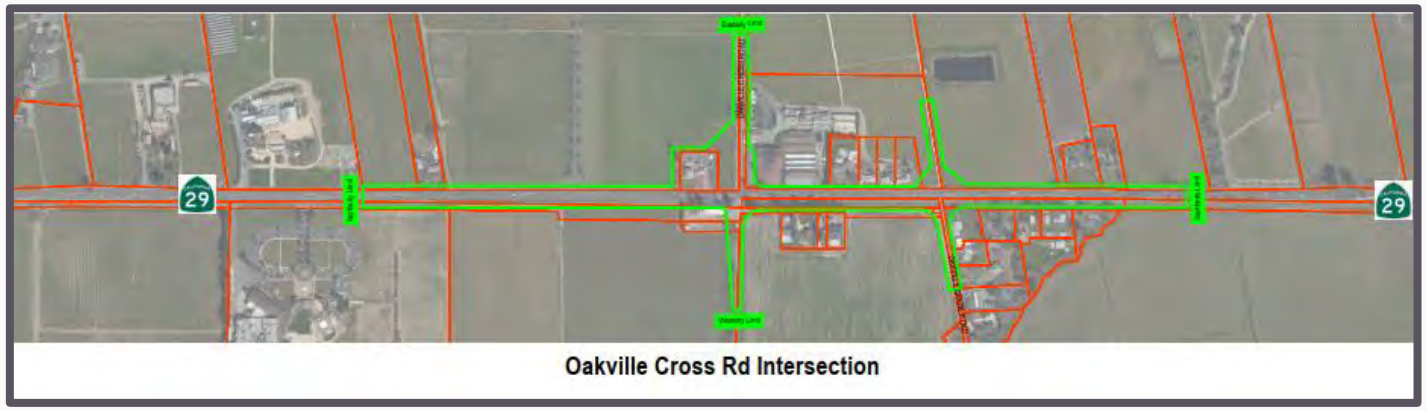
SR-29/Rutherford Road: Traffic signal and/or other traffic calming measures

SR-29/Oakville Cross Road: Single-lane roundabout

Project Area Limits at Each Intersection



Rutherford Rd Intersection



Oakville Cross Rd Intersection

Purpose and Need

The purpose of the project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road.

- Improve travel time and reduce delay for side streets accessing SR-29.
- Enhance traffic safety.
- Improve turning movements.

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed statewide average for similar type of facility.
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume.
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming.

Study Area Traffic Data

The proposed project would not add capacity, increase traffic volumes, or change the vehicle mix in the study area.

Scenario/ Analysis Year	Location	AADT		% Truck
		Total	Truck	
No-Build/Build Year 2025	SR-29 between Oakville Cross Road and Rutherford Road	22,423	359 – 1,816	1.6% - 8.1%
No-Build/Build Year 2035	SR-29 between Oakville Cross Road and Rutherford Road	24,828	397 – 2,011	1.6% - 8.1%
No-Build/Build Year 2050	SR-29 between Oakville Cross Road and Rutherford Road	28,916	463 – 2,342	1.6% - 8.1%

Note: Percentage of vehicles that are trucks presented as a range to capture traffic data collected during weekday AM, weekday PM, and weekend mid-day peak periods.
Source: Traffic 2025 and 2035 Forecasts Memorandum (GHD 2022)

Not a Project of Air Quality Concern

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- Not a new or expanded highway project
- Intersection safety and operations project - would not increase the capacity of SR-29
- No change in traffic volume or truck percentages on SR-29

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- Diesel vehicle traffic is not significant in the study area
- No change in traffic volume or truck percentages at intersections
- Proposed project would improve congestion at affected intersections

(iii) New bus and rail terminals and transfer points? —Not Applicable

(iv) Expanded bus and rail terminals and transfer points? —Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- Not in an area identified in a PM_{10} or $PM_{2.5}$ implementation plan as a site of violation

Questions?

Appendix C - RCEM Input and Output

Road Construction Emissions Model **Version 9.0.1**

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	SR-29 Improvements at Rutherford and Oakville Intersections	
Construction Start Year	2024	Enter a Year between 2014 and 2040 (inclusive)
Project Type	2	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	12.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	2.00	miles
Total Project Area	9.50	acres
Maximum Area Disturbed/Day	0.20	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County. NEW LINK 8-2-2022.

https://maps.conservation.ca.gov/cgs/gmc/

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	15.00		11.36
	Drainage/Utilities/Sub-Grade			
	Paving	17.50		2.65
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	13.15	23.41	

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard
Off-road Equipment Emissions Mitigation		

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		1.20		1/1/2024
Grading/Excavation		4.80		2/7/2024
Drainage/Utilities/Sub-Grade		4.20		7/2/2024
Paving		1.80		11/7/2024
Totals (Months)	12			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		1	30.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		1	30.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.03	0.21	0.01	0.00	0.00	112.01	0.00	0.02	117.26
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	5.91	0.00	0.00	6.19
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.03	0.21	0.01	0.00	0.00	112.01	0.00	0.02	117.26
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	2.32
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	8.13	0.00	0.00	8.51

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		2	60.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.05	0.42	0.01	0.01	0.00	224.02	0.00	0.04	234.52
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	4.44	0.00	0.00	4.64
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	4.44	0.00	0.00	4.64

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values		
User Input				
Miles/ one-way trip		20		
One-way trips/day		2	Calculated Daily Trips	Calculated Daily VMT
No. of employees: Grubbing/Land Clearing		9	18	360.00
No. of employees: Grading/Excavation		24	48	960.00
No. of employees: Drainage/Utilities/Sub-Grade		18	36	720.00
No. of employees: Paving		14	28	560.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grading/Excavation (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Draining/Utilities/Sub-Grade (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Paving (grams/mile)	0.01	0.84	0.06	0.05	0.02	0.00	306.70	0.00	0.01	308.54
Grubbing/Land Clearing (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Grading/Excavation (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Draining/Utilities/Sub-Grade (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Paving (grams/trip)	0.98	2.66	0.27	0.00	0.00	0.00	65.99	0.07	0.03	76.61
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.05	0.77	0.06	0.04	0.02	0.00	246.04	0.01	0.01	247.92
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.25	0.00	0.00	3.27
Pounds per day - Grading/Excavation	0.13	2.06	0.16	0.10	0.04	0.01	656.10	0.01	0.02	661.11
Tons per const. Period - Grading/Excavation	0.01	0.11	0.01	0.01	0.00	0.00	34.64	0.00	0.00	34.91
Pounds per day - Drainage/Utilities/Sub-Grade	0.10	1.54	0.12	0.07	0.03	0.00	492.07	0.01	0.01	495.84
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	22.73	0.00	0.00	22.91
Pounds per day - Paving	0.08	1.20	0.09	0.06	0.02	0.00	382.72	0.01	0.01	385.65
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	7.58	0.00	0.00	7.64
Total tons per construction project	0.01	0.21	0.02	0.01	0.00	0.00	68.20	0.00	0.00	68.72

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
User Input								
Grubbing/Land Clearing - Exhaust		1		5	5		8.00	40.00
Grading/Excavation - Exhaust		1		5	5		8.00	40.00
Drainage/Utilities/Subgrade		1		5	5		8.00	40.00
Paving		1		5	5		8.00	40.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grading/Excavation (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Draining/Utilities/Sub-Grade (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Paving (grams/mile)	0.03	0.41	3.02	0.11	0.05	0.02	1,693.55	0.00	0.27	1,772.92
Grubbing/Land Clearing (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.00	0.00	2.06
Pounds per day - Grading/Excavation	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Grading/Excavation	0.00	0.00	0.02	0.00	0.00	0.00	7.89	0.00	0.00	8.25
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.01	0.00	0.00	0.00	6.90	0.00	0.00	7.22
Pounds per day - Paving	0.00	0.04	0.32	0.01	0.00	0.00	149.35	0.00	0.02	156.34
Tons per const. Period - Paving	0.00	0.00	0.01	0.00	0.00	0.00	2.96	0.00	0.00	3.10
Total tons per construction project	0.00	0.00	0.04	0.00	0.00	0.00	19.71	0.00	0.00	20.64

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.20	2.00	0.03	0.42	0.01
Fugitive Dust - Grading/Excavation		0.20	2.00	0.11	0.42	0.02
Fugitive Dust - Drainage/Utilities/Subgrade		0.20	2.00	0.09	0.42	0.02

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.42	2.20	4.75	0.18	0.17	0.01	758.65	0.25	0.01	766.83
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Excavators	0.36	6.53	2.81	0.14	0.13	0.01	1,000.53	0.32	0.01	1,011.32
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4		Model Default Tier	Signal Boards	0.23	1.20	1.44	0.06	0.06	0.00	197.25	0.02	0.00	198.26
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Grubbing/Land Clearing	pounds per day	1.01	9.94	8.99	0.38	0.35	0.02	1,956.44	0.59	0.02	1,976.41
	Grubbing/Land Clearing	tons per phase	0.01	0.13	0.12	0.00	0.00	0.00	25.82	0.01	0.00	26.09

Grading/Excavation	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.42	2.20	4.75	0.18	0.17	0.01	758.65	0.25	0.01	766.83
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Excavators	0.54	9.80	4.21	0.21	0.19	0.02	1,500.80	0.49	0.01	1,516.98
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Graders	0.71	3.31	8.31	0.27	0.25	0.01	1,281.02	0.41	0.01	1,294.82
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Rollers	0.29	3.70	3.05	0.16	0.15	0.01	508.29	0.16	0.00	513.77
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rubber Tired Loaders	0.25	1.50	2.33	0.08	0.07	0.01	605.51	0.20	0.01	612.05
	2		Model Default Tier	Scrapers	1.52	11.93	15.39	0.61	0.56	0.03	2,938.20	0.95	0.03	2,969.87
	4		Model Default Tier	Signal Boards	0.23	1.20	1.44	0.06	0.06	0.00	197.25	0.02	0.00	198.26
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4		Model Default Tier	Tractors/Loaders/Backhoes	0.58	8.94	5.79	0.27	0.24	0.01	1,207.07	0.39	0.01	1,220.05
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day		4.54	42.59	45.27	1.83	1.69	0.09	8,996.79	2.87	0.08	9,092.62
Grading/Excavation	tons per phase		0.24	2.25	2.39	0.10	0.09	0.00	475.03	0.15	0.00	480.09

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Air Compressors	0.24	2.41	1.63	0.08	0.08	0.00	375.26	0.02	0.00	376.63
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Generator Sets	0.29	3.66	2.54	0.11	0.11	0.01	623.04	0.03	0.00	625.06
	1		Model Default Tier	Graders	0.35	1.66	4.16	0.13	0.12	0.01	640.51	0.21	0.01	647.41
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pumps	0.31	3.72	2.58	0.12	0.12	0.01	623.04	0.03	0.00	625.12
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.10	2.29	1.35	0.04	0.04	0.00	333.74	0.11	0.00	337.33
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Scrapers	0.76	5.97	7.70	0.30	0.28	0.02	1,469.10	0.48	0.01	1,484.93
	4		Model Default Tier	Signal Boards	0.23	1.20	1.44	0.06	0.06	0.00	197.25	0.02	0.00	198.26
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Tractors/Loaders/Backhoes	0.43	6.71	4.34	0.20	0.18	0.01	905.30	0.29	0.01	915.04
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day		2.75	27.83	25.98	1.05	1.00	0.05	5,201.71	1.18	0.04	5,244.44
Drainage/Utilities/Sub-Grade	tons per phase		0.13	1.29	1.20	0.05	0.05	0.00	240.32	0.05	0.00	242.29

Paving	Default Number of Vehicles	Override of Default Number of Vehicles	Mitigation Option: Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
	Program-estimate			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Pavers	0.18	2.89	1.74	0.08	0.07	0.00	455.16	0.15	0.00	460.07
	1			Model Default Tier	Paving Equipment	0.16	2.57	1.50	0.07	0.07	0.00	394.47	0.13	0.00	398.72
				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2			Model Default Tier	Rollers	0.29	3.70	3.05	0.16	0.15	0.01	508.29	0.16	0.00	513.77
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4			Model Default Tier	Signal Boards	0.23	1.20	1.44	0.06	0.06	0.00	197.25	0.02	0.00	198.26
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3			Model Default Tier	Tractors/Loaders/Backhoes	0.43	6.71	4.34	0.20	0.18	0.01	905.30	0.29	0.01	915.04
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	pounds per day	1.30	17.07	12.07	0.57	0.53	0.03	2,460.48	0.75	0.02	2,485.86
Paving	tons per phase	0.03	0.34	0.24	0.01	0.01	0.00	48.72	0.01	0.00	49.22
Total Emissions all Phases (tons per construction period) =>		0.41	4.00	3.95	0.16	0.15	0.01	789.89	0.23	0.01	797.69

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

Construction Emissions: RCEM Output

Road Construction Emissions Model, Version 9.0.1

Daily Emission Estimates for -> SR-29 Improvements at Rutherford and Oakville Intersections Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.07	10.74	9.37	2.43	0.43	2.00	0.79	0.37	0.42	0.02	2,351.82	0.59	0.05	2,380.67
Grading/Excavation	4.68	44.71	45.95	3.95	1.95	2.00	2.15	1.74	0.42	0.10	9,914.24	2.88	0.14	10,027.34
Drainage/Utilities/Sub-Grade	2.85	29.41	26.42	3.14	1.14	2.00	1.45	1.03	0.42	0.06	5,843.13	1.19	0.08	5,896.62
Paving	1.39	18.39	13.11	0.66	0.66	0.00	0.57	0.57	0.00	0.03	3,328.57	0.76	0.11	3,379.63
Maximum (pounds/day)	4.68	44.71	45.95	3.95	1.95	2.00	2.15	1.74	0.42	0.10	9,914.24	2.88	0.14	10,027.34
Total (tons/construction project)	0.42	4.23	4.03	0.40	0.17	0.22	0.20	0.16	0.05	0.01	890.37	0.23	0.01	900.21

Notes:

Project Start Year ->	2024
Project Length (months) ->	12
Total Project Area (acres) ->	10
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	360	40
Grading/Excavation	11	0	30	0	960	40
Drainage/Utilities/Sub-Grade	0	0	0	0	720	40
Paving	3	23	30	60	560	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> SR-29 Improvements at Rutherford and Oakville Intersections Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.14	0.12	0.03	0.01	0.03	0.01	0.00	0.01	0.00	31.04	0.01	0.00	28.51
Grading/Excavation	0.25	2.36	2.43	0.21	0.10	0.11	0.11	0.09	0.02	0.01	523.47	0.15	0.01	480.31
Drainage/Utilities/Sub-Grade	0.13	1.36	1.22	0.14	0.05	0.09	0.07	0.05	0.02	0.00	269.95	0.06	0.00	247.14
Paving	0.03	0.36	0.26	0.01	0.01	0.00	0.01	0.01	0.00	0.00	65.91	0.02	0.00	60.71
Maximum (tons/phase)	0.25	2.36	2.43	0.21	0.10	0.11	0.11	0.09	0.02	0.01	523.47	0.15	0.01	480.31
Total (tons/construction project)	0.42	4.23	4.03	0.40	0.17	0.22	0.20	0.16	0.05	0.01	890.37	0.23	0.01	816.66

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Worker Commute Emissions: SAFE Adjustments Applied to RCEM Output

Worker Commute Emissions: RCEM	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.05	0.77	0.06	0.04	0.02	0.00	246.04	0.01	0.01	247.92
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.25	0.00	0.00	3.27
Pounds per day - Grading/Excavation	0.13	2.06	0.16	0.10	0.04	0.01	656.10	0.01	0.02	661.11
Tons per const. Period - Grading/Excavation	0.01	0.11	0.01	0.01	0.00	0.00	34.64	0.00	0.00	34.91
Pounds per day - Drainage/Utilities/Sub-Grade	0.10	1.54	0.12	0.07	0.03	0.00	492.07	0.01	0.01	495.84
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	22.73	0.00	0.00	22.91
Pounds per day - Paving	0.08	1.20	0.09	0.06	0.02	0.00	382.72	0.01	0.01	385.65
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	7.58	0.00	0.00	7.64
Total tons per construction project	0.01	0.21	0.02	0.01	0.00	0.00	68.20	0.00	0.00	68.72

SAFE Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles

Year: 2024	1	1	1	1	1	1	1.0207	1	1	*

Worker Commute Emissions: SAFE Adjustments	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.05	0.77	0.06	0.04	0.02	0.00	251.13	0.01	0.01	253.01
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	3.31	0.00	0.00	3.34
Pounds per day - Grading/Excavation	0.13	2.06	0.16	0.10	0.04	0.01	669.68	0.01	0.02	674.69
Tons per const. Period - Grading/Excavation	0.01	0.11	0.01	0.01	0.00	0.00	35.36	0.00	0.00	35.62
Pounds per day - Drainage/Utilities/Sub-Grade	0.10	1.54	0.12	0.07	0.03	0.00	502.26	0.01	0.01	506.02
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	23.20	0.00	0.00	23.38
Pounds per day - Paving	0.08	1.20	0.09	0.06	0.02	0.00	390.64	0.01	0.01	393.57
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	7.73	0.00	0.00	7.79
Total tons per construction project	0.01	0.21	0.02	0.01	0.00	0.00	69.61	0.00	0.00	70.13

* Calculated as: CO2e = CO2 + CH4 * GWP of CH4 + N2O * GWP of N2O

Global Warming Potential of CH_4 (RCEM)	25
Global Warming Potential of N_2O (RCEM)	298

Construction Emissions: SAFE Adjustments Applied to RCEM Output

Road Construction Emissions Model, Version 9.0.1 - With SAFE Adjustments

Daily Emission Estimates for -> SR-29 Improvements at Rutherford and Oakville Intersections Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.07	10.74	9.37	2.43	0.43	2.00	0.79	0.37	0.42	0.02	2,356.91	0.59	0.05	2,385.76
Grading/Excavation	4.68	44.71	45.95	3.95	1.95	2.00	2.15	1.74	0.42	0.10	9,927.82	2.88	0.14	10,040.92
Drainage/Utilities/Sub-Grade	2.85	29.41	26.42	3.14	1.14	2.00	1.45	1.03	0.42	0.06	5,853.32	1.19	0.08	5,906.81
Paving	1.39	18.39	13.11	0.66	0.66	0.00	0.57	0.57	0.00	0.03	3,336.49	0.76	0.11	3,387.55
Maximum (pounds/day)	4.68	44.71	45.95	3.95	1.95	2.00	2.15	1.74	0.42	0.10	9,927.82	2.88	0.14	10,040.92
Total (tons/construction project)	0.42	4.23	4.03	0.40	0.17	0.22	0.20	0.16	0.05	0.01	891.79	0.23	0.01	901.62

Notes:

Project Start Year ->	2024
Project Length (months) ->	12
Total Project Area (acres) ->	10
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	360	40
Grading/Excavation	11	0	30	0	960	40
Drainage/Utilities/Sub-Grade	0	0	0	0	720	40
Paving	3	23	30	60	560	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> SR-29 Improvements at Rutherford and Oakville Intersections Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.14	0.12	0.03	0.01	0.03	0.01	0.00	0.01	0.00	31.11	0.01	0.00	28.58
Grading/Excavation	0.25	2.36	2.43	0.21	0.10	0.11	0.11	0.09	0.02	0.01	524.19	0.15	0.01	481.03
Drainage/Utilities/Sub-Grade	0.13	1.36	1.22	0.14	0.05	0.09	0.07	0.05	0.02	0.00	270.42	0.06	0.00	247.61
Paving	0.03	0.36	0.26	0.01	0.01	0.00	0.01	0.01	0.00	0.00	66.06	0.02	0.00	60.86
Maximum (tons/phase)	0.25	2.36	2.43	0.21	0.10	0.11	0.11	0.09	0.02	0.01	524.19	0.15	0.01	481.03
Total (tons/construction project)	0.42	4.23	4.03	0.40	0.17	0.22	0.20	0.16	0.05	0.01	891.79	0.23	0.01	818.08

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix D – CT-EMFAC2021 Input and Output

Input Parameters

Project	SR-29 Intersection Improvements Project			
Scenario	**2022 Existing**	**2025 No-Build / Build**	**2035 No-Build / Build**	**2050 No-Build / Build**
Area	Napa (SF)	Napa (SF)	Napa (SF)	Napa (SF)
Year	2022	2025	2035	2050
Season	Annual	Annual	Annual	Annual
# of Links	1	1	1	1

Silt Loading Factor	CARB	
Freeway	0.015	g/m2
Major/Collector	0.032	g/m2
Local Urban	0.32	g/m2
Local Rural	0.32	g/m2
Precipitation Correction	CARB	
P	68	days
N	365	days
Number of hours	24	
Number of time periods	1	
Input File	C:\Users\USES722988\Documents\Projects\California\SR-29\Operation Emissions\SR-29_CT-EMFAC2021_Batch Mode_Travel Activity File.xlsx	

Project Name	Scenario	Area	Year	Season	Link Description	Link ID	Time Period	# Hours	Length (m)	Volume (# veh)	Speed Bin (mph)	% Truck	% Truck 1	% Truck 2	Road Type
SR-29 Intersection Improvements Project	2022 Existing	Napa (SF)	2022	Annual	2022 Traffic on 2.2 mile stretch of SR-29	SR-29_2022	Day	24	3540.548	20500	40	6.6			Major/Collector

Project Name	Scenario	Area	Year	Season	Link Description	Link ID	Time Period	# Hours	Length (m)	Volume (# veh)	Speed Bin (mph)	% Truck	% Truck 1	% Truck 2	Road Type
SR-29 Intersection Improvements Project	2025 No-Build / Build	Napa (SF)	2025	Annual	2025 Traffic on 2.2 mile stretch of SR-29	SR-29_2025	Day	24	3540.548	22423	40	6.6			Major/Collector

Project Name	Scenario	Area	Year	Season	Link Description	Link ID	Time Period	# Hours	Length (m)	Volume (# veh)	Speed Bin (mph)	% Truck	% Truck 1	% Truck 2	Road Type
SR-29 Intersection Improvements Project	2035 No-Build / Build	Napa (SF)	2035	Annual	2035 Traffic on 2.2 mile stretch of SR-29	SR-29_2035	Day	24	3540.548	24828	40	6.6			Major/Collector

Project Name	Scenario	Area	Year	Season	Link Description	Link ID	Time Period	# Hours	Length (m)	Volume (# veh)	Speed Bin (mph)	% Truck	% Truck 1	% Truck 2	Road Type
SR-29 Intersection Improvements Project	2050 No-Build / Build	Napa (SF)	2050	Annual	2050 Traffic on 2.2 mile stretch of SR-29	SR-29_2050	Day	24	3540.548	28916	40	6.6			Major/Collector

Total Emissions

General	2022 Existing	2025 No-Build / Build	2035 No-Build / Build	2050 No-Build / Build		Unit
$PM_{2.5}$	1.386E-03	1.489E-03	1.588E-03	1.840E-03		tons/day
PM_{10}	7.203E-03	7.817E-03	8.606E-03	1.018E-02		tons/day
NO_x	9.827E-03	7.786E-03	4.162E-03	2.982E-03		tons/day
CO	5.129E-02	4.459E-02	3.248E-02	3.242E-02		tons/day
HC	3.116E-03	2.852E-03	2.148E-03	1.817E-03		tons/day
TOG	3.402E-03	3.108E-03	2.326E-03	1.955E-03		tons/day
ROG	2.960E-03	2.744E-03	2.090E-03	1.772E-03		tons/day
MSATs						
1,3-Butadiene	4.691E-06	3.815E-06	2.118E-06	1.590E-06		tons/day
Acetaldehyde	2.583E-05	2.272E-05	1.245E-05	6.763E-06		tons/day
Acrolein	3.792E-07	3.233E-07	2.023E-07	1.612E-07		tons/day
Benzene	7.967E-05	6.873E-05	4.533E-05	3.714E-05		tons/day
Diesel PM	6.051E-05	5.441E-05	3.143E-05	1.941E-05		tons/day
Ethylbenzene	3.292E-05	2.970E-05	2.166E-05	1.844E-05		tons/day
Formaldehyde	5.761E-05	5.019E-05	2.752E-05	1.558E-05		tons/day
Naphthalene	4.507E-06	3.513E-06	1.819E-06	1.370E-06		tons/day
POM	1.383E-06	1.171E-06	5.962E-07	3.679E-07		tons/day
DEOG	2.319E-04	2.015E-04	1.121E-04	5.098E-05		tons/day
GHGs						
CO_2	1.674E+01	1.700E+01	1.507E+01	1.572E+01		tons/day
N_2O	7.859E-04	7.639E-04	6.288E-04	6.122E-04		tons/day
CH_4	2.993E-04	2.615E-04	1.974E-04	1.641E-04		tons/day
BC	2.357E-05	2.255E-05	1.300E-05	7.635E-06		tons/day
HFC	3.469E-05	3.009E-05	9.438E-06	9.330E-07		tons/day
CO2e						
CO_2	1.519E+01	1.542E+01	1.368E+01	1.427E+01		metric tons/day CO2e
N_2O	2.125E-01	2.065E-01	1.700E-01	1.655E-01		metric tons/day CO2e
CH_4	6.788E-03	5.930E-03	4.476E-03	3.721E-03		metric tons/day CO2e
BC	9.838E-03	9.411E-03	5.425E-03	3.186E-03		metric tons/day CO2e
HFC	4.501E-02	3.903E-02	1.224E-02	1.210E-03		metric tons/day CO2e
Total CO2e	1.546E+01	1.569E+01	1.387E+01	1.444E+01		metric tons/day CO2e
PM by Process						
$PM_{2.5}$ Running Exhaust	1.115E-04	1.036E-04	6.164E-05	4.159E-05		tons/day
$PM_{2.5}$ Tire Wear	1.076E-04	1.179E-04	1.316E-04	1.551E-04		tons/day
$PM_{2.5}$ Brake Wear	2.949E-04	3.184E-04	3.376E-04	3.786E-04		tons/day
$PM_{2.5}$ Road Dust	8.717E-04	9.488E-04	1.057E-03	1.265E-03		tons/day
PM_{10} Running Exhaust	1.189E-04	1.105E-04	6.577E-05	4.445E-05		tons/day
PM_{10} Tire Wear	4.305E-04	4.717E-04	5.265E-04	6.202E-04		tons/day
PM_{10} Brake Wear	8.424E-04	9.098E-04	9.646E-04	1.082E-03		tons/day
PM_{10} Road Dust	5.811E-03	6.325E-03	7.049E-03	8.434E-03		tons/day

General	2022 Existing	2025 No-Build / Build	2035 No-Build / Build	2050 No-Build / Build		Unit
$PM_{2.5}$	2.771E+00	2.978E+00	3.176E+00	3.681E+00		pounds/day
PM_{10}	1.441E+01	1.563E+01	1.721E+01	2.036E+01		pounds/day
NO_x	1.965E+01	1.557E+01	8.325E+00	5.965E+00		pounds/day
CO	1.026E+02	8.919E+01	6.496E+01	6.484E+01		pounds/day
HC	6.232E+00	5.703E+00	4.297E+00	3.635E+00		pounds/day
TOG	6.805E+00	6.216E+00	4.652E+00	3.911E+00		pounds/day
ROG	5.921E+00	5.489E+00	4.179E+00	3.544E+00		pounds/day
MSATs						
1,3-Butadiene	9.383E-03	7.631E-03	4.236E-03	3.179E-03		pounds/day
Acetaldehyde	5.166E-02	4.544E-02	2.491E-02	1.353E-02		pounds/day
Acrolein	7.585E-04	6.465E-04	4.045E-04	3.224E-04		pounds/day
Benzene	1.593E-01	1.375E-01	9.066E-02	7.428E-02		pounds/day
Diesel PM	1.210E-01	1.088E-01	6.287E-02	3.883E-02		pounds/day
Ethylbenzene	6.584E-02	5.940E-02	4.333E-02	3.689E-02		pounds/day
Formaldehyde	1.152E-01	1.004E-01	5.504E-02	3.116E-02		pounds/day
Naphthalene	9.014E-03	7.027E-03	3.638E-03	2.739E-03		pounds/day
POM	2.766E-03	2.342E-03	1.192E-03	7.357E-04		pounds/day
DEOG	4.639E-01	4.030E-01	2.243E-01	1.020E-01		pounds/day
GHGs						
CO_2	3.348E+04	3.400E+04	3.015E+04	3.145E+04		pounds/day
N_2O	1.572E+00	1.528E+00	1.258E+00	1.224E+00		pounds/day
CH_4	5.986E-01	5.229E-01	3.947E-01	3.281E-01		pounds/day
BC	4.715E-02	4.510E-02	2.600E-02	1.527E-02		pounds/day
HFC	6.939E-02	6.017E-02	1.888E-02	1.866E-03		pounds/day
PM by Process						
$PM_{2.5}$ Running Exhaust	2.231E-01	2.073E-01	1.233E-01	8.318E-02		pounds/day
$PM_{2.5}$ Tire Wear	2.153E-01	2.358E-01	2.633E-01	3.101E-01		pounds/day
$PM_{2.5}$ Brake Wear	5.897E-01	6.369E-01	6.753E-01	7.573E-01		pounds/day
$PM_{2.5}$ Road Dust	1.743E+00	1.898E+00	2.115E+00	2.530E+00		pounds/day
PM_{10} Running Exhaust	2.377E-01	2.210E-01	1.315E-01	8.889E-02		pounds/day
PM_{10} Tire Wear	8.610E-01	9.433E-01	1.053E+00	1.240E+00		pounds/day
PM_{10} Brake Wear	1.685E+00	1.820E+00	1.929E+00	2.164E+00		pounds/day
PM_{10} Road Dust	1.162E+01	1.265E+01	1.410E+01	1.687E+01		pounds/day

General	2022 Existing	2025 No-Build / Build	2035 No-Build / Build	2050 No-Build / Build		Unit
$PM_{2.5}$	1.257E+03	1.351E+03	1.441E+03	1.670E+03		grams/day
PM_{10}	6.535E+03	7.092E+03	7.807E+03	9.236E+03		grams/day
NO_x	8.915E+03	7.063E+03	3.776E+03	2.706E+03		grams/day
CO	4.653E+04	4.046E+04	2.946E+04	2.941E+04		grams/day
HC	2.827E+03	2.587E+03	1.949E+03	1.649E+03		grams/day
TOG	3.087E+03	2.819E+03	2.110E+03	1.774E+03		grams/day
ROG	2.686E+03	2.490E+03	1.896E+03	1.607E+03		grams/day
MSATs						
1,3-Butadiene	4.256E+00	3.461E+00	1.921E+00	1.442E+00		grams/day
Acetaldehyde	2.343E+01	2.061E+01	1.130E+01	6.136E+00		grams/day
Acrolein	3.440E-01	2.933E-01	1.835E-01	1.463E-01		grams/day
Benzene	7.228E+01	6.235E+01	4.112E+01	3.369E+01		grams/day
Diesel PM	5.490E+01	4.936E+01	2.852E+01	1.761E+01		grams/day
Ethylbenzene	2.987E+01	2.694E+01	1.965E+01	1.673E+01		grams/day
Formaldehyde	5.226E+01	4.553E+01	2.497E+01	1.413E+01		grams/day
Naphthalene	4.089E+00	3.187E+00	1.650E+00	1.242E+00		grams/day
POM	1.255E+00	1.062E+00	5.409E-01	3.337E-01		grams/day
DEOG	2.104E+02	1.828E+02	1.017E+02	4.625E+01		grams/day
GHGs						
CO_2	1.519E+07	1.542E+07	1.368E+07	1.427E+07		grams/day
N_2O	7.130E+02	6.930E+02	5.704E+02	5.554E+02		grams/day
CH_4	2.715E+02	2.372E+02	1.790E+02	1.488E+02		grams/day
BC	2.139E+01	2.046E+01	1.179E+01	6.927E+00		grams/day
HFC	3.147E+01	2.729E+01	8.562E+00	8.464E-01		grams/day
PM by Process						
$PM_{2.5}$ Running Exhaust	1.012E+02	9.402E+01	5.592E+01	3.773E+01		grams/day
$PM_{2.5}$ Tire Wear	9.764E+01	1.070E+02	1.194E+02	1.407E+02		grams/day
$PM_{2.5}$ Brake Wear	2.675E+02	2.889E+02	3.063E+02	3.435E+02		grams/day
$PM_{2.5}$ Road Dust	7.908E+02	8.607E+02	9.592E+02	1.148E+03		grams/day
PM_{10} Running Exhaust	1.078E+02	1.003E+02	5.966E+01	4.032E+01		grams/day
PM_{10} Tire Wear	3.905E+02	4.279E+02	4.776E+02	5.627E+02		grams/day
PM_{10} Brake Wear	7.642E+02	8.254E+02	8.751E+02	9.814E+02		grams/day
PM_{10} Road Dust	5.272E+03	5.738E+03	6.394E+03	7.651E+03		grams/day

Appendix E - EPA CO Letter and CO Flow Chart (Based on the CO Protocol)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MAR 2 1 2018

Muhaned Aljabiry, Chief
Office of Federal Transportation Management Program
California Department of Transportation
1120 N Street, Rm 4400, MS-82
Sacramento, CA 95814

Dear Mr. Aljabiry:

The U.S. Environmental Protection Agency (EPA) is providing this letter to document that the transportation conformity requirements under Clean Air Action (CAA) section 176(c) for the Carbon Monoxide (CO) maintenance areas included in the table below will end on June 1, 2018. This date marks 20 years from the redesignation of the areas to attainment for the CO National Ambient Air Quality Standard (NAAQS)[1].

California Carbon Monoxide Maintenance Areas

Bakersfield	Chico
Fresno	Modesto
Lake Tahoe North Shore	Lake Tahoe South Shore
Sacramento	San Diego
San Francisco-Oakland-San Jose	Stockton

Under 40 CFR 93.102(b)(4) of the EPA's regulations, transportation conformity applies to maintenance areas through the 20-year maintenance planning period, unless the maintenance plan specifies that the transportation conformity requirements apply for a longer time period. Pursuant to CAA's section 176(c)(5) and as explained in the preamble of the 1993 final rule, conformity applies to areas that are designated nonattainment or are subject to a maintenance plan approved under CAA section 175A. The section 175A maintenance planning period is 20 years, unless the applicable implementation plan specifies a longer maintenance period[2]. The EPA further clarified this conformity provision in its January 24, 2008 final rule[3].

The approved maintenance plan for these areas did not extend the maintenance plan period beyond 20 years from redesignation. Consequently, transportation conformity requirements for CO will cease to apply after June 1, 2018 (i.e., 20 years after the effective date of the EPA's approval of the first 10-year maintenance plan and redesignation of the areas to attainment for the CO NAAQS). As a result, these areas' Metropolitan Planning Organizations may reference this letter to indicate that as of June 1, 2018,

1 *See* 63 FR 15305 (March 31, 1998) (approval of redesignation request and first 10-year maintenance plan) and 70 FR 71776 (November 30, 2005) (approval of second 10-year maintenance plan)
2 *See* 58 FR 62188, 62206 (November 24, 1993)
3 *See* 73 FR 4420, at 4434-5 (January 24, 2008)

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transportation conformity requirements no longer apply for the CO NAAQS for Federal Highway Administration / Federal Transit Association projects as defined in 40 CFR 93.101. Even though the conformity obligation for CO has ended, the terms of the maintenance plans remain in effect and all measures and requirements contained in the plans apply until the state submits, and the EPA approves, a revision to the state plan[4]. Such a State Implementation Plan revision would have to comply with the anti-backsliding requirements of CAA section 110(l), and if applicable, CAA section 193, if the intent of the revision is to remove a control measure or to reduce its stringency.

If you have any questions about the transportation conformity requirements, please contact me at (415) 972-3183 or Karina O'Connor of my staff at (775) 434-8176.

Sincerely,

Elizabeth J. Adams

Elizabeth L. Adams
Acting Director, Air Division

cc: Rodeny Langstaff, Caltrans
Nesamani Kalandiyur, California Air Resources Board
Tasha Clemons, Federal Highway Administration
Stew Sonnenberg, Federal Highway Administration
Christina Leach, Federal Highway Administration
Ted Matley, Federal Transit Administration
Ahron Hakimi, Kern Council of Governments
Jon Clark, Butte County Association of Governments
Steve Heminger, Metropolitan Transportation Commission
James Corless, Sacramento Area Council of Governments
Kim Kawanda, San Diego Association of Governments
Tony Boren, Fresno Council of Governments
Rosa De Leon Park, Stanislaus Council of Governments
Andrew Chesley, San Joaquin Council of Governments
Joanne Marchetta, Tahoe Regional Planning Association

4 See *General Motors Corp. v. United States*, 496 U.S. 530 (1990)

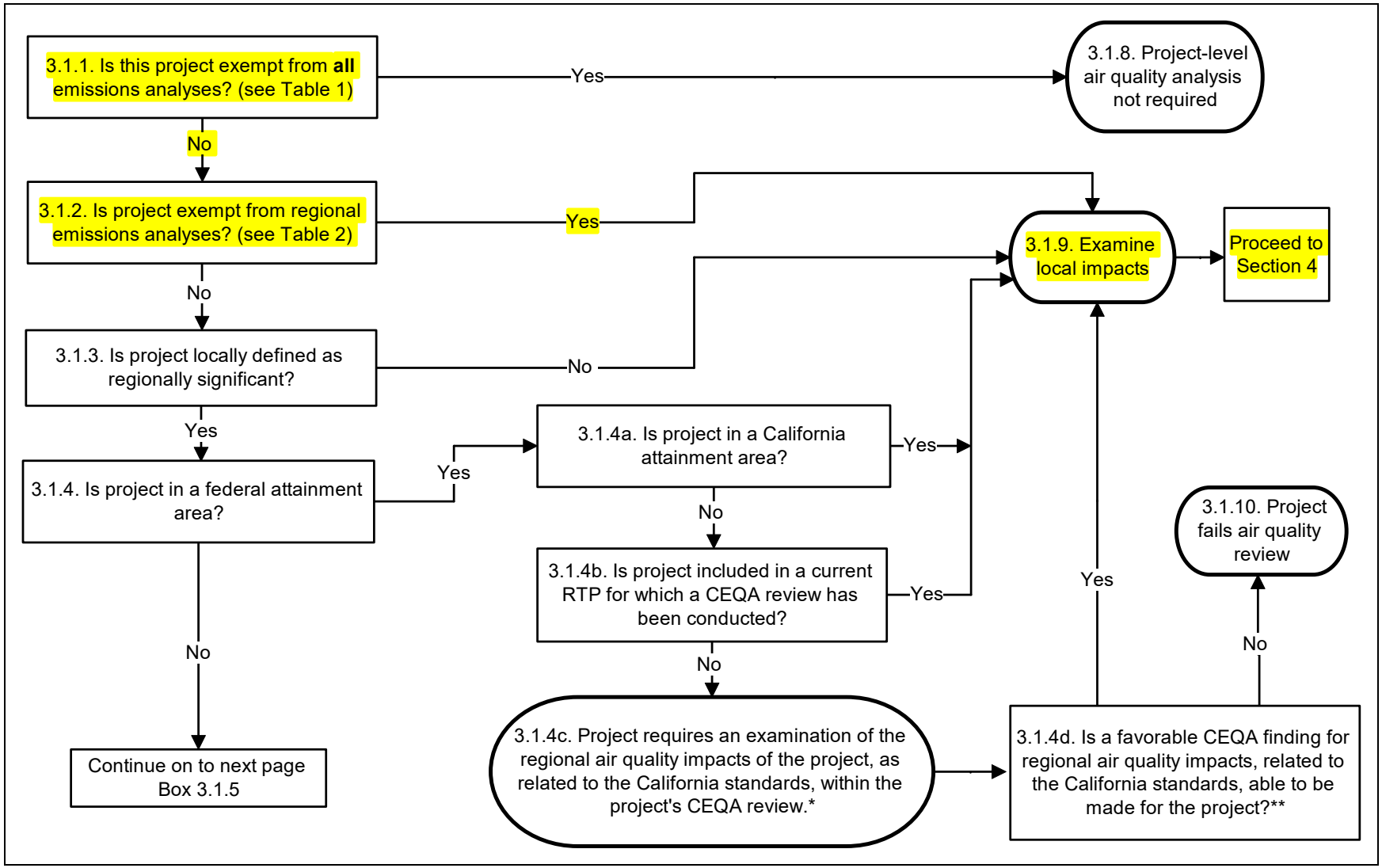

Figure 1. Requirements for New Projects

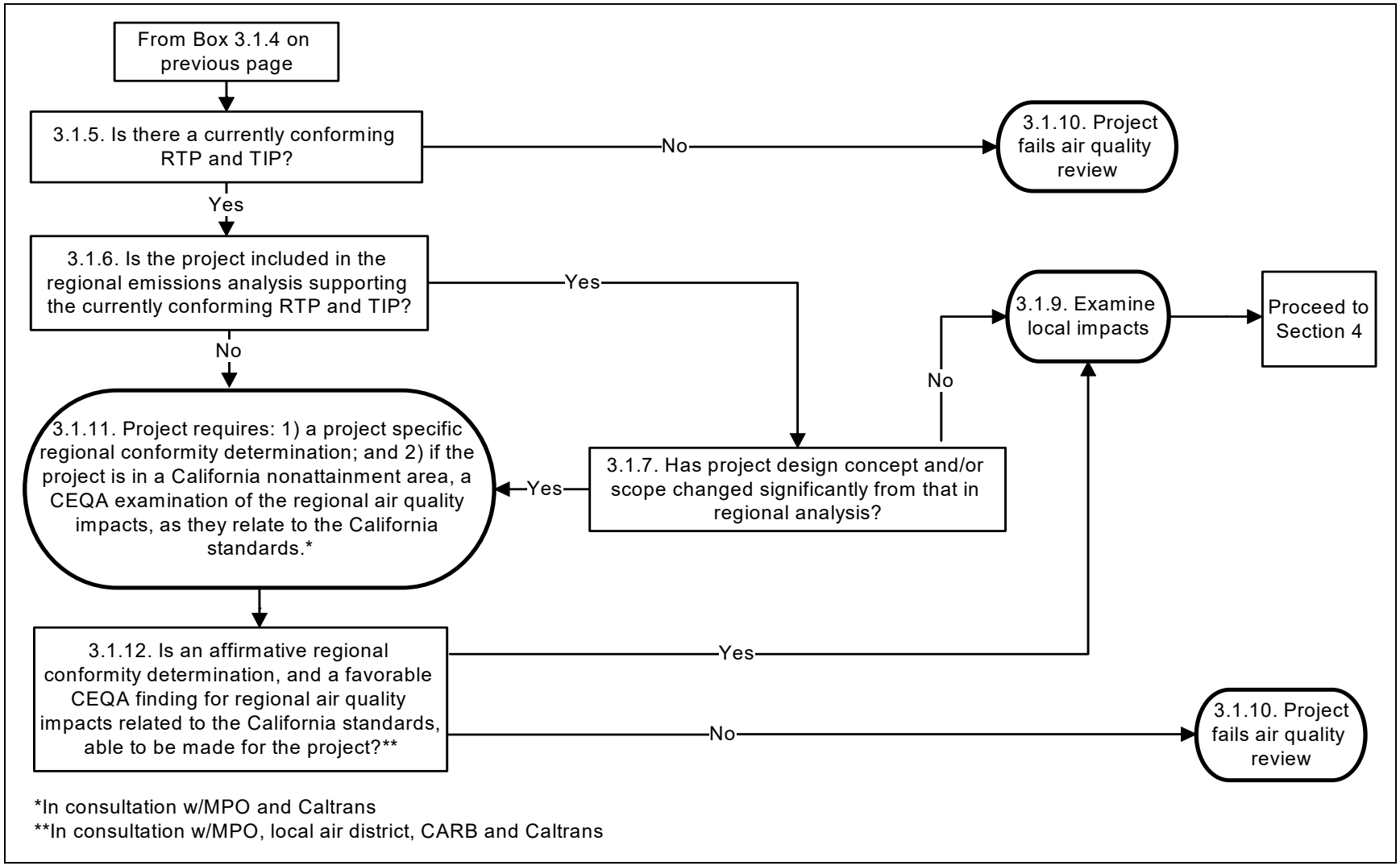

Figure 1 (cont.). Requirements for New Projects

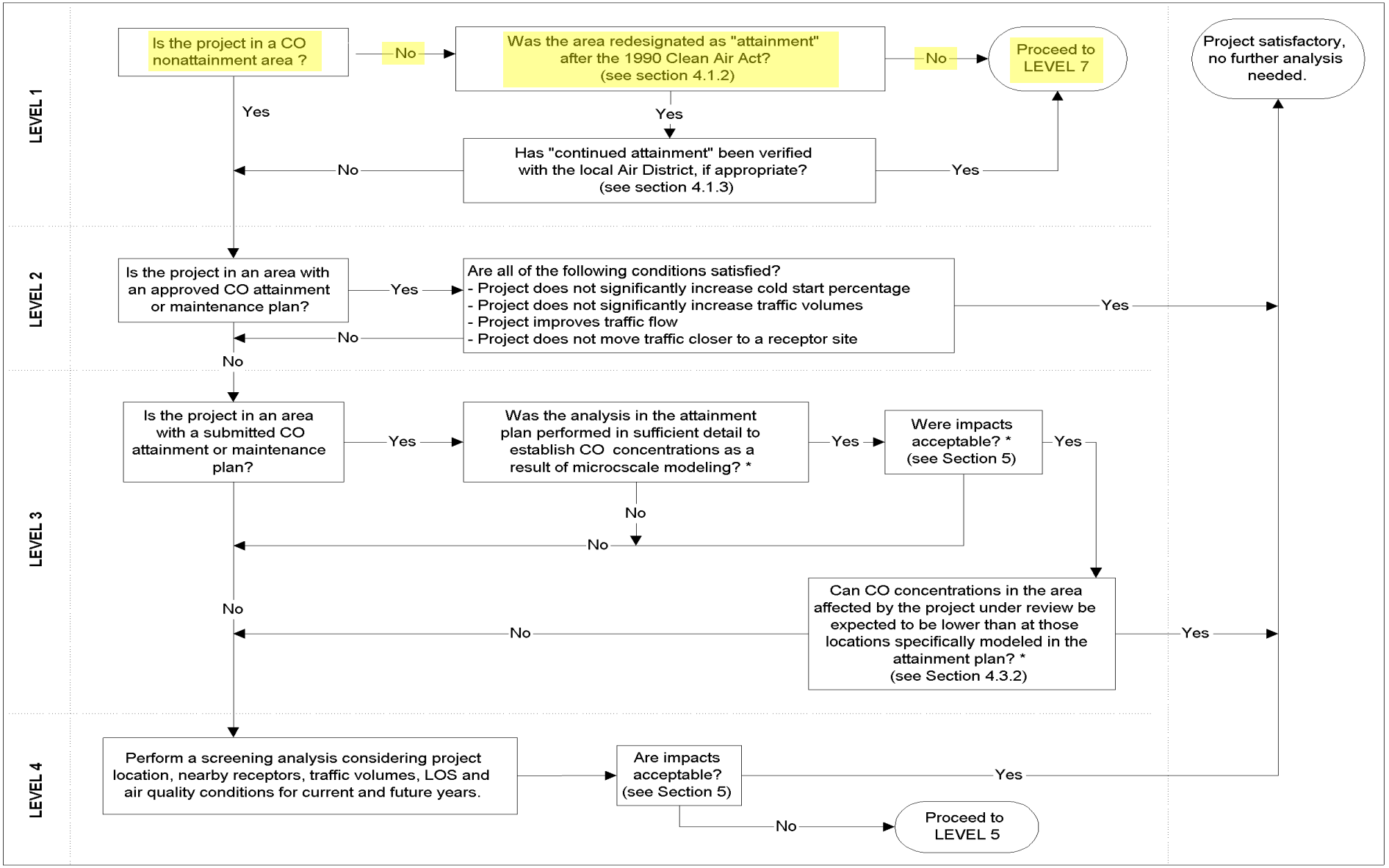

Figure 3. Local CO Analysis

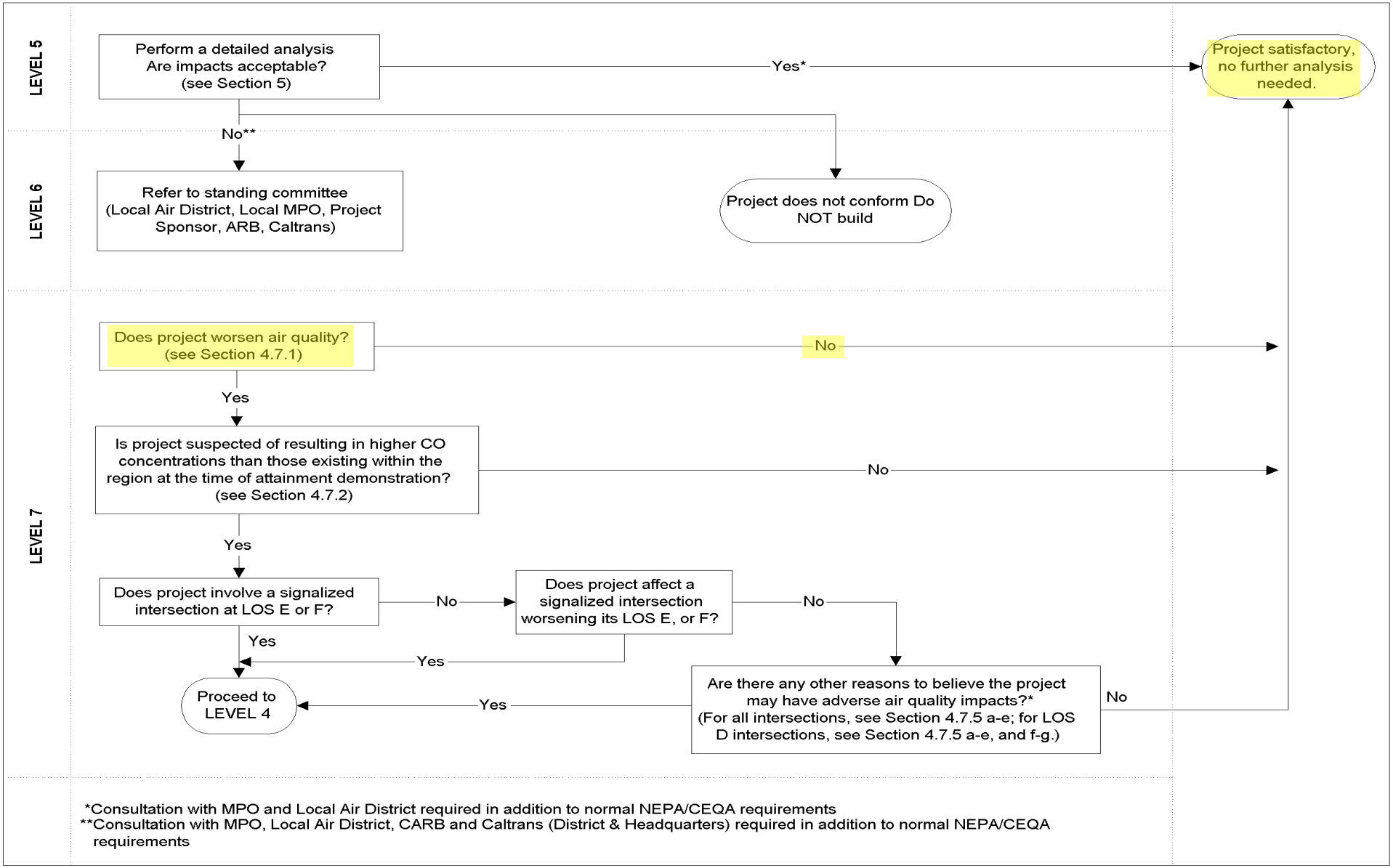

Figure 3 (cont.). Local CO Analysis

Appendix C Natural Environmental Study Minimal Impact

NATURAL ENVIRONMENT STUDY (MINIMAL IMPACTS)

Napa County, California

STATE ROUTE-29

Intersection Improvements at Oakville Cross Road (04-NAP-29-22.72) and Rutherford Road (04-NAP-29-24.59)

EA 2W430/PN 0421000200

March 2023

Caltrans

Metropolitan Transportation Commission

NVTA
NAPA VALLEY TRANSPORTATION AUTHORITY

Prepared By: _____ Date: 03/03/2023

Deidre J. Duffy, Asst. Vice President | Environmental Planner
(808) 352-0200
Durango, CO 81301
WSP USA Inc.

Approved By: Nancy Frost Date: 03/07/2023

Nancy Frost, Napa-Solano Branch Chief (Acting)
(909) 472-2393
Oakland, CA 94612
Caltrans District 4, Biological Sciences and Permits

For individuals with sensory disabilities, environmental documents can be made available in Braille, in large print, on audiocassette, or on a computer disc. To obtain a copy in one of these alternative formats use the California Relay Service 1 (800) 735-2929 (TTY to voice), 1 (800) 735-2922(voice to TTY), 1 (800) 855-3000 (Spanish TTY to voice and voice to TTY) 1-(800) 854-7784 (Spanish & English speech to speech), or 711.

TABLE OF CONTENTS

1. Introduction 1
   1.1. Project History 1
   1.2. Project Description 3
2. Study Methods 6
   2.1. Regulatory Requirements 6
   2.2. Studies Required 9
   2.3. Personnel and Survey Dates 10
   2.4. Agency Coordination and Professional Contacts 10
   2.5. Limitations That May Influence Results 10
3. Results: Environmental Setting 13
   3.1. Description of the Existing Physical and Biological Conditions 13
   3.2. Regional Species, Habitats, and Natural Communities of Concern 15
4. Results: Biological Resources; Discussion of Impacts; and Mitigation 17
   4.1. Habitats and Natural Communities of Special Concern 17
   4.2. Special Status Plant Species 17
   4.3. Special Status Animal Species 17
5. Conclusions and Regulatory Determinations 20
   5.1. Federal Endangered Species Act Consultation Summary 20
   5.1. California Endangered Species Act Consultation Summary 20
   5.2. Invasive Species 20
   5.3. Other 21

References 22

List of Tables

Table 1. FESA- and CESA-listed species potentially occurring or known to occur in the Project Impact Area. 15

Table 2. FESA-listed species potentially occurring or known to occur in the Project Area. 16

Table 3. Effect Determinations for FESA-listed species 20

List of Figures

Figure 1. Project Location 2

Figure 2. Project Impact Area. Project Impact Area 5

Figure 3a. Oakville Biological Study Area 11

Figure 3b. Rutherford Biological Study Area 12

Appendices

1. MEMORANDUM: Site Reconnaissance for Biological Resources for the SR-29 Project
2. California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants Database
3. NRCS Web Soil Survey
4. USFWS Information for Planning and Consultation (IPaC) Report

Acronyms Used

BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DOT	Department of Transportation
EO	Executive Order
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NES(MI)	Natural Environment Study (Minimal Impacts)
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NVTA	Napa Valley Transportation Authority
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WSP	WSP USA, Inc.

1. INTRODUCTION

The Metropolitan Transportation Commission (MTC), in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of State Route (SR)-29 at the intersections of Oakville Cross Road (04-NAP-29-22.72) and Rutherford Road (04-NAP-29-24.59; Project; EA 2W430). The proposed Project will provide operational and safety improvements along the SR-29 corridor in the form of traffic signals at the intersection of Rutherford Road and in the form of roundabouts at the intersection of Oakville Cross Road. The improvements will relieve traffic congestion that plagues the corridor during peak commute periods and during the weekends. The intersection improvements will improve safety and corridor operation and provide multimodal access.

1.1. Project History

SR-29 (St. Helena Highway) is a key route providing north/south connectivity in the communities of Rutherford, Oakville, and Yountville in Napa County, California (Figure 1). This section of corridor regularly experiences heavy traffic congestion during the peak periods. In order to identify the causes of and potential solutions to congestion in the greater project vicinity, the MTC partnered with the NVTA in January 2020 to perform a traffic operations analysis. The results indicated that constructing traffic signals at the intersection of SR-29 and Rutherford Road and a roundabout at the intersection of SR-29 and Oakville Cross Road would improve multimodal performance along SR-29. A preliminary traffic operations analysis was presented to project stakeholders. Based on the feedback received, the compact roundabout options would be strong candidates to advance into the project development and environmental review process. The preferred alternative that proceeds to 65% design, final design, and beyond will be determined through a series of ongoing stakeholder engagements.

1.1.1. Project Purpose and Need

The primary objective of the project is to enhance safety and traffic operations at the intersections of SR-29 / Oakville Cross Road and SR-29 / Rutherford Road. This will improve travel time and reduce delay for side streets accessing SR-29. At these intersections, traffic safety will be enhanced, along with improved turning movements.

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements. High traffic volume causes poor intersection operation occurring during peak and non-peak periods. The number of collisions exceeds statewide averages for similar types of facilities. Due to insufficient gaps in traffic streaming, there is a lack of protected turning movements to allow for access to and from SR-29.

Federal Highway Administration (FHWA) studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operational challenges associated with the corridor. Preliminary crash data analyses provided by Caltrans indicate the total rate of fatal and injury crashes at these two intersections are above the average crash rate for similar facilities statewide. Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

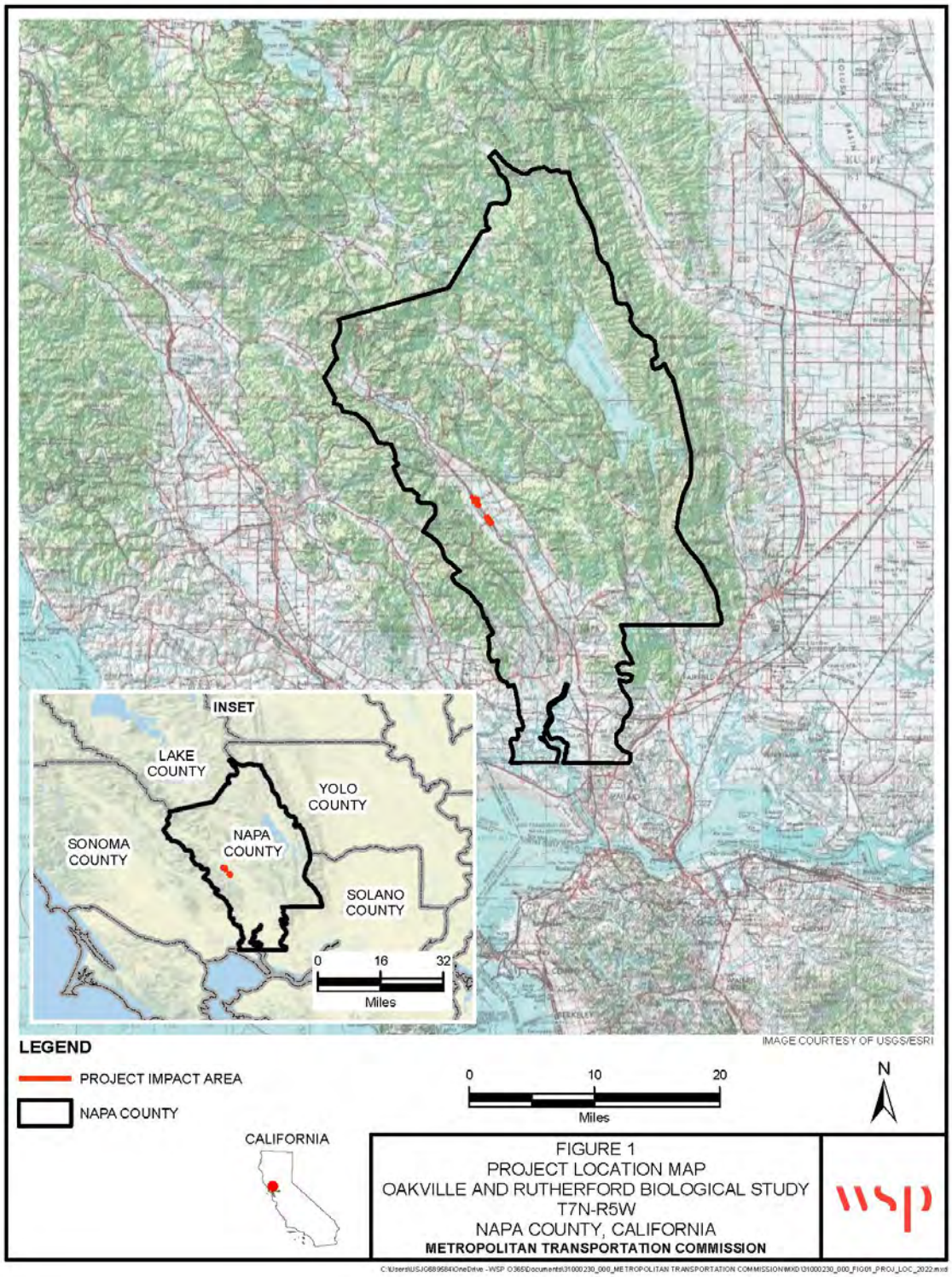

Figure 1. Project Location

1.2. Project Description

Improvements are proposed at the intersections of SR-29 / Oakville Cross Road and SR-29 / Rutherford Road. Due to the proximity to the Napa Wine Train tracks, railroad crossing improvements will also be needed at both intersections.

Oakville Cross Road Intersection

A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Limits of construction on SR-29 extend approximately 0.5 mile northerly and southerly from the center of the Oakville Cross Road intersection, approximately 500 feet in easterly direction along Oakville Cross Road, and approximately 200 feet in the westerly direction at the existing driveway crossing railroad tracks (approximately 19 acres). Roundabouts offer improved safety over other at-grade intersection control forms and offer the following advantages:

- Fewer conflict points
- Unlike a traffic signal, it allows the traffic to continuously flow through the intersection
- Provides for U-turn movement for large trucks
- Vehicles move through the intersection at a much lower speed as compared to vehicles moving through a signalized intersection
- Significantly reduces the severity of crashes
- Improves safety for pedestrian movement and bicyclist traffic due to slow speed of vehicles
- Improves capacity compared with similarly sized signalized intersection

The Oakville roundabout would maintain existing traffic patterns, however, ingress to the Oakville Grocery would be modified to right-in and right-out only. The project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather, traffic would be routed through the roundabout to access the grocery.

Construction of the roundabout would also include the installation of new landscaping, intersection lighting, a pedestrian and bicyclist shared use path with bike ramps, and splitter islands with curb ramps. In addition, the existing drainage would be modified to accommodate the proposed roundabout and the existing signage within the right-of-way would be replaced or upgraded.

The existing channelization at the intersection of SR-29 and Oakville Grade Road may be modified as part of the mainline improvement required for the construction of a roundabout at the intersection of SR-29 and Oakville Cross Road.

Rutherford Road Intersection

Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, a traffic signal and/or other traffic calming measures are proposed at the intersection of SR-29 and Rutherford Road.

At the Rutherford Road intersection, the project proposes improvements such as a traffic signal, active transportation (improvements include bicyclist and pedestrian facilities that make it safer for pedestrian and bicyclist movements at the intersection), median treatments, and traffic calming measures along the mainline at the intersection.

Limits of improvements on SR-29 would extend approximately 0.5 mile northerly and southerly from the center of the Rutherford Road intersection, and approximately 500 feet easterly along Rutherford Road (approximately 12.4 acres).

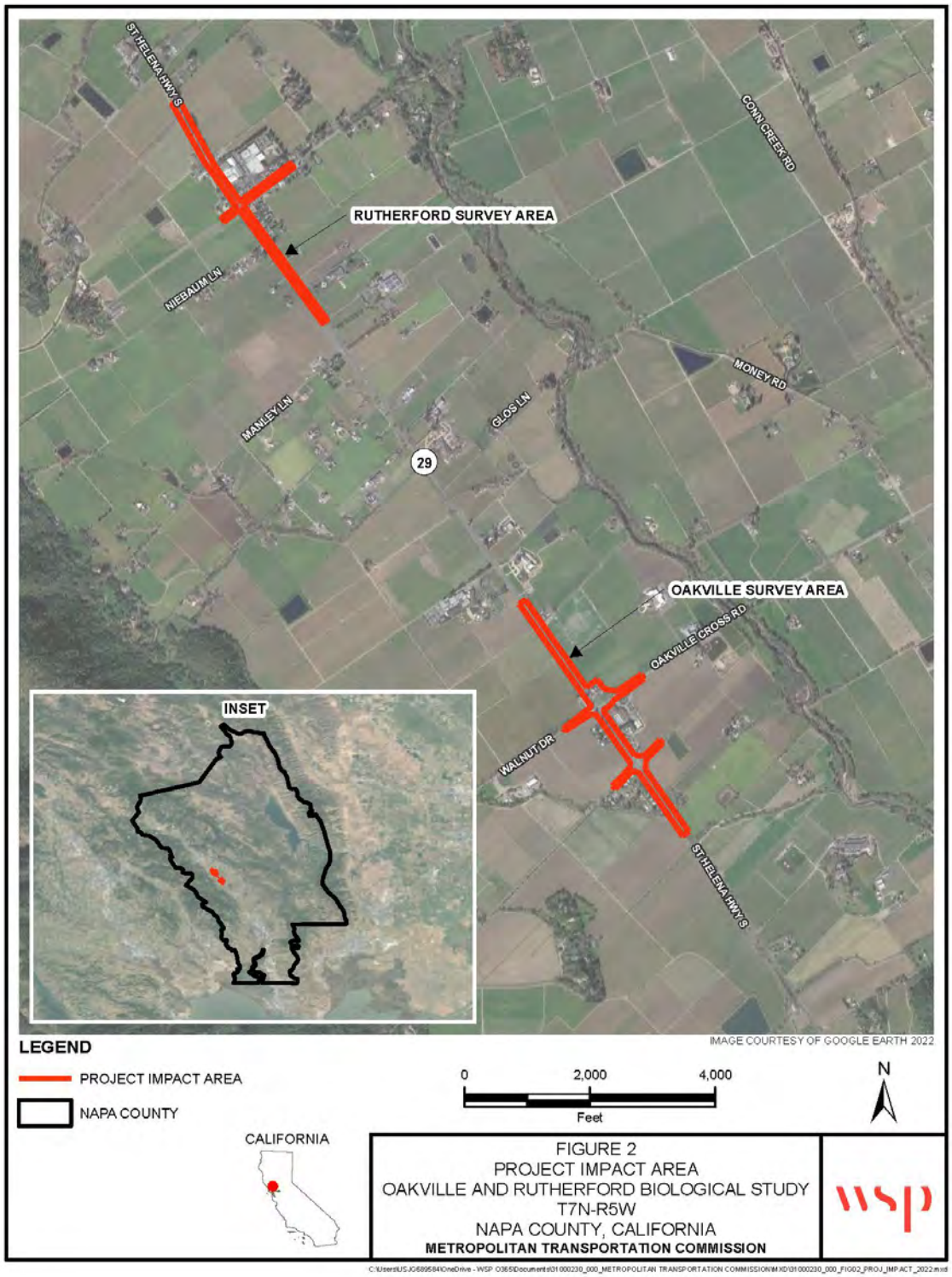

Figure 2. Project Impact Area

2. STUDY METHODS

This Natural Environment Study (Minimal Impacts; NES[MI]) was conducted by WSP USA Inc. (WSP) on behalf of the MTC. This section describes the methods used in the preparation of this NES(MI) report and includes a list of resources reviewed, field survey dates and personnel, and limitations encountered during the study that may influence the conclusions reached in this report.

2.1. Regulatory Requirements

The purpose of the NES(MI) is to document biological studies and perform analyses and evaluations necessary to satisfy the legal requirements of state and federal statutes. These statutes include federal and state regulations detailed below.

2.1.1. Federal Regulations

The following federal regulations are applicable to the Project as it relates to the natural environment.

National Environmental Policy Act (NEPA)

NEPA [42 United States Code [USC] 4321 et seq.] was signed into law on January 1, 1970. The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

Federal Endangered Species Act (FESA)

Under the FESA, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC Section 1533[c]). Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federal-listed threatened or endangered species may be present in the Project Impact Area and determine whether the project would result in the "take" of any such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC Section 1536[3], [4]). Section 7 of the FESA provides a means for authorizing incidental Take of federal endangered or threatened species that result from federally conducted, permitted, or funded projects. Similarly, Section 10 authorizes incidental Take of federally endangered or threatened species that result from non-federal projects.

Federal Migratory Bird Treaty Act (MBTA)

The MBTA (16 USC, Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, bird nests, and eggs. The MBTA is administered by the USFWS and special permits from the agency are generally required for the Take of any migratory birds. This act applies to all persons and agencies in the US, including federal agencies.

Executive Order (EO) 13112 - Invasive Species

Executive Order 13112 directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. Executive Order 13112 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversee and facilitate implementation of the Executive Order, including preparation of a National Invasive Species Management Plan. The Management Plan recommends objectives and measures to implement the Executive Order and to prevent the introduction and spread of invasive species. The Executive Order and directives from the Federal Highway Administration (FHWA) require consideration of invasive species in NEPA analyses, including the identification and distribution of species, their potential impacts, and measures to prevent or eradicate them.

Clean Water Act (CWA) Section 402 - National Pollutant Discharge Elimination System (NPDES)

Section 402(p) of the Clean Water Act establishes a permit under the NPDES program for discharges of storm water resulting from ground disturbing construction activities, such as grading. For ground disturbing activities impacting less than one acre, compliance with the County's grading ordinance satisfies the requirements of NPDES. For ground disturbing construction activities in excess of one acre, a NPDES Phase II permit from the Regional Water Quality Control Board (RWQCB) is required. The preparation of a Stormwater Pollution Prevention Plan (SWPPP) is a requirement of the NPDES Phase II permit.

CWA - Sections 401 and 404

Under Section 401 of the Clean Water Act (33 U.S.C. 1341), any applicant for a Federal permit or license for any activity that may result in a discharge into waters of the United States shall provide the licensing or permitting agency a water quality certification from the state, or, if appropriate, from the agency having jurisdiction over the waters at the point where the discharge originates, to ensure that the proposed activity complies with the appropriate water quality standards.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency regulate the discharge of dredge and fill material into waters of the United States under Section 404 of the Clean Water Act (33 U.S.C. 1344). The USACE issues permits for certain dredge and fill activities in waters of the United States pursuant to the regulations in 33 C.F.R. § 320-330 (2023).

2.1.2. State Regulations

California Lake and Streambed Alteration Agreement (CFGC § 1600)

California Fish and Game Code § 1600 requires any person, government agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel, or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify the California Department of Fish and Wildlife (CDFW) of such proposed activity.

California Environmental Quality Act (CEQA)

The CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA applies to all discretionary projects proposed to be conducted or approved by a California public agency, including private projects requiring discretionary government approval.

California Endangered Species Act (CESA)

Under the CESA, the CDFW has the responsibility for maintaining a list of threatened and endangered species designated under state law (California Fish and Game Code [CFGC] Section 2070). Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed threatened, endangered, or candidate for state-listing species may be present in the Project Impact Area and determine whether the proposed project would result in take of any such species. Under CESA, "Take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." The CDFW may authorize the incidental Take of a state-listed species under Section 2081 of the CFGC. For species that are listed as threatened or endangered under both the FESA and CESA, and for which an incidental take permit has been issued in accordance with Section 7 or Section 10 of the FESA, CDFW may authorize take after certifying that the federal Incidental Take Permit is consistent with CESA, pursuant to Section 2080.1 of the CFGC.

California Fish and Game Code (CFGC)

The CFGC provides protection for migratory birds and raptors. Raptors and raptor nests or eggs are protected from Take under CFGC Section 3503.5. Migratory birds are expressly prohibited from Take under CFGC Section 3513 and species designated by CDFW as fully protected species are protected from take under CFGC Sections 3511 4700, 5050, and 5515.

Native Plant Protection Act (NPPA)

The NPPA (CFGC 1900-1913) prohibits the Taking, possessing, or sale within the state, of any plants with a state designation of rare, threatened, or endangered. An exception to this prohibition in the NPPA allows landowners, under specified circumstances, to Take listed plant species, provided that the owners first notify CDFW and give that state agency at least 10 days to come and retrieve the plants before they are disturbed or destroyed. Fish and Game Code 1913 exempts from Take prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way."

Nesting Birds and Birds-of-Prey

CFGC 3503 protects all native nesting birds. CFGC 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds-of-prey). Birds-of-prey include raptors, falcons, and owls. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any native bird or bird-of-prey, except as otherwise provided by the CFGC or any regulation adopted pursuant thereto.

Fully Protected Species

CDFW's classification of "fully protected" species was the State's initial effort in the 1960s to identify and protect animals that were rare or faced possible extinction. Lists of fully protected species were created for birds (CFGC 3511) mammals (CFGC 4700) reptiles and amphibians (CFGC 5050), and fish (CFGC 5515). The CFGC states that fully protected species, "... may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species."

Take Prohibition

CFGC 86 defines 'Take' and 2080 prohibits 'Taking' of a species listed as threatened or endangered under the CESA (CFGC 2080) or otherwise fully protected, as defined in CFGC 3511, 4700, and 5050.

2.2. Studies Required

Two Biological Study Areas (BSAs) were identified for each intersection (Figures 3a and 3b). The BSAs included the Project Impact Area, buffered by 500 feet. The distance between the two SR-29 intersections under study is approximately 1.8 miles.

1. Oakville BSA. The SR-29 & Oakville Cross Road intersection is located approximately 40 miles north of San Francisco as the crow flies and straddles SR-29 in the heart of Napa Valley between the towns of Rutherford and Yountville. The Napa Valley Wine Trail railroad right-of-way runs parallel to SR-29 north to south on the western side of the BSA alongside the Oakville Pump Service station. The historic Oakville Grocery is located on the northeastern corner of the BSA adjacent to a vineyard. There are several wineries on the eastern side of SR-29. The BSA included 184 acres within the SR-29 and Oakville Cross Rd intersection and adjacent railroad right-of way.
2. Rutherford BSA. The SR-29 & Rutherford Road intersection is located approximately 45 miles north of San Francisco as the crow flies and straddles SR-29 between the towns of Zinfandel and Oakville. The immediate vicinity around the intersection is a mostly built environment, with Federal Express and United States Postal Service facilities on the northeastern corner of the intersection. Wineries and restaurants abut both SR-29 and Rutherford Road on the southeastern side of the BSA. The Rutherford Fire Department sits on the western side of the Napa Valley Wine Train railroad right-of-way which runs parallel to SR-29. A vineyard lies on the southwestern portion of the intersection on the western side of the railroad right-of-way. The Rutherford BSA includes 155 acres surrounding the SR-29 and Rutherford Road intersection and adjacent railroad right-of-way.

2.2.1. Literature Search

A desktop database review was conducted to identify historical records of special status plant and wildlife species in the Oakville and Rutherford BSAs and evaluate whether the species have the potential to occur today in the BSAs. Several data sources were reviewed, including:

- CDFW California Natural Diversity Database (CNDDB; October 2022) reviewed to identify any species or biological resources requiring consideration within a 500-foot buffer of the Biological Study Areas (BSAs; Appendix 1)
- California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants Database (Appendix 2)
- US Department of Agriculture; Natural Resources Conservation Service (NRCS) Web Soil Survey (Appendix 3)
- USFWS Information for Planning and Consultation (IPaC) planning tool (Appendix 4)
- USFWS National Wetland Inventory (NWI; Appendix 1)

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service Species List was not applicable since the Project is located outside of NOAA Fisheries jurisdiction.

2.2.2. Field Reviews

On September 9, 2021, a qualified Senior Biologist from WSP conducted a site reconnaissance survey focused on biological resources within the Oakville and Rutherford BSAs (Appendix 1). The intent of the

survey was to support permitting, pre-construction monitoring, compliance with mitigation measures, and other agency-required analyses.

2.2.3. Survey Methods

The site reconnaissance survey entailed traversing the Project Impact Area on foot to generally characterize the current site conditions and investigate for sensitive plants, birds, and other biological resources. The biologist scanned nearby adjacent land using binoculars to identify any biological resources. The resources investigated during the September 2021 field survey included: land cover/land use; suitable habitat for migratory birds; raptor nests; and habitat for other special status species (WSP 2021; Appendix 1).

2.3. Personnel and Survey Dates

The site reconnaissance for biological resources was conducted on September 9, 2021, by a biologist familiar with the region where the Project is located. This survey was conducted to document baseline conditions and assess the potential for special-status plant and wildlife species to occur within the BSAs that could pose a constraint to development.

2.4. Agency Coordination and Professional Contacts

The Caltrans biologist was consulted on June 29, 2022, regarding potential impacts to special status species that may result from Project activities. Caltrans reviewed the 2021 *Site Reconnaissance for Biological Resources Memorandum* (WSP 2021 Appendix 1). Caltrans requested further research into potential impacts to California red-legged frog (*Rana draytonii*) and Swainson's hawk (*Buteo swainsoni*) to determine if the Project would qualify for a Natural Environment Study (Minimal Impacts; NES[MI]) or if a full NES would be required. It was later decided via email that a NES(MI) would be appropriate for the Project (G. Pera, pers. comm.).

2.5. Limitations That May Influence Results

The field survey was conducted in September during a time period outside of the nesting and blooming season of birds and plants. It is to be used as a general reference and is limited by the season, time of day, and weather condition in which the field survey was conducted.

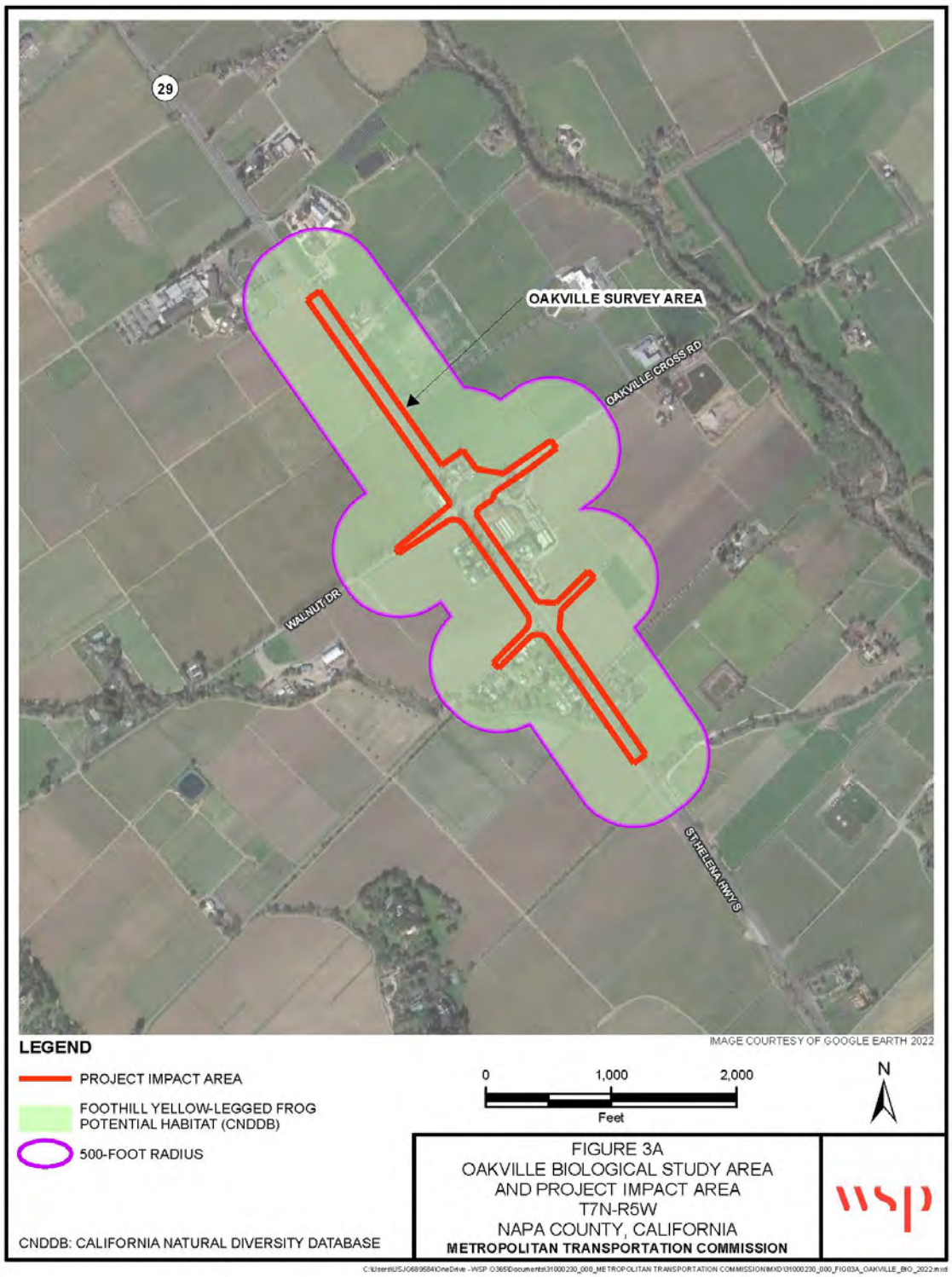

Figure 3a. Oakville Biological Study Area

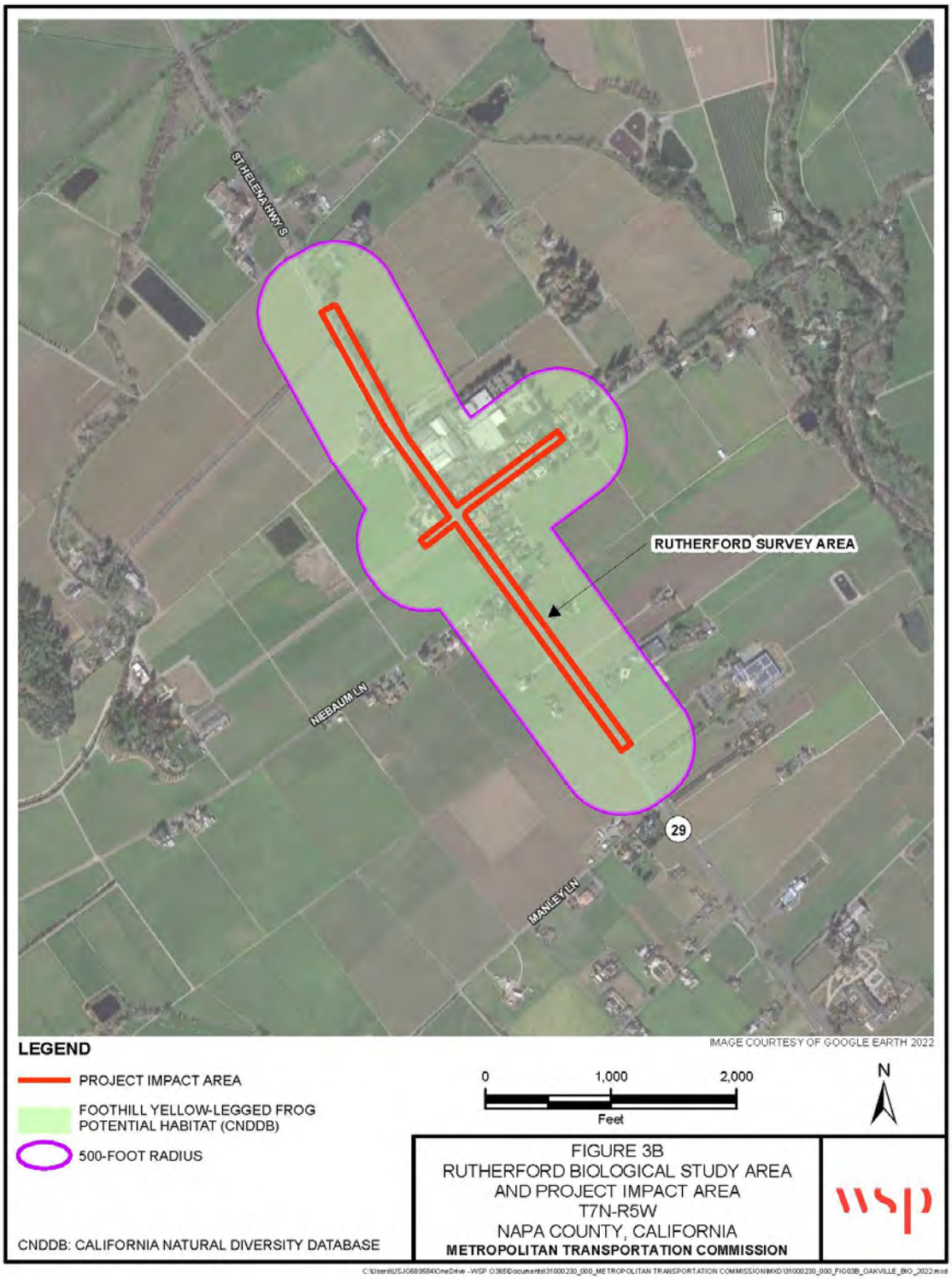

Figure 3b. Rutherford Biological Study Area

3. RESULTS: ENVIRONMENTAL SETTING

The BSA is located within the Natural Resources Conservation Service (NRCS) Land Resource Region (LRR) Central California Coastal Valleys, Major Land Resource Area (MLRA) 14. This MLRA makes up about 3,170 square miles (8,215 square kilometers) in central California (NRCS 2006). The Project area is situated in the northern portion of the MLRA in Napa Valley in southern Napa County surrounded by agricultural areas to the north, Vaca and Mayacamas Mountains to the east and west, respectively, and San Pablo Bay to the south.

3.1. Description of the Existing Physical and Biological Conditions

3.1.1. Study Area

Temperatures during the survey ranged from 62-70 degrees Fahrenheit, with little cloud coverage and winds of less than five miles per hour. There were no recent rain events leading up to the survey.

Representative site photos and BSA's for the SR-29 and Oakville Cross Rd and SR-29 and Rutherford Rd intersections can be found in Appendix 1.

3.1.2. Physical Conditions

Climate

The average annual precipitation in this MLRA is 11 to 66 inches (280 to 1,675 millimeters). Most of the rainfall occurs as low- or moderate-intensity, Pacific frontal storms during winter. This area is very dry from mid-spring to mid-autumn. Snowfall is rare. The average annual temperature is 56 to 61 degrees Fahrenheit (13 to 16 degrees Celsius). The freeze-free period averages 315 days and ranges from 265 to 365 days; it is longest near the coast, and it becomes shorter with increasing elevation.

Surface Water

The nearby Napa River flows from north to south through the City of Napa to San Pablo Bay.

There are no streams, wetlands, or other bodies of water within the Oakville BSA or Rutherford BSA and the proposed Project does not require the discharge or release of any fill materials into wetlands, watercourses, or other bodies of water.

Soil

According to the NRCS Soil Survey (Appendix 3), the subject property is underlain by the following soil units in order of dominance: 60.7% Bale clay loam (0 to 2 percent slopes), 34.9% Bale loam (0-2 percent slopes), 3.1% Pleasanton loam (0-2 percent slopes), and 1.3% Bale clay loam (2 to 5 percent slopes; NRCS 2006).

The major soil resource concerns are erosion, maintenance of the content of organic matter in the soils, and water quality. The erosion hazard is slight on the soils in valleys and on terrace sand benches of the valleys, except where improper irrigation practices are more damaging than rainfall. If the surface is unprotected in winter, the hazard of sheet and gully erosion is severe on the sloping soils on coastal terraces and benches and on upland soils (NRCS 2006).

3.1.3. Biological Conditions

Land Use

The majority of land in Napa Valley is utilized as farms and ranches. The acreage used for urban development is rapidly increasing. The gently sloping soils in the valleys are intensively used for many kinds of crops. Truck crops, wine grapes, strawberries and other fruits, cut flowers, small grains, hay, and pasture are the principal crops grown on irrigated land. Small grains are the principal crops in dry-farmed areas. Dairy farming is an important enterprise near the large cities (NRCS 2006).

Vegetation

In general, the Napa Valley area vegetation is dominated by grasses, brush, and trees. Naturalized annual grasses and forbs are dominant in many areas. Soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), bromes (*Bromus* spp.), fescues (*Festuca* spp.), redstem filaree (*Erodium cicutarium*), burclover (*Medicago polymorpha*), and some remnant perennials are the major species in the lowlands of this MLRA. Scattered valley oak (*Quercus lobata*) grows on the well-drained soils (NRCS 2006).

Plant species encountered during the site reconnaissance include: bush poppy (*Dendromecon rigida*); California tree poppy (*Romneya coulteri*); blue gum (*Eucalyptus globulus*); coast redwood (*Sequoia sempervirens*); oleander shrub (*Nerium oleander*); coast live oak (*Quercus agrifolia*); California fan palm (*Washingtonia filifera*); and lavender (*Lavandula* spp.).

- Oakville BSA: There is minimal natural vegetation within the Oakville BSA. Along the western side of the railroad right-of-way is a stand of mixed tree species, including old growth coast redwoods, mixed oak species (*Quercus* spp.), and eucalyptus species (*Eucalyptus* spp.). The northeastern portion of the BSA is a vineyard with no ground vegetation. Ornamental and native plants were planted in established planters alongside the winery sidewalks on the eastern side of SR-29. Plants include large palms (*Arecaceae* spp.), bush poppies, lavender, and oleander shrubs. Ground vegetation in vineyards adjacent to SR-29 in the road and railroad rights-of-way had been cleared, most likely to limit vegetation fuel for fires.
- Rutherford BSA: There is minimal natural vegetation within the Rutherford BSA. Along the western side of the railroad right-of-way is a stand of mixed tree species, including old growth coast redwoods, eucalyptus, and mixed oak. A stand of oak and palm trees line the northeastern portion of the BSA along SR-29 and Rutherford Road. Ornamental bush poppies and oleander shrubs line SR-29 and Rutherford Road along the southeastern side of the BSA. Ground vegetation in vineyards adjacent to SR-29 in the road and railroad rights-of-way had been cleared, most likely to limit vegetation fuel for fires.

Wildlife

Some of the major wildlife species in this area are turkey (*Meleagris* spp.), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), meadowlark (*Sturnella neglecta*), blackbird (*Turdus merula*), white-crowned sparrow (*Zonotrichia leucophrys*), white-tailed kite (*Elanus leucurus*), robin (*Turdus migratorius*), mockingbird (*Mimus polyglottos*), thrush (*Turdidae* spp.), California towhee (*Melozone crissalis*), and cedar waxwing (*Bombycilla cedrorum;* NRCS 2006).

Wildlife species encountered during the site reconnaissance include: Steller's jay (*Cyanocitta stelleri*); acorn woodpecker (*Melanerpes formicivorus*); and red shouldered hawk (*Buteo lineatus*).

3.1.4. Habitat Connectivity

According to the California Essential Habitat Connectivity Project data, the Project Impact Area is not located in an Essential Connectivity Area of California. These areas were determined based on existing reserves, suitable or occupied habitat for particular species, or large areas of relatively natural landcover (Spencer et al. 2010). The nearest Essential Connectivity Area is approximately 3 miles east of the Project Impact Area in the Mayacamas Mountains.

3.2. Regional Species, Habitats, and Natural Communities of Concern

Species on this list have been considered in an effects analysis for this Project and include species that might exist in another geographic area.

There are no Proposed Candidates for state- or federal-listing, USFWS-designated Critical Habitats, nor Natural Communities of Concern in the Project Area.

CNDDB search results identified one species of concern with potential to occur in the Project Area, the foothill yellow-legged frog (*Rana boylii*).

Table 1. FESA- and CESA-listed species potentially occurring or known to occur in the Project Impact Area.

Common Name	Scientific Name	Status[1]	General Habitat Description	Habitat Present/ Absent[2]	Rationale
Flowering Plants					
Burke's Goldfields	*Lasthenia burkei*	FE; SE	Meadows and seeps, Vernal pools	A	No suitable habitat in BSA
Calistoga Allorcarya	*Plagiobothrys strictus*	FE; SE	Meadows and seeps, Valley and foothill grassland, Vernal pools	A	No suitable habitat in BSA
Clara Hunt's Milk-Vetch	*Astragalus clarianus*	FE; SE	Chaparral, Cismontane woodland, Valley, and foothill grassland	A	No suitable habitat in BSA
Contra Costa Goldfields	*Lasthenia conjugens*	FE; SE	Vernal pools	A	No vernal pools in BSA
Few-Flowered Navarretia	*Navarretia leucocephala* ssp. *pauciflora*	FE; SE	Vernal pools	A	No vernal pools in BSA
Napa Blue Grass	*Poa napensis*	FE; SE	Meadows and seeps, Valley, and foothill grassland	A	No suitable habitat in BSA
Sebastopol Meadowfoam	*Limnanthes vinculans*	FE; SE	Meadows and seeps, Valley and foothill grassland, Vernal pools	A	No suitable habitat in BSA
Tiburon Paintbrush	*Castilleja affinis var. neglecta*	FE; SE	Valley and foothill grassland	A	No suitable habitat in BSA
Birds					
Northern Spotted Owl	*Strix occidentalis caurina*	FT; ST	Dense forests	A	No dense forests in BSA
Swainson's Hawk	*Buteo Swainsoni*	ST	Plains, dry grassland, farmland, ranch country.	HP	Suitable nesting trees within both BSAs.
Reptiles					
Green Sea Turtle	*Chelonia mydas*	FE; SE	Shallow, coastal waters with lush seagrass beds, inshore bays, lagoons, and shoals	A	No suitable habitat in BSA

Common Name	Scientific Name	Status[1]	General Habitat Description	Habitat Present/ Absent[2]	Rationale
Amphibians					
California Red-Legged Frog	*Rana draytonii*	FT; ST	Creeks and ponds with dense riparian woodlands	HP	No suitable habitat in the Project Impact Area
Foothill Yellow-Legged Frog	*Rana boylii*	FSC	Coastal mountain ranges; flowing streams and rivers with rocky substrate or sunny banks	HP	*See discussion below
Fishes					
Delta Smelt	*Hypomesus transpacificus*	ST	Upstream through the delta from estuarian to fresh waters; tolerant of a wide salinity range	A	No suitable habitat in BSA
Insects					
Monarch Butterfly	*Danaus plexippus*	FC	Milkweed with access to a slow-moving water source	A	Lack of milkweed habitat and nectar sources
Crustaceans					
California Freshwater Shrimp	*Syncaris pacifica*	FE; SE	Year-round flowing freshwater streams	A	No suitable habitat in BSA
Conservancy Fairy Shrimp	*Branchinecta conservatio*	FE; SE	California's Central Valley; relatively large, turbid freshwater vernal pools (playa pools)	A	No suitable habitat in BSA

[1] Status: Federal Endangered (FE); Federal Threatened (FT); Federal Candidate (FC); State Endangered (SE); State Threatened (ST)

[2] Absent [A] - no habitat present and no further work needed; Habitat Present [HP] - habitat is or may be present. The species may be present.

In addition, the IPaC report lists the following Birds of Conservation Concern as potentially occurring in the vicinity of the Project Impact Area either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location (Figure 1). The list does not include every bird that may be found in this location, nor is it a guarantee that every bird on this list will be found in the Project Impact Area. The general, range-wide breeding season for each species is listed in Table 2, indicating that the bird may breed in vicinity of the Project Impact Area sometime within the timeframe specified. "Breeds elsewhere" indicates that the bird does not likely breed in the area.

Table 2. USFWS Birds of Conservation Concern or Special Status species potentially occurring or known to occur in the Project Area.

Common Name	Scientific Name	Potential Breeding status in the Project Area	2022 eBird sightings within 0.5 mile of BSAs?
Allen's Hummingbird	*Selasphorus sasin*	Breeds Feb 1 to Jul 15	Yes
Bald Eagle	*Haliaeetus leucocephalus*	Breeds Jan 1 to Aug 31	Yes
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingi*	Breeds Apr 1 to Aug 15	No
Bullock's Oriole	*Icterus bullockii*	Breeds Mar 21 to Jul 25	Yes
California Gull	*Larus californicus*	Breeds Mar 1 to Jul 31	Yes
California Spotted Owl	*Strix occidentalis occidentalis*	Breeds Mar 10 to Jun 15	Yes
California Thrasher	*Toxostoma redivivum*	Breeds Jan 1 to Jul 31	No

Common Name	Scientific Name	Potential Breeding status in the Project Area	2022 eBird sightings within 0.5 mile of BSAs?
Clark's Grebe	*Aechmophorus clarkia*	Breeds Jun 1 to Aug 31	Yes
Common Yellowthroat	*Geothlypis trichas sinuosa*	Breeds May 20 to Jul 31	Yes
Golden Eagle	*Aquila chrysaetos*	Breeds Jan 1 to Aug 31	Yes
Long-eared Owl	*Asio otus*		Yes
Lawrence's Goldfinch	*Carduelis lawrencei*	Breeds Mar 20 to Sep 20	Yes
Marbled Godwit	*Limosa fedoa*	Breeds elsewhere	Yes
Nuttall's Woodpecker	*Picoides nuttallii*	Breeds Apr 1 to Jul 20	Yes
Oak Titmouse	*Baeolophus inornatus*	Breeds Mar 15 to Jul 15	Yes
Olive-sided Flycatcher	*Contopus cooperi*	Breeds May 20 to Aug 31	Yes
Short-billed Dowitcher	*Limnodromus griseus*	Breeds elsewhere	No
Western Grebe	*Aechmophorus occidentalis*	Breeds Jun 1 to Aug 31	Yes
Willet	*Tringa semipalmata*	Breeds elsewhere	Yes
Wrentit	*Chamaea fasciata*	Breeds Mar 15 to Aug 10	Yes

4. RESULTS: BIOLOGICAL RESOURCES; DISCUSSION OF IMPACTS; AND MITIGATION

No National Wildlife Refuge Lands, fish hatcheries, or Critical Habitats were identified in the BSAs.

4.1. Habitats and Natural Communities of Special Concern

Habitats are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status plants or animals occurring on site. Vegetative community types in the BSAs are human related or non-vegetative: Urban or Built up and Agriculture (Caltrans n.d.). There are no natural communities of special concern in the Project Area.

4.2. Special Status Plant Species

Plants are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the presence of habitat required by the special-status plants occurring on site. There was no suitable habitat observed for special status plant species within the BSAs.

4.3. Special Status Animal Species

Animals are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status animals occurring on site. There was no suitable habitat identified for any FESA-listed species with potential to occur in the BSAs. CNDDB search results identified one species of concern with potential to occur in the Project Area, the foothill yellow-legged frog. The BSAs were also evaluated for potential suitable habitat for the California red-legged frog and Swainson's hawk based on conversations with the Caltrans biologist (G. Pera, pers. comm.).

4.3.1. Foothill yellow-legged frog

The foothill yellow-legged frog, north coast Distinct Population Segment, is a state Species of Special Concern. It is the only species for which habitat is mapped in CNDDB for this Project. According to CNDDB, the entire Rutherford USGS 7.5-minute Quadrangle map is considered yellow-legged frog habitat, but there is no suitable breeding habitat for this species within the Project Impact Area. There are no recorded occurrences in CNDDB within one mile of the Project Impact Area, but there are several recorded instances within three miles of the Project.

4.3.1.1. Survey Results

No suitable breeding habitat for the foothill yellow-legged frog was identified during the field survey (WSP 2021; Appendix 1).

4.3.1.2. Project Impacts

There are no flowing streams and rivers with rocky substrate or sunny banks in the either BSA, thus there will be no direct impacts to suitable foothill yellow-legged frog breeding habitat.

Direct impacts to dispersing or migrating foothill yellow-legged frogs was considered because there are recorded instances of this species within three miles of the Project Area (CNDDB 2022). Based on the *Considerations for Conserving the Foothill Yellow-Legged Frog*, adult frogs congregate at breeding sites during the reproductive season and then disperse following reproductive activity (CDFW 2018). Seasonal movements occur among breeding, post breeding summer, and overwintering habitats. Movement data on foothill yellow-legged frogs is limited to a few studies at this time; but it is likely that frogs are more mobile than commonly believed and likely utilize a wide range of watershed features including different order tributaries (CDFW 2018). Foothill yellow-legged frog upland habitat use, and movement are poorly understood; however, anecdotal observations suggest that foothill yellow-legged frogs utilize upland habitat in relative proximity to streams, particularly in more mesic parts of California (CDFW 2018). There are no watershed features in either BSA that would provide suitable dispersal corridors for this species, thus there will be no direct impacts to dispersing or migrating foothill yellow-legged frogs as a result of Project activities.

4.3.1.3. Avoidance and Minimization Efforts

Site inspections for this species are recommended prior to conducting work. If frogs in any life stage are found during inspections, work should be suspended, and the project proponent should notify CDFW for the purpose of developing coordinated conservation measures prior to recommencing work (CDFW 2018).

4.3.2. California Red-Legged Frog

The California red-legged frog is listed under FESA and CESA as Threatened. Impacts to the California red-legged frog were considered based on discussions with the Caltrans biologist on June 29, 2022. There are no recorded occurrences of this species recorded in CNDDB within 3 miles of the Project Area.

4.3.2.1. Survey Results

No suitable breeding habitat for the California red-legged frog was identified in the BSAs during the field survey (WSP 2021; Appendix 1).

4.3.2.2. Project Impacts

There are no flowing streams and rivers with rocky substrate or sunny banks in the vicinity of the Project Area, thus there will be no direct impacts to suitable breeding habitat in the Project Area.

According to the *Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005), California red-legged frogs may move up to 3 kilometers (1.88 miles) up or down drainages and are known to wander throughout riparian woodlands up to several dozen meters from the water (Rathbun et al. 1993). Dispersal distances are considered to be dependent on habitat availability and environmental conditions. On rainy nights, California red-legged frogs may roam away from aquatic sites as much as 1.6 kilometers (1 mile). Additionally, California red-legged frogs will sometimes disperse in response to receding water which often occurs during the driest time of the year (USFWS 2005). Direct impacts to breeding, dispersing, or migrating California red-legged frogs are unlikely since there is no suitable habitat in the Project Impact Area. There are no recorded instances of this species within three miles of the Project Area (CNDDB 2022).

4.3.2.3. Avoidance and Minimization Efforts

Site inspections for this species are recommended prior to conducting work. If frogs in any life stage are found during inspections, work should be suspended, and the project proponent should notify CDFW for the purpose of developing coordinated conservation measures prior to recommencing work (CDFW 2018).

4.3.3. Swainson's Hawk

Swainson's hawks are a state threatened species and are protected under the MBTA and CFGC §§ 3503, 3503.5, and 3800 that prohibit the take, possession, or destruction of birds, their nests, or eggs. According to CNDDB, there was one known Swainson's hawk nest that was recorded in 2013 approximately 0.5 mile from SR-29 at latitude 38.451154° North, longitude -122.404451° West along the Napa River approximately 1 mile from both Rutherford and Oakville intersections (CNDDB 2022). It appears that the nest tree could be within direct line of sight from SR-29 along Glos Lane.

The BSAs contain suitable foraging habitat for Swainson's hawks. There are suitable nesting trees within both BSAs.

4.3.3.1. Survey Results

There were no raptor nests observed in the BSAs during the field survey. The project will not impact any suitable raptor nesting trees.

4.3.3.2. Project Impacts

The CNDDB-mapped Swainson's hawk nest datum is nearly a decade old. There were no Swainson's hawks nor unoccupied raptor nests observed in the BSAs during the September 2021 field survey (WSP 2021; Appendix 1). In addition, the project will not impact any suitable raptor nesting trees. Therefore, direct impacts to nesting Swainson's hawks are not anticipated as a result of Project activities.

4.3.3.3. Avoidance and Minimization Efforts

If an active Swainson's hawk nest is identified within 0.5 mile of the Project Area, the following conservation measures are recommended to avoid and minimize impacts to nesting Swainson's Hawk (CDFW 2013):

— If construction activities occur between February 1 and September 30, surveys for Swainson's hawk in accordance with the current CDFW guidance, e.g., *Swainson's Hawk Technical Advisory*

Committee 2000 guidelines, are recommended (SHTAC 2000). Surveys will cover a minimum of a 0.5-mile radius around the construction area. If nesting Swainson's hawks are detected, CDFW will establish a 0.5-mile no disturbance buffer. Buffers will be maintained until a qualified CDFW biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival.

If potential nesting trees are to be removed during construction activities, the following conservation measures are recommended (CDFW 2013):

— Removal will take place outside of Swainson's hawk and nesting season and CDFW will be consulted to determine if nest trees should be replaced offsite. If replacement planting is implemented, monitoring will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for the mitigation will be 65% survival of all replacement plantings.

5. CONCLUSIONS AND REGULATORY DETERMINATIONS

5.1. Federal Endangered Species Act Consultation Summary

A USFWS list of species potentially occurring within the Project Area was obtained from the IPaC online tool on March 3, 2023. Caltrans has determined, in accordance with Section 7 of the Endangered Species Act, that the project will have No Effect on any federal-listed animal or plant species (Table 3). This project is located outside of NOAA Fisheries jurisdiction; therefore, a NOAA Fisheries species list is not required and no effects to NOAA Fisheries species are anticipated.

Table 3. Effect Determinations for FESA-listed species

Common Name	Scientific Name	Status[1]	Effect Determination
Clara Hunt's Milk-vetch	*Astragalus clarianus*	FE	No Effect
Northern spotted owl	*Strix occidentalis caurina*	FT	No Effect
Green sea turtle	*Chelonia mydas*	FE	No Effect
California red-legged Frog	*Rana draytonii*	FT	No Effect
Monarch butterfly	*Danaus plexippus*	FC	No Effect
California freshwater shrimp	*Syncaris pacifica*	FE	No Effect

[1] Status: Federal Endangered (FE); Federal Threatened (FT); Federal Candidate (FC); Federal Species of Concern (FSC)

5.1. California Endangered Species Act Consultation Summary

Caltrans has determined, in accordance with the California Endangered Species Act, that the project will result in No Take of any state-listed or Candidate animal or plant species.

5.2. Invasive Species

There were no invasive species observed in either BSA during the 2021 field survey (WSP 2021; Appendix 1).

Exclusion, early detection, and rapid response are by far the most cost-effective strategies to deal with undesirable invaders. Regular inspections of the Project Impact Area are recommended to find invasions before permanent establishment occurs and take steps to eradicate incipient populations of undesirable species.

5.3. Other

5.3.1. Wetlands and Other Waters Coordination Summary

There are no jurisdictional waters or wetlands present within the Project Impact Area. No waters of the United States will be affected by the project. Therefore, no coordination with the USACE will be required, and no CWA Section 404 permit will be required, and no CWA Section 401 permit will be required from the Regional Water Quality Control Board. No waters of the state will be affected by the project. Therefore, no 1600 permit will be required from CDFW.

5.3.2. Migratory Birds

There were no migratory bird nests observed during the 2021 field survey (WSP 2021; Appendix 1). There were incidental observations of Steller's jay, acorn woodpecker, and red shouldered hawk.

The following measures should be taken in order to avoid impacts to nesting birds and comply with the MBTA and CFGC Sections 3503 and 3503.5 (protection of birds' nests) and 3513 (taking Migratory Bird Treaty Act birds):

- *Pre-construction/Pre-disturbance Surveys for Nesting Birds*. If vegetation clearing occurs during nesting season for migratory birds (approximately February 1 through September 30), pre-construction surveys for nesting birds will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 48 hours prior to the initiation of project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, grasslands, and buildings) within 300 feet of impact areas for raptor nests and within 100 feet of impact areas for nests of non-raptors.
- *Buffers around Active Nests*. If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to work areas to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and CFGC will be disturbed during project implementation. Because the majority of the BSA is already subject to disturbance by vehicles and pedestrians, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

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APPENDIX 1

MEMORANDUM: Site Reconnaissance for Biological Resources for the SR-29 Project

Memorandum

To: MTC

From: Erin Bench, Senior Biologist, WSP USA Inc.

Date: October 8, 2021

Subject: Site Reconnaissance for Biological Resources for the SR-29 Project

cc: Stephanie Whitmore, WSP USA Inc.

On behalf of Metropolitan Transportation Commission (MTC), WSP USA Inc. (WSP) prepared this memorandum detailing results of a site reconnaissance survey focused on biological resources within the proposed SR-29 & Rutherford Road Intersection and SR-29 and Oakville Road Intersection Project (Project) Areas (see Attachment A and Attachment B).

This reconnaissance survey provides a summary of current site conditions with respect to biological resources.

Introduction

State Route 29 (SR-29) (St. Helena Highway) in the communities of Rutherford, Oakville, and Yountville in the County of Napa, California is a key route providing north/south connectivity within Napa Valley. This section of corridor regularly experiences heavy traffic congestion during the peak periods.

In partnering with the Napa Valley Transportation Authority (NVTA), MTC performed a traffic operations analysis to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicate constructing roundabouts or traffic signals at the intersections of SR-29 & Rutherford Road and SR-29 & Oakville Cross Road would improve multimodal performance along SR-29.

A preliminary traffic operations analysis was presented to Project stakeholders. Based on the feedback received, the compact roundabout options would be strong candidates to advance into the project

development and environmental review process. The preferred alternative that proceeds to 65% design, final design, and beyond will be determined through a series of ongoing stakeholder engagements.

The proposed project will provide operational and safety improvements in the form of roundabouts along the SR-29 corridor at the intersections of Rutherford Rd. and Oakville Cross Rd. The improvements will relieve traffic congestion that plagues the corridor during peak commute periods and during the weekends. The intersection improvements will improve safety and corridor operation and provide multimodal access. The project also includes the intersection of Madison St. as an option.

Study Methods

A Biological Study Area (BSA) was identified for each intersection by the biologist prior to a field visit. These BSA's were determined utilizing preliminary project plans and covered all areas of potential impact. A reconnaissance survey was conducted on September 9, 2021, by one field biologist familiar with the region where the Project is located. A survey was performed at both intersections within the previously identified BSA. This included 1.98 acres within the SR-29 & Oakville Cross Rd intersection and adjacent railroad right-of way, and 1.62 acres within the SR-29 & Rutherford Rd intersection and adjacent railroad right-of-way. Representative site photos and BSA's for the SR-29 & Oakville Cross Rd and SR-29 & Rutherford Rd intersections can be found in Attachment A and Attachment B, respectively.

The site reconnaissance survey entailed traversing the BSA's by foot to generally characterize the current site conditions at each intersection. The biologist walked meandering transects throughout the BSA's to investigate for sensitive plants, birds and other biological resources. Additionally, the biologist scanned nearby adjacent land using binoculars to identify any biological resources. These surveys were performed with the intent of support permitting, pre-construction monitoring, compliance with mitigation measures, or other agency-required analyses.

No waterbodies are within the BSA's of the project, and the proposed Project does not require the discharge or release of any fill materials into wetlands, watercourses or other bodies of water. Applicable regulatory requirements relevant to the project include compliance with the Migratory Bird Treaty Act. This treaty prohibits the take (including killing, capturing, selling, trading and transport) of protected migratory bird species without prior authorization by the Department of the Interior U.S. Fish and Wildlife Service (fws.gov). The law applies to the removal of nests occupied by migratory birds during the breeding season. California Fish and Game Code Sections 3503 and 3503.5 (protection of birds' nests) and 3513 (taking Migratory Bird Treaty Act birds) also prohibit the destruction of any nest, egg, or nestling. A nesting bird survey was not performed during the reconnaissance survey. Due to the presence of trees in the area that could provide nesting areas for raptors and other birds of prey, a nesting survey should be performed before any Project construction begins to limit impacts to nesting birds.

WSP conducted a desktop database review to identify historical records of special status plant and wildlife species in the proposed Project Areas, and to determine if whether the species have the potential to occur today. The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (Appendix A) planning tool and the California Natural Diversity Database (CNDDB, September 2021) (Appendix B) were reviewed to identify any species or biological resources requiring consideration. Additionally, the California Native Plant Society (CNPS) Calscape database was reviewed

to identify native plants of potential concern, and a National Wetlands Inventory search (Appendix C & D) was performed to identify any wetlands within the Project Areas.

The resources investigated during the September 2021 survey effort included: land cover/land use, suitable habitat for migratory birds, raptor nests, and habitat for other special status species. Temperatures during the survey ranged from 62-70 degrees Fahrenheit, with little cloud coverage and winds of less than 5 mile per hour. There were no recent rain events leading up to the survey.

Environmental Setting

The Project is located in Napa Valley, California, located in southern Napa County and is surrounded by agricultural areas to the north, Vaca and Mayacamas Mountains to the east and west, and San Pablo Bay to the south. The nearby Napa River flows from north to south through the City of Napa to San Pablo Bay. SR-29 is one of several state routes that provide regional access to the cities and surrounding regions. The distance between the two SR-29 intersections under study is approximately 2 miles.

The SR-29 & Oakville Cross Road intersection is located approximately 40 miles north of San Francisco as the crow flies and straddles SR-29 in the heart of Napa Valley between the towns of Rutherford and Yountville. The Napa Valley Wine Trail railroad right-of-way runs parallel to SR-29 north to south on the western side of the BSA alongside the Oakville Pump Service station. The historic Oakville Grocery sits on the northeastern corner of the BSA, adjacent to a vineyard, with several wineries on the eastern side of SR-29.

There is minimal natural vegetation within the BSA at the Oakville Cross Road intersection. Along the western side of the railroad right of way is a stand of mixed tree species, including old growth coast redwoods, mixed oak species, and eucalyptus species. The northeastern portion of the BSA is a vineyard with no ground vegetation. Ornamental and native plants were planted in established planters alongside the winery sidewalks on the eastern side of SR-29. Plants included large palms, bush poppies, lavender, and oleander shrubs. Ground vegetation in vineyards adjacent to SR-29 in the road and railroad rights-of-way had been cleared, most likely to limit vegetation fuel for fires. There are no streams, wetlands, or other bodies of water within the BSA at the Oakville Cross Road & SR-29 intersection.

The SR-29 & Rutherford Road intersection is located approximately 45 miles north of San Francisco as the crow flies and straddles SR-29 between the towns of Zinfandel and Oakville. The immediate vicinity around the intersection is a mostly built environment, with FedEx and United States Postal Service facilities on the northeastern corner of the intersection. Wineries and restaurants abut both SR-29 and Rutherford Road on the southeastern side of the BSA. The Rutherford Fire Department sits on the western side of the Napa Valley Wine Train railroad right-of-way which runs parallel to SR-29. A vineyard lies on the southwestern portion of the intersection on the western side of the railroad right-of-way.

There is minimal natural vegetation within the BSA at the Rutherford Road intersection. Along the western side of the railroad right-of-way is a stand of mixed tree species, including old growth coast redwoods, eucalyptus and mixed oak. A stand of oak and palm trees line the northeastern portion of the BSA along SR-29 and Rutherford Road. Ornamental bush poppies and oleander shrubs line SR-29 and Rutherford Road along the southeastern side of the BSA. Ground vegetation in vineyards adjacent to SR-29 in the road and railroad rights-of-way had been cleared, most likely to limit vegetation fuel for fires.

There are no streams, wetlands, or other bodies of water within the BSA at the Rutherford Road & SR-29 intersection.

Regional Species and Habitats and Natural Communities of Concern

The USFWS IPaC planning tool identified several species that may be impacted by project activities. Table 1: IPaC Planning Tool Results below outlines these species, their conservation status, and their potential to exist within the Project Areas:

Table 1: IPaC Planning Tool Results		
Migratory Birds	**Breeding Season**	**Conservation Status**
California Spotted Owl (*Strix occidentalis occidentalis*)	Breeds Mar 10 to Jun 15	USFWS Bird of Conservation Concern
California Thrasher (*Toxostoma redivivum*)	Breeds Jan 1 to Jul 31	USFWS Bird of Conservation Concern
Clark's Grebe (*Aechmophorus clarkia*)	Breeds Jun 1 to Aug 31	USFWS Bird of Conservation Concern
Common Yellowthroat (*Geothlypis trichas sinuosa*)	Breeds May 20 to Jul 31	USFWS Bird of Conservation Concern
Golden Eagle (*Aquila chrysaetos*)	Breeds Jan 1 to Aug 31	Not a BCC, but warrants attention due to the Eagle Act
Lawrence's Goldfinch (*Carduelis lawrencei*)	Breeds Mar 20 to Sept 20	USFWS Bird of Conservation Concern
Marbled Godwit (*Limosa fedoa*)	Breeds elsewhere	USFWS Bird of Conservation Concern
Nuttall's Woodpecker (*Picoides nuttallii*)	Breeds Apr 1 to Jul 20	USFWS Bird of Conservation Concern
Oak Titmouse (*Baeolophus inornatus*)	Breeds Mar 15 to Jul 15	USFWS Bird of Conservation Concern
Olive-sided Flycatcher (*Contopus cooperi*)	Breeds May 20 to Aug 31	USFWS Bird of Conservation Concern
Short-billed Dowitcher (*Limnodromus griseus*)	Breeds elsewhere	USFWS Bird of Conservation Concern
Willet (*Tringa semipalmata*)	Breeds elsewhere	USFWS Bird of Conservation Concern
Wrentit (*Chamaea fasciata*)	Breeds Mar 15 to Aug 10	USFWS Bird of Conservation Concern
Birds	**Potential to exist in project area**	**Conservation Status**
Northern Spotted Owl (*Strix occidentalis caurina*)	Highly unlikely – no suitable habitat	Threatened
Reptiles		
Green Sea Turtle (*Chelonia mydas*)	Highly unlikely – no suitable habitat	Threatened
Amphibians		
California Red-legged Frog (*Rana draytonii*)	Unlikely – no suitable habitat	Threatened
Fishes		

Delta Smelt (*Hypomesus transpacificus*)	Highly unlikely – no suitable habitat	Threatened
Insects		
Monarch Butterfly (*Danaus plexippus*)	Unlikely – lack of milkweed habitat	Candidate Species
Crustaceans		
California Freshwater Shrimp (*Syncaris pacifica*)	Highly unlikely – no suitable habitat	Endangered
Flowering plants		
Clara Hunt's Milk-vetch (*Astragalus clarianus*)	Unlikely – no suitable habitat	Endangered

Additionally, no National Wildlife Refuge Lands, fish hatcheries, or Critical Habitats were identified in the Project BSA's.

CNDDB search results identified one species of concern, the foothill yellow-legged frog (*Rana boylii*). The BSA's are void of suitable habitat for this species so their potential to exist within the Project Areas are highly unlikely.

Results: Biological Resources, Discussion of Impacts and Mitigation

Based on the preliminary roadway plans, there will be no take of large trees or foliage along SR-29 and the adjacent railroad right-of-way. Environments surrounding both intersections have mostly been previously disturbed and built. Open land outside of the rights-of-way includes agricultural and farmland with a narrow strip of mixed tree species along the railroad right-of-way. Several large tree species exist scattered along SR-29 and could be considered habitat for birds of prey and raptor species. No impacts to these large trees are anticipated from project activities, therefore, potential to impact birds of prey is minimal.

Due to the built environments of the Project Areas, the lack of substantial natural plant communities, and lack of impacts to large trees, impacts to sensitive vegetation is very low. Impacts to sensitive wildlife species of concern are also low due to the lack of suitable habitat for these species. It is unclear whether project activities will impact migratory birds without conducting a nesting bird survey. However, due to lack of suitable nesting vegetation and the assumption that large trees will not be removed by project activities, it is projected that impacts to migratory birds will be low.

Additionally, it is difficult to offer reasonable mitigation suggestions that would limit impacts to environmental resources and wildlife without knowing the full details of the final plans/impacts. Due to this gap in information, the only suggested mitigation at this time is to keep all large trees along SR-29 for birds of prey and raptor species as well as migratory birds who may utilize these trees during migration seasons.

Plant and animal species encountered during the site reconnaissance include: Bush Poppy (*Dendromecon rigida*), California Tree Poppy (*Romneya coulteri*), blue gum (*Eucalyptus globulus*), coast redwood (*Sequoia sempervirens*), oleander shrub (*Nerium oleander*), coast live oak (*Quercus agrifolia*), California fan palm (*Washingtonia filifera*), lavender (*Lavandula spp*.), Stellar's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*) and red shouldered hawk (*Buteo lineatus*).

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U.S. Fish and Wildlife Service (USFWS). 2021. Migratory Bird Treaty Act. Accessed in September 2021. https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php.

Attachments and Appendix

Appendix A – Information for Planning and Consultation (IPaC) results

Appendix B – California Natural Diversity Database (CNDDB) results and map

Appendix C – Oakville Cross Road National Wetlands Inventory results

Appendix D – Rutherford Road National Wetlands Inventory results

Attachment A – Oakville Cross Road Intersection Biological Study Area and Photo Log

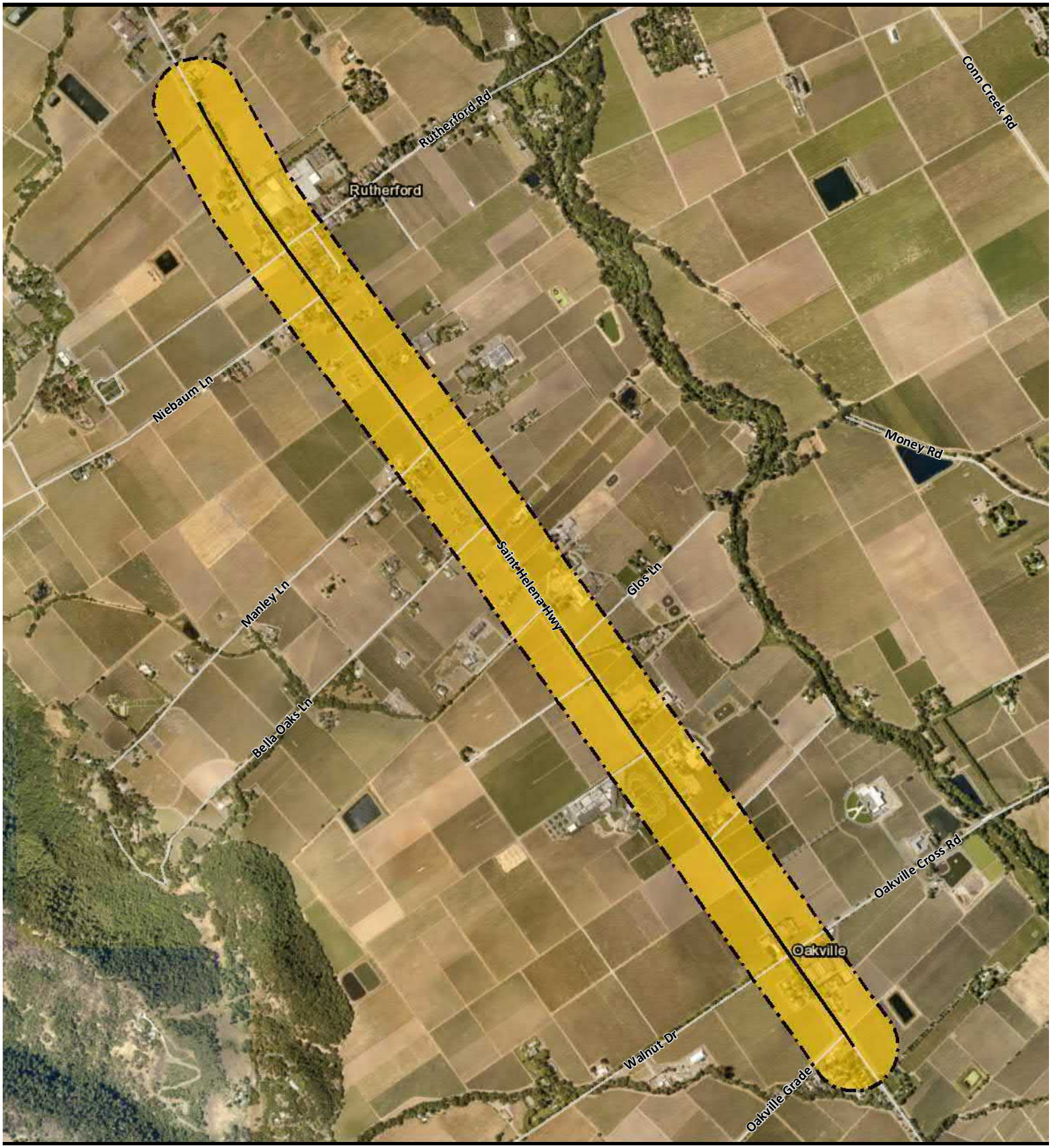
Attachment B – Rutherford Road Intersection Biological Study Area and Photo Log

APPENDIX A

INFORMATION FOR PLANNING AND CONSULTATION (IPAC) RESULTS

APPENDIX B

CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDB) RESULTS MAP



N

Street

SR-29

SR-29 Buffer (500 ft)

CNDDB Species

foothill yellow-legged frog

California Natural Diversity Database (CNDDB) Species Within 500 ft of SR-29

Napa County, California
September 15, 2021

0 0.25 Miles

Sources: WSP 2020, ESRI 2017, CNDDB 2021

APPENDIX C

OAKVILLE CROSS ROAD NATIONAL WETLANDS INVENTORY RESULTS

U.S. Fish and Wildlife Service
National Wetlands Inventory

Oakville Intersection

September 22, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

APPENDIX D

RUTHERFORD ROAD NATIONAL WETLANDS INVENTORY RESULTS

U.S. Fish and Wildlife Service
National Wetlands Inventory

Rutherford Intersection

September 22, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

ATTACHMENT A

OAKVILLE & SR-29 INTERSECTION BIOLOGICAL STUDY AREA AND REPRESENTATIVE PHOTOS

Photo 1: Project site, facing southeast at intersection of SR-29 and Oakville Cross Rd.

Photo 2: Project site, facing west at Oakville Pump Service facility.

Photo 3: Project site, facing south at intersection of SR-29 and Oakville Cross Rd.

Photo 4: Project site, facing northwest.

Photo 5: Project site, facing southeast.

Photo 6: Project site, facing northwest toward SR-29 and Oakville Cross Rd intersection.

Photo 7: Project site, facing west.

Photo 8: Project site, facing south.

Photo 9: Project site, facing north towards intersection of SR-29 and Oakville Cross Rd.

Photo 10: Project site, facing north at intersection of SR-29 and Oakville Cross Rd.

Photo 11: Project site, facing north at railroad right of way at the intersection of SR-29 and Oakville Cross Rd.

Photo 12: Project site, facing northeast from railroad right of way at the intersection of SR-29 and Oakville Cross Rd.

Photo 13: Project site, facing southeast at railroad right of way at the intersection of SR-29 and Oakville Cross Rd.

Photo 14: Project site, facing southeast tree line west of the railroad right of way.

ATTACHMENT B

RUTHERFORD & SR-29 INTERSECTION BIOLOGICAL STUDY AREA AND REPRESENTATIVE PHOTOS

Photo 1: Project site, facing northwest at intersection of SR-29 and Rutherford Rd.

Photo 2: Project site, facing southeast approaching intersection of SR-29 and Rutherford Rd.

Photo 3: Project site, facing east at intersection of SR-29 and Rutherford Rd along railroad right of way.

Photo 4: Project site, facing south at intersection of SR-29 and Rutherford Rd along railroad right of way.

Photo 5: Project site, facing west at old growth Eucalyptus along SR-29 near Rutherford Rd intersection.

Photo 6: Project site, facing northeast at Rutherford Rd.

Photo 7: Project site, facing southwest at Rutherford Rd.

Photo 8: Project site, facing southwest at intersection of SR-29 and Rutherford Rd.

Photo 9: Project site, facing east toward Napa Wine Train on SR-29 approaching Rutherford Rd.

Photo 10: Project site, facing east toward Rutherford Fire Department station on SR-29 approaching Rutherford Rd and SR-29 intersection.

APPENDIX 2

California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants Database

CNPS Rare Plant Inventory

Search Results

7 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1B:2B] Fed List is one of [FE:FT] and State List is one of [CE:CT] , County is one of [NAP]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	No Photo Available
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	FE	CT	G4G5T1T2	S1S2	1B.2	No Photo Available
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	© 2015 Neal Kramer
Limnanthes vinculans	Sebastopol meadowfoam	Limnanthaceae	annual herb	Apr-May	FE	CE	G1	S1	1B.1	© 2015 Vernon Smith
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	May-Jun	FE	CT	G4T1	S1	1B.1	© 2013 Jake Ruygt
Plagiobothrys strictus	Calistoga popcornflower	Boraginaceae	annual herb	Mar-Jun	FE	CT	G1	S1	1B.1	No Photo Available
Poa napensis	Napa blue grass	Poaceae	perennial herb	May-Aug	FE	CE	G1	S1	1B.1	No Photo Available

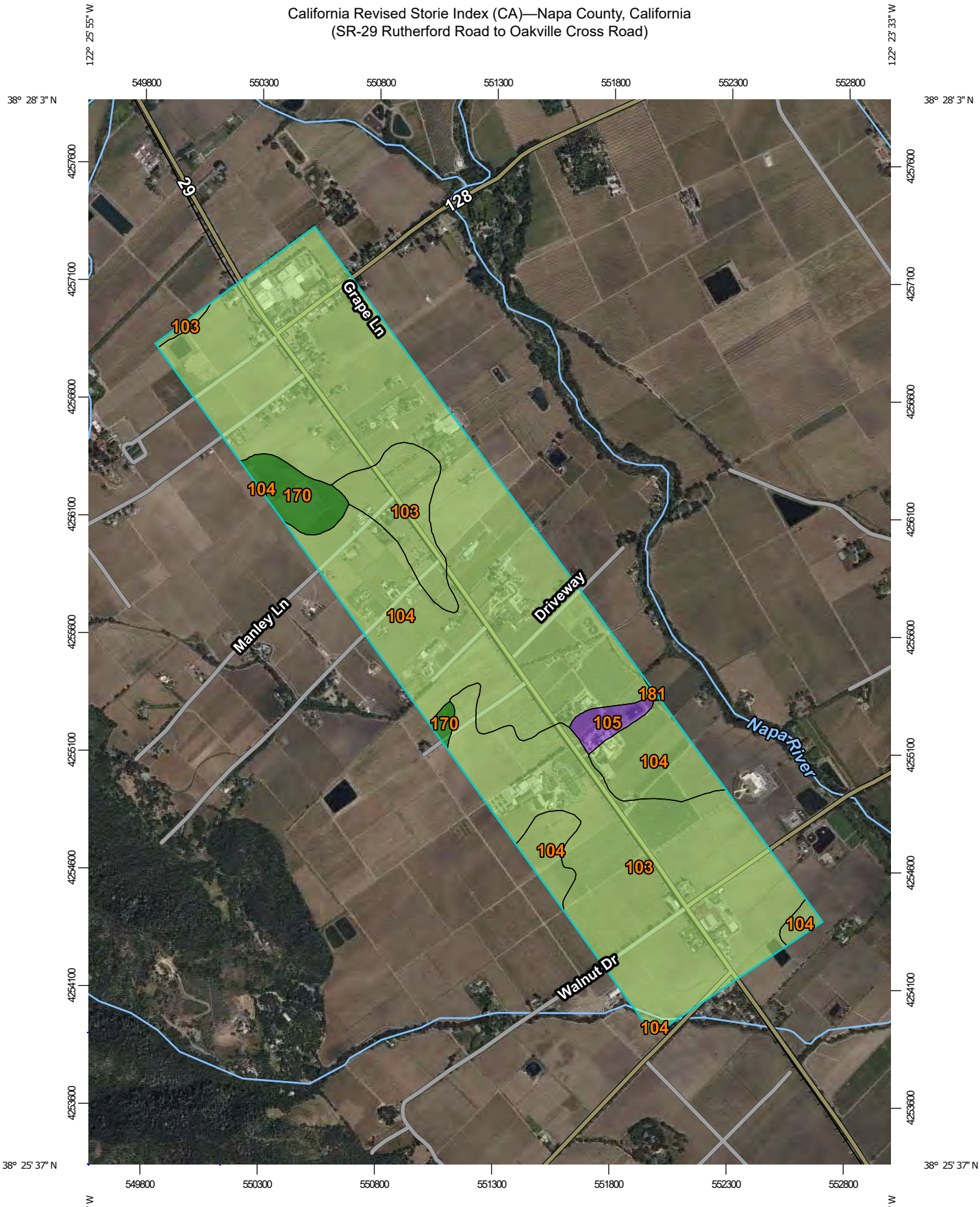
Showing 1 to 7 of 7 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 19 September 2022].

APPENDIX 3

NRCS Web Soil Survey



Map Scale: 1:22,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 300 600 1200 1800

Feet
0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Grade 1 - Excellent
- Grade 2 - Good
- Grade 3 - Fair
- Grade 4 - Poor
- Grade 5 - Very Poor
- Grade 6 - Nonagricultural
- Not rated
- Not rated or not available

Soil Rating Lines
- Grade 1 - Excellent
- Grade 2 - Good
- Grade 3 - Fair
- Grade 4 - Poor
- Grade 5 - Very Poor
- Grade 6 - Nonagricultural
- Not rated
- Not rated or not available

Soil Rating Points
- Grade 1 - Excellent
- Grade 2 - Good
- Grade 3 - Fair
- Grade 4 - Poor
- Grade 5 - Very Poor
- Grade 6 - Nonagricultural
- Not rated
- 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 1:24,000.

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: Napa County, California
Survey Area Data: Version 15, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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.

California Revised Storie Index (CA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	Grade 2 - Good	Bale (85%)	269.5	34.9%
104	Bale clay loam, 0 to 2 percent slopes	Grade 2 - Good	Bale (85%)	469.2	60.7%
105	Bale clay loam, 2 to 5 percent slopes	Grade 3 - Fair	Bale (85%)	9.7	1.3%
170	Pleasanton loam, 0 to 2 percent slopes, MLRA 14	Grade 1 - Excellent	Pleasanton (85%)	23.6	3.1%
181	Yolo loam, 0 to 10 percent slopes, moist, MLRA 14	Grade 1 - Excellent	Yolo, moist (85%)	0.4	0.0%
Totals for Area of Interest				**772.5**	**100.0%**

Description

The Revised Storie Index is a rating system based on soil properties that govern the potential for soil map unit components to be used for irrigated agriculture in California.

The Revised Storie Index assesses the productivity of a soil from the following four characteristics:

- Factor A: degree of soil profile development
- Factor B: texture of the surface layer
- Factor C: steepness of slope
- Factor X: drainage class, landform, erosion class, flooding and ponding frequency and duration, soil pH, soluble salt content as measured by electrical conductivity, and sodium adsorption ratio

Revised Storie Index numerical ratings have been combined into six classes as follows:

- Grade 1: Excellent (81 to 100)
- Grade 2: Good (61 to 80)
- Grade 3: Fair (41 to 60)
- Grade 4: Poor (21 to 40)
- Grade 5: Very poor (11 to 20)
- Grade 6: Nonagricultural (10 or less)

The components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as the one shown for the map unit. The percent composition of each component in a particular map unit is given to help the user better understand the extent to which the rating applies to the map unit.

Other components with different ratings may occur in each map unit. The ratings for all components, regardless the aggregated rating of the map unit, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

APPENDIX 4

USFWS Information for Planning and Consultation (IPaC) Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Project information

NAME

Caltrans State Route-29 Intersection Improvements

LOCATION

Napa County, California

DESCRIPTION

Improvements to the operation and safety of State Route-29 at the intersections of Oakville Cross Road and Rutherford Road.)

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Insects

NAME	STATUS

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Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
California Freshwater Shrimp Syncaris pacifica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7903	Endangered

Flowering Plants

NAME	STATUS
Clara Hunt's Milk-vetch Astragalus clarianus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3300	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

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NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

Bald Eagle *Haliaeetus leucocephalus* — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Bullock's Oriole *Icterus bullockii* — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull *Larus californicus* — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher *Toxostoma redivivum* — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe *Aechmophorus clarkii* — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat *Geothlypis trichas sinuosa* — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

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Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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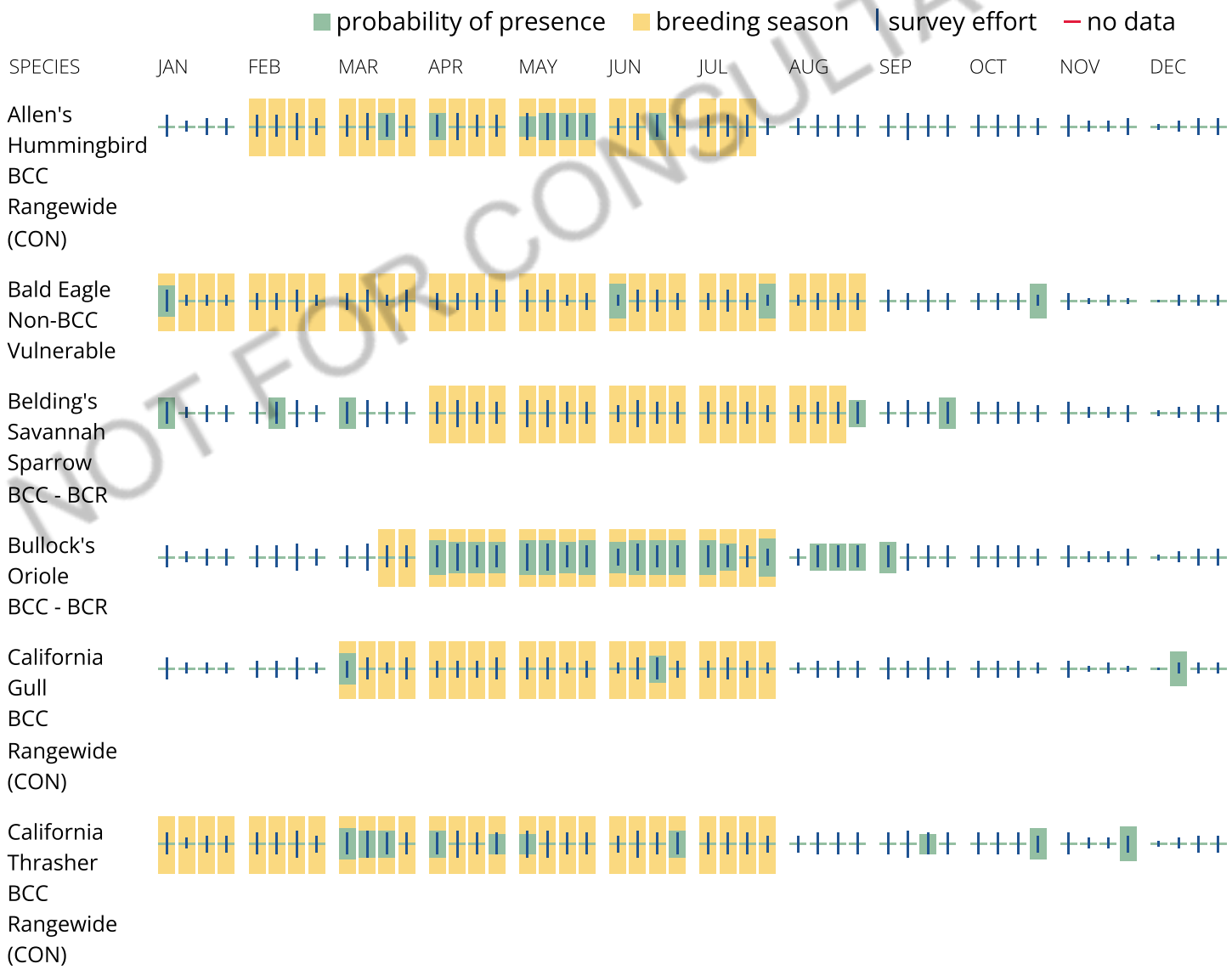
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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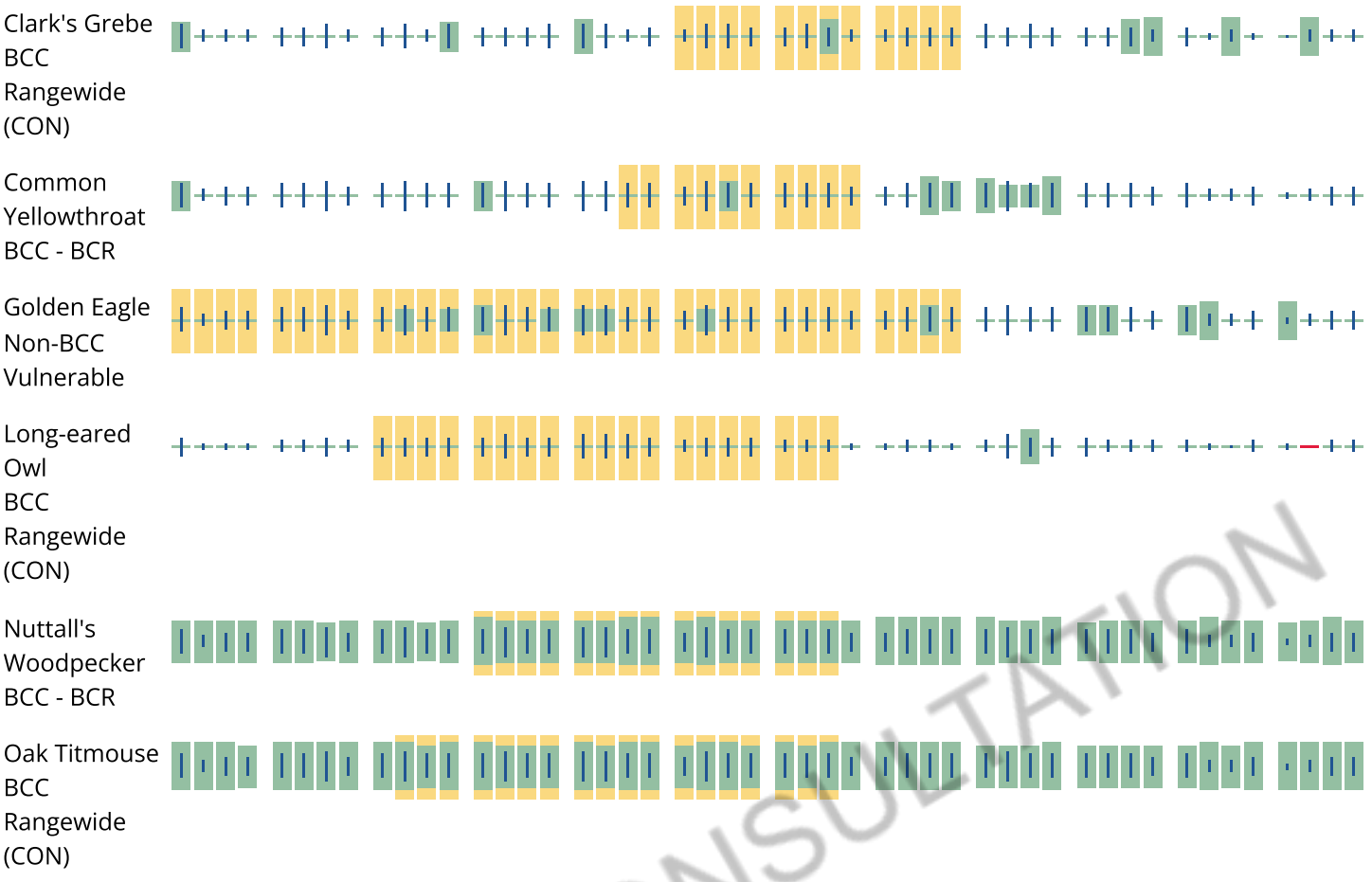

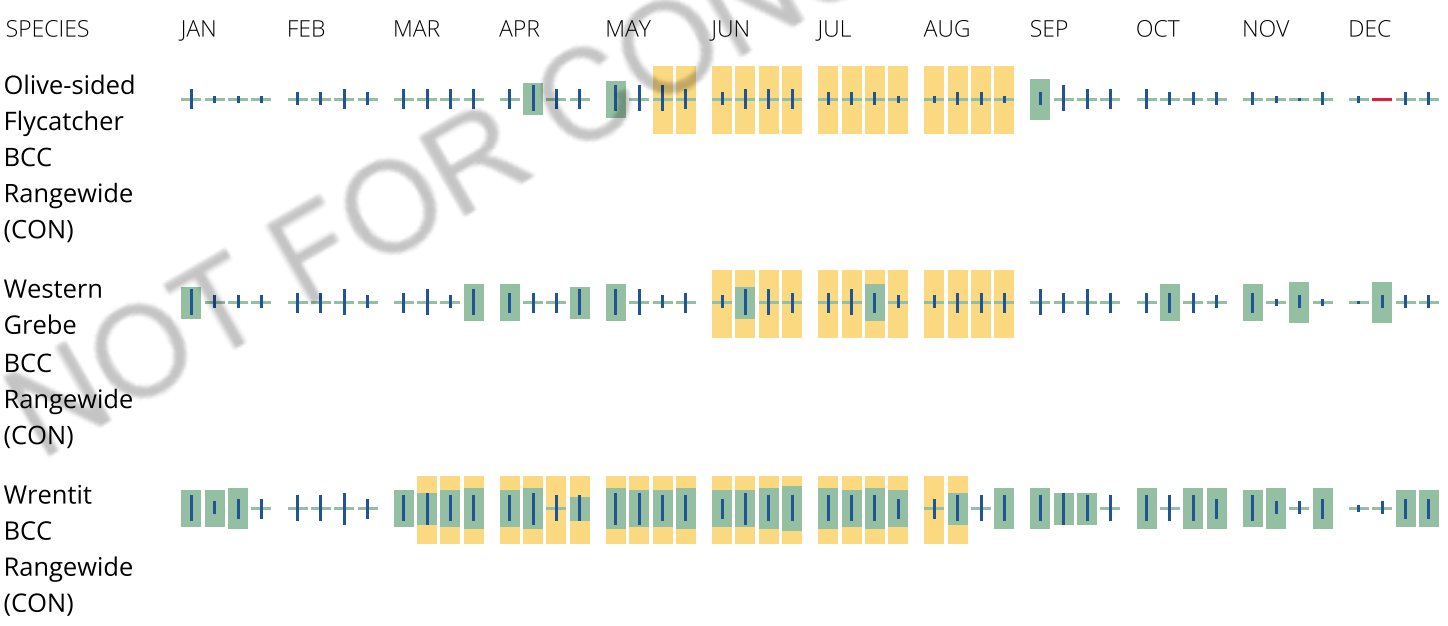

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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project

area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the

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Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which

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means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

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Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix D Cultural Resources Review Memorandum

(Under Separate Cover)

Appendix E Initial Site Assessment Overview Study

Project No. E9333-02-01
November 4, 2022

Gary Parikh, PE
Parikh Consultants
1497 North Milpitas Boulevard
Milpitas, California 95035

Subject: INITIAL SITE ASSESSMENT OVERVIEW STUDY
NAPA FORWARD - SR-29 INTERSECTION IMPROVEMENT PROJECT
OAKVILLE AND RUTHERFORD, CALIFORNIA

Dear Mr. Parikh:

In accordance with your request and proposal LS-22-035 dated June 15, 2022, we have performed an Initial Site Assessment (ISA) Overview Study for proposed improvements at two intersections in Napa County, California. We performed the ISA Overview Study for Parikh Consultants (the Client) on behalf of the Metropolitan Transportation Commission (MTC) to assess the potential for existing hazardous substances and/or petroleum product impacts within the area of proposed intersection improvements.

PURPOSE AND OBJECTIVE

The purpose of the ISA Overview Study was to perform research to estimate the existing potential for impacts to the project locations (i.e., levels of hazardous materials/wastes warranting regulatory cleanup action) from the presence of hazardous materials/wastes on, or adjacent to, each location. The guidelines used for the definition of hazardous materials/wastes are presented in the California Code of Regulations, Title 22. We understand that the ISA Overview Study is to be used as a reference by the Client and MTC team to identify potential environmental impairments at the project locations. The intersection locations and proposed improvements are listed below.

SR-29 Intersection Location	Proposed Improvements
Oakville Cross Road, Oakville	Install a roundabout at the intersection of State Route 29 (SR-29) with Oakville Cross Road and Walnut Drive. Widen Oakville Cross Road and SR-29 to accommodate new roundabout configuration, shifting center of intersection slightly northeast. Roadway resurfacing along northbound (NB) and southbound (SB) SR-29, eastbound (EB) and westbound (WB) Walnut Drive and Oakville Cross Road approaches to intersection. Reconstruct existing railroad crossing west of intersection. Excavations no deeper than 30 inches to remove existing pavement, base materials, concrete, and vegetation. Install curbs, sidewalks, signs. Modify existing parking lot at southeast corner of intersection.

SR-29 Intersection Location	Proposed Improvements
Rutherford Road, Rutherford	Install curbs, sidewalks, crosswalks, signs, and signals at the intersection of SR-29 and Rutherford Road/private driveway. Improve lane configurations and resurface roadway along NB and SB SR-29 approaches to intersection. Reconstruct existing railroad crossing at private driveway west of intersection. Modify private drive to right-turn-only exit onto SR-29. Excavations no deeper than 30 inches to remove existing pavement, base materials, concrete, and vegetation.

The objective of the ISA Overview Study was to determine the absence or existence of potential Recognized Environmental Conditions (RECs) for the intersection locations by reviewing basic site information and regulatory agency records. Project diagrams provided by the Client depicting the intersection improvements are presented as Attachment A.

SCOPE OF SERVICES

The main components of the ISA Overview Study included the following:

- **Regulatory Agency Records Review:** We reviewed the California State Water Resources Control Board (SWRCB) GeoTracker website (http://geotracker.waterboards.ca.gov) and the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) EnviroStor website databases (http://www.envirostor.dtsc.ca.gov/public/) for information regarding environmental assessment and cleanup at properties within 1/8 mile of the intersection locations. We also submitted a request for available records related to environmental issues for properties in the project area on file with the County of Napa.
- **Site Reconnaissance:** On October 14, 2022, we performed a drive-by/walk-by reconnaissance for each intersection location to observe existing conditions and activities for indications or evidence of RECs. Offsite properties and features were viewed solely from the vantage of public thoroughfares. Photographs of the project areas are presented in Photographs 1 through 6.
- **Site Discussion:** We summarized information on physical setting, regulatory agency records, reconnaissance observations, and potential environmental concerns for each intersection location in the following section.

DISCUSSION

SR-29/Oakville Cross Road Intersection

The site currently serves primarily as a transportation corridor. In the project area, SR-29 trends northwest-southeast, however, for the purposes of discussion, SR-29 shall be referred to as north-south orientation and cross-streets Oakville Cross Road/Walnut Drive will be referenced as oriented east-west. The Oakville Grocery Store (APN 0.31-020-010-000), vineyards (APN 031-020-009-000), and the Napa Wine Company (APN 031-090-017-000) are located along northbound SR-29 east of the intersection. Project construction plans call for shifting the current alignment of SR-29 and new roundabout to the east, affecting the adjacent properties. Westbound Oakville Cross Road will be widened to the northeast, including a portion of an existing vineyard and driveway. Portions

of the existing curbs, sidewalks, and parking lot at the southeastern corner of the intersection associated with The Napa Wine Company will be included in the adjustments necessary to construct the roundabout as well.

EDR searched federal, state, and local environmental databases for the proposed acquisition area and properties/facilities within one mile. A copy of the report: *The EDR Radius Map Report with GeoCheck*, dated September 27, 2022, is in Attachment B. Active groundwater monitoring wells were not identified within ¼-mile of the project limits.

Recent groundwater elevation data was not provided in the EDR report. The existing intersection does not appear on regulatory database listings. Two adjacent properties proposed for partial ROW acquisition are included in database listings as former Leaking Underground Storage Tank (LUST) sites. The locations of the LUST facilities are currently operating as The Napa Wine Company located at 7830 St. Helena Highway and a neighboring wine facility at 1187 Oakville Cross Road. One additional adjacent site coinciding with the location of Oakville Grocery at 7856 St. Helena Highway is listed as an Underground Storage Tank (UST) non-release site. The properties are discussed below:

<u>7830 St. Helena Highway - The Napa Wine Company (APN 031-090-017-000) and 1187 Oakville Cross Road</u>

The property located at the southeast corner of SR-29 and Oakville Cross Road (7830 St. Helena Highway) is currently occupied by The Napa Wine Company. Four gasoline USTs and two septic tanks were removed from a former service station that operated previously at the site. The tanks were previously located in the current parking lot area proposed for partial ROW acquisition and reconstruction. Additionally, one underground diesel and one gasoline UST were removed from a former agricultural maintenance facility adjacent to the east of the former service station (1187 Oakville Cross Road).

Petroleum impacts to soil, groundwater, and soil vapor were investigated subsequent to the removal of the tanks. The combined sites were granted low-threat closure from the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) in 2018. The former tank locations, analytical results, and closure letter are included in Attachment C (*Services During Removal of Underground Tanks*, Harding Lawson Associates, December 17, 1986; *Phase II Environmental Site Assessment and Low Threat Closure Request*, Vista Environmental Consulting, March 15, 2017; and *Closure of Closure Letter and Case Closure Summary*, SFRWQCB, October 26, 2018).

Residual petroleum impacts may remain at the site at depth greater than 6 feet, however, concentrations in soil have been documented as being below residential land use screening levels. Based on a construction depth of 30 inches, the planned construction activities in the area are not expected to encounter residual petroleum hydrocarbons in soil and it is unlikely that groundwater will be encountered with the planned excavation depths.

<u>7856 St. Helena Highway - Oakville Grocery (APN 031-020-010-000)</u>

The EDR lists the property near the northeast corner of the SR-29/Oakville Cross Road as a UST facility. The southern periphery of the parcel is located within the area of proposed partial ROW acquisition. The property, currently occupied by Oakville Grocery, does not appear on Geotracker or Envirostor. Property records received from Napa County did not indicate the presence of a permitted UST or indicate environmental concerns. The EDR listing indicating the presence of a UST does not indicate a release at the site and may be erroneous, however, caution should be exercised during

construction in the event that an undocumented UST and/or potential associated piping are located in the project area.

Vineyards and Railroad ROW

Construction activities include partial ROW acquisitions in existing vineyard areas. Use of the area for agricultural purposes may have resulted in impacts from pesticide applications. Construction activities also include plans for the excavation and replacement of a rail crossing in the western portion of the intersection. Soil in the railway area may be impacted from metals, herbicides, and polyaromatic hydrocarbons (PAHs) used for weed suppression and railroad tie preservation.

SR-29/Rutherford Road (SR-128) Intersection

The site currently serves primarily as a transportation corridor. In the project area, SR-29 trends northwest-southeast, however, for the purposes of discussion, SR-29 shall be referred to as north-south orientation and cross-street Rutherford Road (SR-128)/Business Entrance Driveway will be referenced as oriented east-west. The Rutherford Fire Department, a restaurant, private residences, and wine-related commercial businesses border the project limits. Project construction plans call for resurfacing the existing roadways, installing bicycle paths, curbs, ramps, pedestrian cross walks, lighting and pullouts.

EDR searched federal, state, and local environmental databases for the proposed acquisition area and properties/facilities within one mile. Active groundwater monitoring wells were not identified within ¼-mile of the project limits. Vineyards in the areas surrounding the Site are listed as being included in the irrigated lands regulatory program.

Recent groundwater elevation data was not provided in the EDR report. A copy of the report: *The EDR Radius Map Report with GeoCheck*, dated September 29, 2022, is in Attachment B. The existing intersection does not appear on regulatory database listings. The EDR report incorrectly maps 17 facilities within the project limits. The listings do not indicate an environmental release and do not appear to pose a potential to impact the site.

One property is included in database listings as former LUST site within ¼-mile of the site. The property was a former hardware store with a documented underground gasoline storage tank, located approximately 500 feet east of the site, in the downgradient direction. The property was granted closure by the SFRWQCB in 1998 and has a low potential to have caused an impact to the project area.

The ISA identified potential pesticide impacts to soil from historical agricultural land use at the project location, potential herbicides, PAHs, and metals associated with the railroad ROW, potential hydrocarbon impacts from historic roadway uses, and aerially deposited lead (ADL) primarily due to historic leaded fuel emissions from automobile exhaust and typical roadway uses.

SUMMARY AND CONCLUSIONS

The ISA Overview Study found that soil in the project areas may contain elevated levels of hydrocarbons and ADL from roadway use, pesticides from agricultural use, herbicides, metals, and PAHs near railroad ROW. Shallow soil sampling and analytical testing is recommended to evaluate concentrations of metals, total petroleum hydrocarbons as TPHg, as motor oil (TPHmo), and diesel (TPHd) in the project areas. Additionally, soil adjacent to vineyards should be tested for

organochlorine pesticides, and to railroad areas for herbicides and PAHs. Any excess soil generated from construction excavations should be evaluated for the listed constituents prior to offsite reuse or landfill disposal. Because the project excavation work is limited to 30 inches or less, groundwater is unlikely to be encountered. Care should also be taken during field work to identify and adequately locate potential underground utilities in the project areas prior to construction.

LIMITATIONS

We prepared this ISA Overview Study exclusively for the Client and MTC. The information obtained is only relevant for the dates of the records reviewed or as of the date of the latest site visit. Therefore, the information contained herein is only valid as of the date of the report and will require an update to reflect recent records/site visits.

The Client should recognize that this ISA Overview Study is not a comprehensive site characterization and should not be construed as such. The findings and conclusions presented in this report are predicated on the limited site reconnaissance of each Site, a review of the specified regulatory records, and a review of the historical usage of the Site, as presented in this report. The Client should also understand that wetlands, asbestos containing material (ACM), lead-containing paint (LCP), lead in drinking water, radon, mercury related to mining activities, methane, and mold surveys were not included in the scope of services for this ISA Overview Study. Assessment for potential naturally occurring hazards such as asbestos and arsenic also was not included. Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the ISA Overview Study is implied within the intent of this report or any subsequent reports, correspondence or consultation, either express or implied. We strived to conduct the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

We appreciate the opportunity to have performed this ISA Overview Study for Parikh Consultants and the MTC. Please contact us if you have any questions concerning this report or if we may be of further service.

GEOCON CONSULTANTS, INC.

Luann Beadle
Senior Project Scientist

Richard Day, CEG, CHG
Senior Geologist/Principal

Attachments:

Photographs 1 to 6
A. Project Plans
B. EDR Reports
C. UST Closure Documentation

Photo 1 – Oakville Cross Road/SR-29 Intersection, looking north

Photo 2 – 7830 St. Helena Highway, former UST location, looking east

Photo 3 – Northeast Corner of Oakville Cross Road/SR-29 Intersection, looking northwest

Photo 4 – Rutherford Road/SR-29 Intersection, looking east

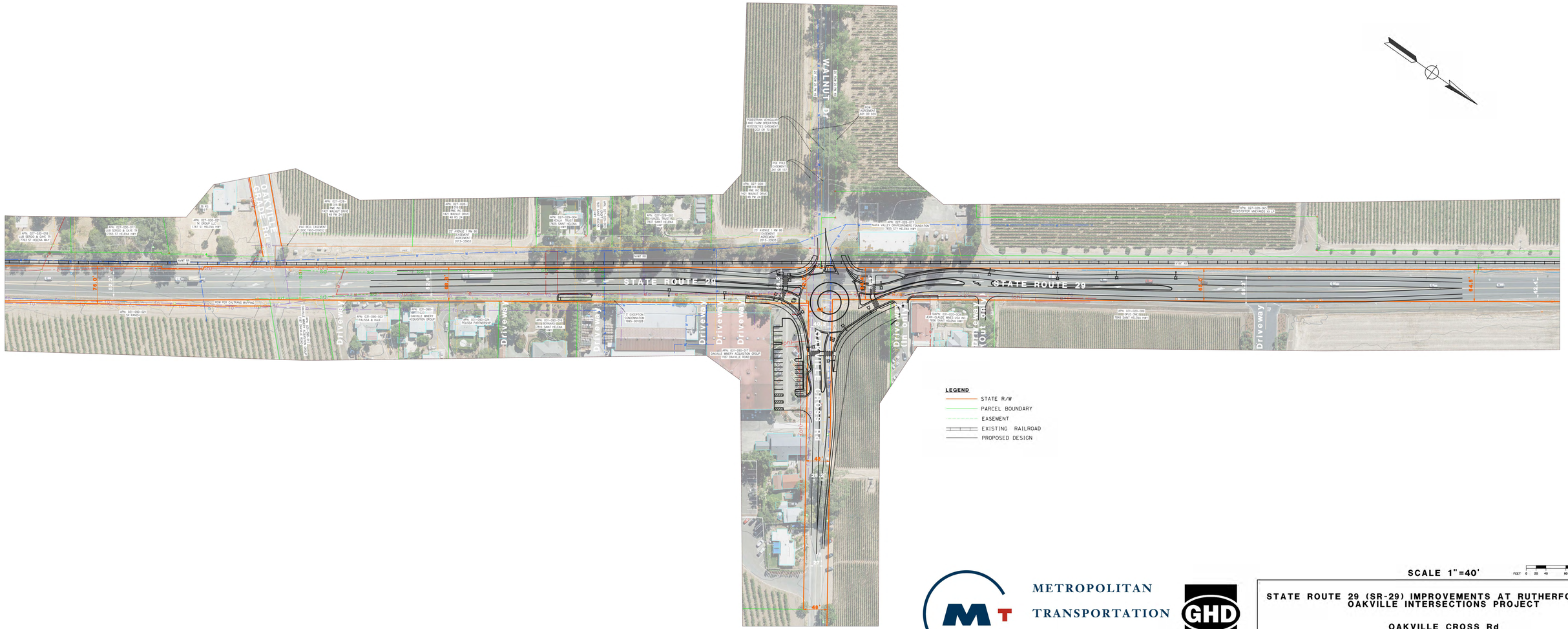
Photo 5 – Rutherford Road/SR-29 Intersection, looking southwest

Photo 6 – Railroad along Southbound SR-29 Opposite Rutherford Road, looking south

GEOCON
CONSULTANTS, INC.
6671 BRISA STREET – LIVERMORE, CA 94550
PHONE 925.371.5900 – FAX 925.371.5915

PHOTOGRAPHS 4, 5 & 6		
Napa Forward – SR-29 Intersection Improvement Project Oakville and Rutherford, California		
E9333-02-01		November 2022

APPENDIX A



SCALE 1"=40'

FEET 0 20 40 80 120

METROPOLITAN TRANSPORTATION COMMISSION

GHD

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT

OAKVILLE CROSS Rd

SEPT 2022

SCALE 1"=40'

FEET 0 20 40 80 120

METROPOLITAN TRANSPORTATION COMMISSION

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT

RUTHERFORD Rd, OPTION 1A

SEPT 2022

APPENDIX B

SR-29 Oakville Crossing
No Address
Napa, CA 94558

Inquiry Number: 7131548.2s
September 27, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	31
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-7
Physical Setting Source Map Findings	A-9
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 (E1527-21), 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

NO ADDRESS
NAPA, CA 94558

COORDINATES

Latitude (North):	38.4367550 - 38ˆ 26' 12.31''
Longitude (West):	122.4027630 - 122ˆ 24' 9.94''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	552124.8
UTM Y (Meters):	4254238.0
Elevation:	155 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12021749 RUTHERFORD, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140608
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NO ADDRESS
NAPA, CA 94558

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	INGLENOOK VINEYADS	7830 ST HELENA HWY	SWEEPS UST	Lower	1 ft.
2	OAKVILLE FACILITIES	1187 OAKVILLE CROSS	LUST, Cortese, CERS	Lower	1 ft.
A3	NAPA WINE COMPANY	7830 SAINT HELENA HW	CERS HAZ WASTE, CERS	Lower	1 ft.
4	OAKVILLE GROCERY	7856 ST. HELENA HWY	UST	Lower	65, 0.012, North
5	CBUSO DBA ROBERT MON	7801 ST HELENA HWY	CERS HAZ WASTE, CERS	Lower	84, 0.016, SE
A6	INGLENOOK VINEYARDS	7830 ST HELENA HWY	UST	Lower	155, 0.029, ESE
7	YOUNT MILL COMPOSTIN	1141 OAKVILLE CROSS	SWF/LF, CERS	Lower	195, 0.037, NE
B8	FARM RESIDENCE	1350 WALNUT DRIVE	SWEEPS UST, HIST UST	Higher	252, 0.048, SW
B9	ROBERT MONDAVI VINEY	1358 WALNUT DRIVE	HIST UST	Higher	400, 0.076, SW
B10	ROBERT MONDAVI VINEY	1427 WALNUT DR	UST, SWEEPS UST, HIST UST	Higher	419, 0.079, SW
C11	FARM	7962 ST HELENA HWY	SWEEPS UST	Lower	756, 0.143, NNW
C12	FARM	7962 ST HELENA HWY	HIST UST	Lower	756, 0.143, NNW
13	ROBERT MONDAVI WINER	1421 WALNUT DR	LUST	Higher	1742, 0.330, SW

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

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small 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 CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR ..... EnviroStor Database

Lists of state and tribal leaking storage tanks

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

Lists of state and tribal brownfield 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
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register
PFAS ---- PFAS Contamination Site Location Listing
AQUEOUS FOAM ---- Former Fire Training Facility Assessments Listing

Local Lists of Registered Storage Tanks

CA FID UST ---- Facility Inventory Database
CERS TANKS ---- California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---- RCRA - Non Generators / No Longer Regulated
FUDS ---- Formerly Used Defense Sites
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
UXO---------- Unexploded Ordnance Sites
ECHO---------- Enforcement & Compliance History Information
FUELS PROGRAM---------- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN---------- Bond Expenditure Plan
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
HIST CORTESE---------- Hazardous Waste & Substance Site List
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)
HWTS---------- Hazardous Waste Tracking System
MINES MRDS---------- Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner---------- EDR Exclusive Historical Cleaners

EXECUTIVE SUMMARY

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.

STANDARD ENVIRONMENTAL RECORDS

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
YOUNT MILL COMPOSTIN	***1141 OAKVILLE CROSS***	***NE 0 - 1/8 (0.037 mi.)***	***7***	***23***
Database: SWF/LF (SWIS), Date of Government Version: 05/09/2022				
Facility ID: 28-AA-0033				
Operational Status: Active				
Regulation Status: Notification				

Lists of state and tribal leaking storage tanks

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 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT MONDAVI WINER	1421 WALNUT DR	SW 1/4 - 1/2 (0.330 mi.)	13	30
Database: NAPA CO. LUST, Date of Government Version: 01/09/2017				

Status: Open
Permit ID: 248264

Lower Elevation	Address	Direction / Distance	Map ID	Page
OAKVILLE FACILITIES	***1187 OAKVILLE CROSS***	***0 - 1/8 (0.000 mi.)***	***2***	***9***

Database: LUST, Date of Government Version: 05/23/2022
Status: Completed - Case Closed
Global Id: T0605591139

Lists of state and tribal registered storage tanks

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 are 3 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT MONDAVI VINEY	***1427 WALNUT DR***	***SW 0 - 1/8 (0.079 mi.)***	***B10***	***27***

Database: NAPA CO. UST, Date of Government Version: 09/05/2019
Facility Id: NAPA0330

Lower Elevation	Address	Direction / Distance	Map ID	Page
OAKVILLE GROCERY	7856 ST. HELENA HWY	N 0 - 1/8 (0.012 mi.)	4	20

Database: NAPA CO. UST, Date of Government Version: 09/05/2019
Facility Id: NAPA0637

INGLENOOK VINEYARDS	7830 ST HELENA HWY	ESE 0 - 1/8 (0.029 mi.)	A6	23

Database: NAPA CO. UST, Date of Government Version: 09/05/2019
Facility Id: NAPA0075

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

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 04/18/2022 has revealed that there are 2 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NAPA WINE COMPANY	***7830 SAINT HELENA HW***	***0 - 1/8 (0.000 mi.)***	***A3***	***15***
CBUSO DBA ROBERT MON	***7801 ST HELENA HWY***	***SE 0 - 1/8 (0.016 mi.)***	***5***	***20***

EXECUTIVE SUMMARY

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 4 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FARM RESIDENCE	***1350 WALNUT DRIVE***	***SW 0 - 1/8 (0.048 mi.)***	***B8***	***26***
Status: A Tank Status: A Comp Number: 44550				
ROBERT MONDAVI VINEY	***1427 WALNUT DR***	***SW 0 - 1/8 (0.079 mi.)***	***B10***	***27***
Comp Number: 34559				

Lower Elevation	Address	Direction / Distance	Map ID	Page
INGLENOOK VINEYADS	7830 ST HELENA HWY	0 - 1/8 (0.000 mi.)	A1	9
Status: A Tank Status: A Comp Number: 63320				
FARM	7962 ST HELENA HWY	NNW 1/8 - 1/4 (0.143 mi.)	C11	29
Status: A Tank Status: A Comp Number: 35916				

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 4 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FARM RESIDENCE	***1350 WALNUT DRIVE***	***SW 0 - 1/8 (0.048 mi.)***	***B8***	***26***
Facility Id: 00000044550				
ROBERT MONDAVI VINEY	1358 WALNUT DRIVE	SW 0 - 1/8 (0.076 mi.)	B9	27
Facility Id: 00000034541				
ROBERT MONDAVI VINEY	***1427 WALNUT DR***	***SW 0 - 1/8 (0.079 mi.)***	***B10***	***27***
Facility Id: 00000034559				

Lower Elevation	Address	Direction / Distance	Map ID	Page
FARM	7962 ST HELENA HWY	NNW 1/8 - 1/4 (0.143 mi.)	C12	30
Facility Id: 00000035916				

EXECUTIVE SUMMARY

Other Ascertainable Records

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 (Cal-Sites).

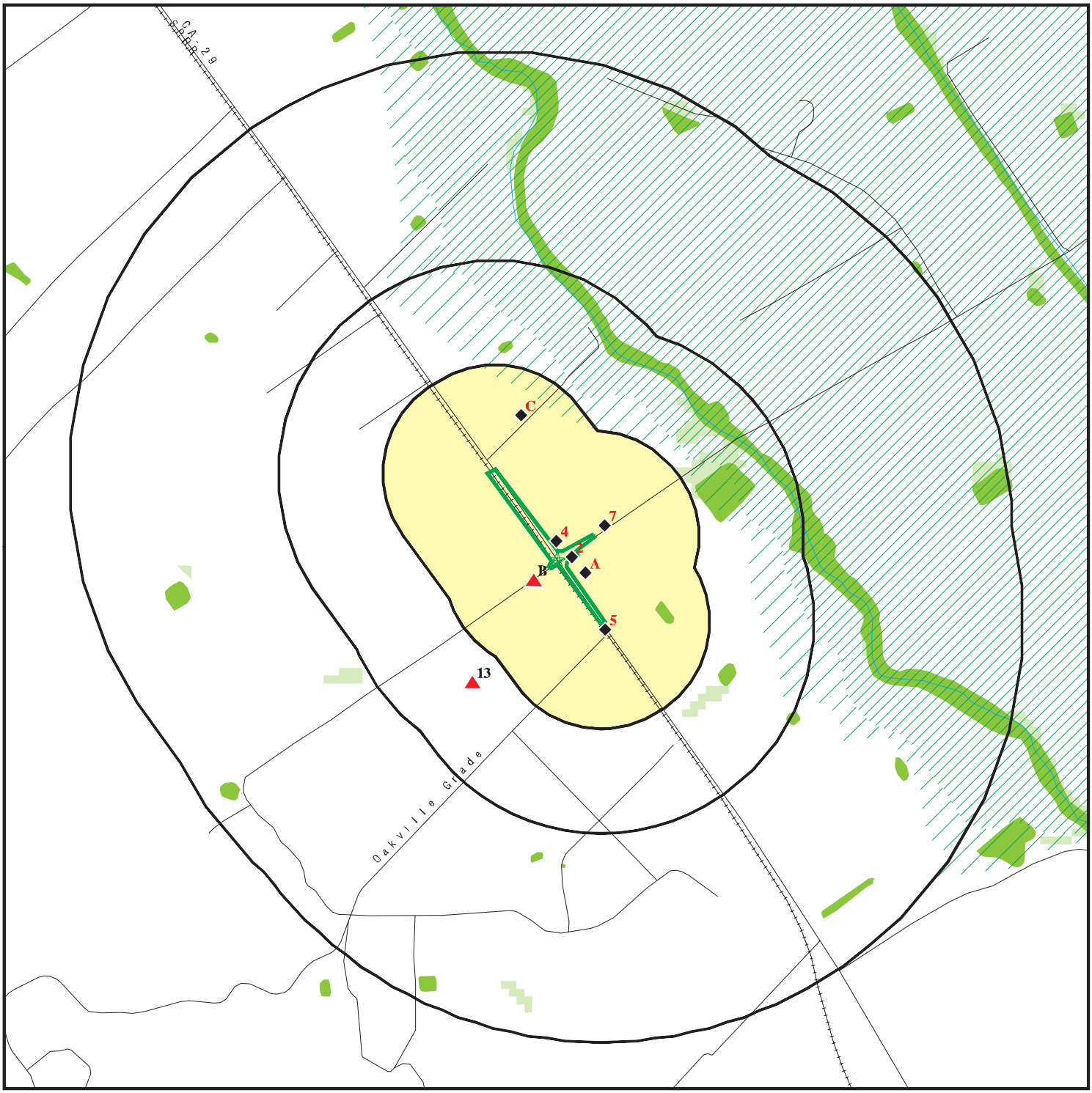
A review of the Cortese list, as provided by EDR, and dated 06/21/2022 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
OAKVILLE FACILITIES	***1187 OAKVILLE CROSS***	***0 - 1/8 (0.000 mi.)***	***2***	***9***
Cleanup Status: COMPLETED - CASE CLOSED				

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7131548.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

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:	SR-29 Oakville Crossing	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
LAT/LONG:	38.436755 / 122.402763	INQUIRY #:	7131548.2s
		DATE:	September 27, 2022 8:04 pm

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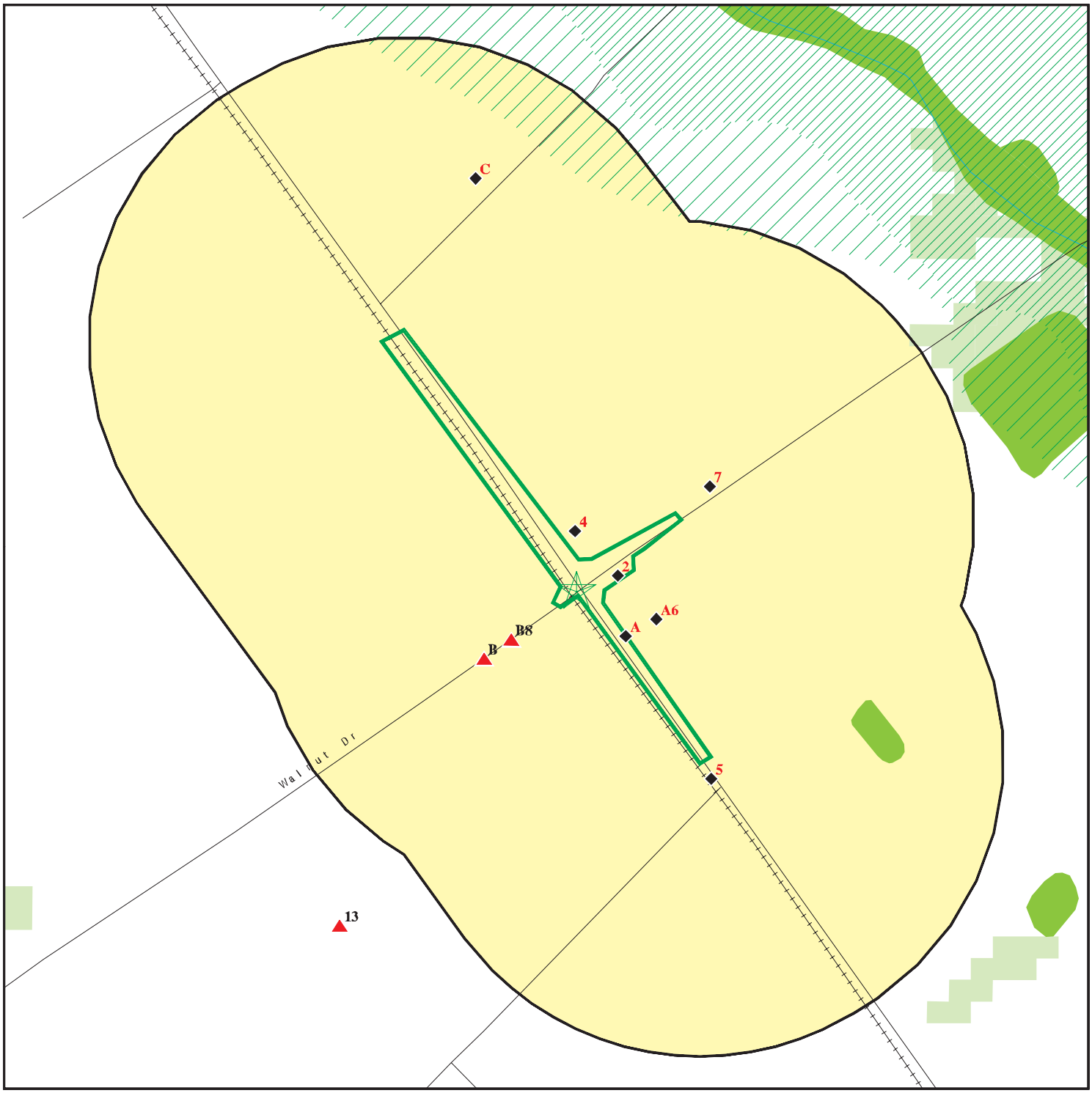
DETAIL MAP - 7131548.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- 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:	SR-29 Oakville Crossing	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7131548.2s
LAT/LONG:	38.436755 / 122.402763	DATE:	September 27, 2022 8:05 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								
Lists of Federal NPL (Superfund) sites								
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
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
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 CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		1	0	0	NR	NR	1

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
Lists of state and tribal leaking storage tanks								
LUST	0.500		1	0	1	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		3	0	NR	NR	NR	3
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield 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	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		2	0	NR	NR	NR	2
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		3	1	NR	NR	NR	4
HIST UST	0.250		3	1	NR	NR	NR	4
CA FID UST	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
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	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	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	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	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
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		1	0	0	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
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	TP		NR	NR	NR	NR	NR	0
PEST LIC	TP		NR	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	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP		NR	NR	NR	NR	NR	0
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	14	2	1	0	0	17

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

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **INGLENOOK VINEYADS** **SWEEPS UST** **S106927514**
7830 ST HELENA HWY **N/A**
< 1/8 **OAKVILLE, CA 94562**
1 ft.

Site 1 of 3 in cluster A

Relative: SWEEPS UST:
Lower

Actual: Name: INGLENOOK VINEYADS
154 ft. Address: 7830 ST HELENA HWY
City: OAKVILLE
Status: Active
Comp Number: 63320
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: HMS
SWRCB Tank Id: 28-000-063320-000001
Tank Status: A
Capacity: 520
Active Date: 04-13-90
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 1

Name: INGLENOOK VINEYADS
Address: 7830 ST HELENA HWY
City: OAKVILLE
Status: Not reported
Comp Number: 63320
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 28-000-063320-000002
Tank Status: Not reported
Capacity: 550
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: LEADED
Number Of Tanks: 1

---

2 **OAKVILLE FACILITIES INGLENOOK** **LUST** **S123185115**
1187 OAKVILLE CROSS ROAD **Cortese** **N/A**
< 1/8 **OAKVILLE, CA 94562** **CERS**
1 ft.

LUST:
Relative: Name: OAKVILLE FACILITIES INGLENOOK
Lower Address: 1187 OAKVILLE CROSS ROAD
City,State,Zip: OAKVILLE, CA 94562
Actual: Lead Agency: SAN FRANCISCO BAY RWQCB (REGION 2)
153 ft. Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605591139
Global Id: T0605591139

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Latitude:	38.4369195113387
Longitude:	-122.40211361908
Status:	Completed - Case Closed
Status Date:	10/26/2018
Case Worker:	KEB
RB Case Number:	28-0126
Local Agency:	Not reported
File Location:	Regional Board
Local Case Number:	0536
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Four underground storage tanks (USTs) associated with a former gasoline station were removed from the Site in June and July 1986 by a former operator of the Site. The USTs were formerly used for storage of gasoline and diesel and reportedly ranged in size from 400 to 450 gallons. Two nearby septic tanks were also removed at that time. The former gasoline station was located at the corner of Highway 29 and Oakville Cross Road. The USTs had previously been abandoned in place (backfilled with sand) and all associated piping had already been removed at the time of UST removal. It is unknown when the USTs were previously abandoned. Two additional USTs were excavated from the Site on August 9, 1989 under the supervision of a representative from the Napa County Department of Public Health (NCDPH). These USTs were reportedly located in a former maintenance yard located to the east of the former gasoline station. Both USTs were 550- gallons in size, one contained gasoline and the other contained diesel. The Napa Wine Company, which purchased and began operating the Site in 1993, submitted a closure request for the Site dated March 2, 2016. The Regional Water Board denied the closure request on May 5, 2016, stating that additional investigation was necessary.

LUST:

Global Id:	T0605591139
Contact Type:	Regional Board Caseworker
Contact Name:	KEVIN BROWN
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY STREET, SUITE 1400
City:	OAKLAND
Email:	kebrown@waterboards.ca.gov
Phone Number:	Not reported

LUST:

Global Id:	T0605591139
Action Type:	ENFORCEMENT
Date:	10/26/2018
Action:	Closure Summary
Global Id:	T0605591139
Action Type:	ENFORCEMENT
Date:	02/27/2017
Action:	Technical Correspondence / Assistance / Other
Global Id:	T0605591139
Action Type:	ENFORCEMENT
Date:	09/01/2016
Action:	Technical Correspondence / Assistance / Other

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 09/29/2017
Action: Notification - Public Notice of Case Closure

Global Id: T0605591139
Action Type: REMEDIATION
Date: 07/02/2013
Action: Monitored Natural Attenuation

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 05/11/2000
Action: 13267 Requirement

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 01/12/2012
Action: File review

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 05/11/2000
Action: 13267 Requirement

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 06/03/2016
Action: Technical Correspondence / Assistance / Other

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 01/12/2017
Action: Email Correspondence

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 02/20/1987
Action: Staff Letter

Global Id: T0605591139
Action Type: Other
Date: 01/14/1987
Action: Leak Reported

Global Id: T0605591139
Action Type: RESPONSE
Date: 10/26/2018
Action: Request for Closure - Regulator Responded

Global Id: T0605591139
Action Type: RESPONSE
Date: 11/02/2017
Action: Request for Closure - Regulator Responded

Global Id: T0605591139
Action Type: ENFORCEMENT

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Date: 06/15/2009
Action: File review

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 06/28/2016
Action: File Review - Closure

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 02/03/2016
Action: 13267 Requirement

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 08/02/2016
Action: 13267 Requirement

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 08/16/1989
Action: Other Report

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 08/29/1989
Action: Staff Letter

Global Id: T0605591139
Action Type: Other
Date: 01/14/1987
Action: Leak Stopped

Global Id: T0605591139
Action Type: RESPONSE
Date: 11/25/1989
Action: Other Report / Document

Global Id: T0605591139
Action Type: RESPONSE
Date: 11/27/1989
Action: Preliminary Site Assessment Report

Global Id: T0605591139
Action Type: RESPONSE
Date: 10/20/2017
Action: Other Report / Document

Global Id: T0605591139
Action Type: RESPONSE
Date: 08/21/1989
Action: Other Report / Document

Global Id: T0605591139
Action Type: RESPONSE
Date: 08/21/1989
Action: Tank Removal Report / UST Sampling Report

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 05/09/2016
Action: File Review - Closure

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 11/30/2016
Action: 13267 Requirement

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 06/21/2016
Action: Letter - Notice

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 03/15/2017
Action: Technical Correspondence / Assistance / Other

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 09/15/2016
Action: Technical Correspondence / Assistance / Other

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 10/26/2018
Action: Closure/No Further Action Letter

Global Id: T0605591139
Action Type: ENFORCEMENT
Date: 05/30/2018
Action: 13267 Requirement

Global Id: T0605591139
Action Type: RESPONSE
Date: 01/27/2016
Action: Email Correspondence

Global Id: T0605591139
Action Type: RESPONSE
Date: 08/03/1987
Action: Other Report / Document

Global Id: T0605591139
Action Type: Other
Date: 01/14/1987
Action: Leak Discovery

LUST:
Global Id: T0605591139
Status: Open - Case Begin Date
Status Date: 01/14/1987

Global Id: T0605591139
Status: Open - Site Assessment

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Status Date: 08/03/1987

Global Id: T0605591139
Status: Open - Inactive
Status Date: 04/23/2009

Global Id: T0605591139
Status: Open - Site Assessment
Status Date: 07/22/2009

Global Id: T0605591139
Status: Open - Inactive
Status Date: 08/06/2009

Global Id: T0605591139
Status: Open - Assessment & Interim Remedial Action
Status Date: 07/02/2013

Global Id: T0605591139
Status: Open - Inactive
Status Date: 02/02/2016

Global Id: T0605591139
Status: Open - Assessment & Interim Remedial Action
Status Date: 02/03/2016

Global Id: T0605591139
Status: Open - Site Assessment
Status Date: 06/30/2016

Global Id: T0605591139
Status: Open - Eligible for Closure
Status Date: 07/06/2017

Global Id: T0605591139
Status: Completed - Case Closed
Status Date: 10/26/2018

CORTESE:
Name: OAKVILLE FACILITIES INGLENOOK
Address: 1187 OAKVILLE CROSS ROAD
City,State,Zip: OAKVILLE, CA 94562
Region: CORTESE
Envirostor Id: Not reported
Global ID: T0605591139
Site/Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Status Date: Not reported
Site Code: Not reported
Latitude: Not reported
Longitude: Not reported
Owner: Not reported
Enf Type: Not reported
Swat R: Not reported
Flag: active
Order No: Not reported

OAKVILLE FACILITIES INGLENOOK (Continued) **S123185115**

Waste Discharge System No: Not reported
Effective Date: Not reported
Region 2: Not reported
WID Id: Not reported
Solid Waste Id No: Not reported
Waste Management Uit Name: Not reported
File Name: Active Open

CERS:
Name: OAKVILLE FACILITIES INGLENOOK
Address: 1187 OAKVILLE CROSS ROAD
City,State,Zip: OAKVILLE, CA 94562
Site ID: 243455
CERS ID: T0605591139
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Regional Board Caseworker
Entity Name: KEVIN BROWN - SAN FRANCISCO BAY RWQCB (REGION 2)
Entity Title: Not reported
Affiliation Address: 1515 CLAY STREET, SUITE 1400
Affiliation City: OAKLAND
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: ,

A3 **NAPA WINE COMPANY** **CERS HAZ WASTE S121787092**
7830 SAINT HELENA HWY **CERS N/A**
< 1/8 **OAKVILLE, CA 94562**
1 ft.

Site 2 of 3 in cluster A

Relative: Lower
Actual: 154 ft.

CERS HAZ WASTE:
Name: NAPA WINE COMPANY
Address: 7830 SAINT HELENA HWY
City,State,Zip: OAKVILLE, CA 94562
Site ID: 50959
CERS ID: 10171757
CERS Description: Hazardous Chemical Management

Name: NAPA WINE COMPANY
Address: 7830 SAINT HELENA HWY
City,State,Zip: OAKVILLE, CA 94562
Site ID: 50959
CERS ID: 10171757
CERS Description: Hazardous Waste Generator

CERS:
Name: NAPA WINE COMPANY
Address: 7830 SAINT HELENA HWY
City,State,Zip: OAKVILLE, CA 94562
Site ID: 50959
CERS ID: 10171757
CERS Description: Chemical Storage Facilities

NAPA WINE COMPANY (Continued) **S121787092**

Violations:

Site ID:	50959
Site Name:	NAPA WINE COMPANY
Violation Date:	07-21-2015
Citation:	19 CCR 4.5 2745.10(b) - California Code of Regulations, Title 19, Chapter 4.5, Section(s) 2745.10(b)
Violation Description:	Failure to revise, update, and submit the Risk Management Plan to the United States Environmental Protection Agency and the Administering Agency as follows: 1. At least once every five years from the date of its initial submission or most recent update required by section 2745.10(a)(2) through (7); 2. No later than three years after a newly regulated substance is first listed by the United States Environmental Protection Agency; 3. No later than the date on which on which a new regulated substance is first present in an already covered process above a threshold quantity; 4. No later than the date on which a regulated substance is first present above a threshold quantity in a new process; 5. Within six months of a change that requires a revised process hazard analysis or hazard review. 6. Within six months of a change that requires a revised offsite consequence analysis as provided in section 2750.7; 7. Within six months of a change that alters the program level that applied to any covered process.
Violation Notes:	Returned to compliance on 09/24/2015.
Violation Division:	Napa County Department of Environmental Management
Violation Program:	CalARP
Violation Source:	CERS,

Site ID:	50959
Site Name:	NAPA WINE COMPANY
Violation Date:	04-16-2019
Citation:	19 CCR 4.5 2755.6(a) - California Code of Regulations, Title 19, Chapter 4.5, Section(s) 2755.6(a)
Violation Description:	Failure to certify that they have evaluated compliance with the provisions of 19 CCR 4.5 Article 5 at least every three years to verify that the procedures and practices developed under 19 CCR 4.5 are adequate and are being followed.
Violation Notes:	Returned to compliance on 06/17/2019. A current compliance audit was not found for this facility. Please conduct compliance audit, document, and submit documentation to this office. The owner/operator failed to certify that they have evaluated compliance with the provisions of 19 CCR 4.5 Article 5 at least every three years to verify that the procedures and practices developed under 19 CCR 4.5 are adequate and are being followed. Submit a certification to the CUPA that the owner/operator has evaluated compliance with the provisions of 19 CCR 4.5 Article 5 at least every three years to verify that the procedures and practices developed under 19 CCR 4.5 are adequate and are being followed.
Violation Division:	Napa County Department of Environmental Management
Violation Program:	CalARP
Violation Source:	CERS,

Site ID:	50959
Site Name:	NAPA WINE COMPANY
Violation Date:	01-16-2019
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

NAPA WINE COMPANY (Continued) **S121787092**

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 02/27/2019. The business failed to update business plan within 30 days when one of the following occurs: a 100 percent or more increase in the quantity of a previously disclosed material; any handling of a previously undisclosed hazardous material; a change of business address, business ownership, or business name; or a substantial change in the handler's operations that requires modification to any portion of the business plan. Observed a 55 gallon drum of ultrasil 91-alkaline solution, and a 55 gallon ultrasil 75 acid cleaner, that were not reported. Report on CERS. Update all submittal elements effected by the change(s) and electronically submit the update within 30 days.
Violation Division: Napa County Department of Environmental Management
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 50959
Site Name: NAPA WINE COMPANY
Violation Date: 07-21-2015
Citation: 19 CCR 4.5 2755.6(a) - California Code of Regulations, Title 19, Chapter 4.5, Section(s) 2755.6(a)
Violation Description: Failure to certify that they have evaluated compliance with the provisions of this article at least every three years to verify that the procedures and practices developed under this chapter are adequate and are being followed.
Violation Notes: Returned to compliance on 09/24/2015.
Violation Division: Napa County Department of Environmental Management
Violation Program: CalARP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: CalARP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-16-2019
Violations Found: No
Eval Type: Routine done by local agency

NAPA WINE COMPANY (Continued) **S121787092**

Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-16-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-16-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Note: Facility walk through and document check was conducted on 04/09/09. A current compliance audit was not found. However, if it is found, the above violation (#69) will be retracted.
Eval Division: Napa County Department of Environmental Management
Eval Program: CalARP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 07-21-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HMRRP
Eval Source: CERS,

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Napa County Env Mgmt
Entity Title: Not reported
Affiliation Address: 1195 Third Street, Suite 210
Affiliation City: Napa
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94559
Affiliation Phone: (707) 253-4417,

Affiliation Type Desc: Legal Owner
Entity Name: Oakville Winery Acquisition Group
Entity Title: Not reported
Affiliation Address: P.O. Box 434
Affiliation City: Oakville
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 94562
Affiliation Phone: (707) 944-8669,

Affiliation Type Desc: Operator
Entity Name: Napa Wine Company

NAPA WINE COMPANY (Continued) **S121787092**

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:	(707) 944-8669,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Napa Wine 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:	,
Affiliation Type Desc:	Document Preparer
Entity Name:	Mark Solorio
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:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Ken Howatt
Entity Title:	Not reported
Affiliation Address:	P.O. Box 434
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	P.O. Box 434
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	Mark Solorio
Entity Title:	Director of Operations
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

NAPA WINE COMPANY (Continued) **S121787092**

Affiliation Type Desc:	Property Owner
Entity Name:	Oakville Winery Acquisition Group
Entity Title:	Not reported
Affiliation Address:	P.O. Box 434
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	94562
Affiliation Phone:	(707) 944-8669,

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4 **OAKVILLE GROCERY** **UST** **U003114990**
North **7856 ST. HELENA HWY** **N/A**
< 1/8 **OAKVILLE, CA**
0.012 mi.
65 ft.

Relative:
Lower

Actual:
153 ft.

NAPA CO. UST:

Name:	OAKVILLE GROCERY
Address:	7856 ST. HELENA HWY
City,State,Zip:	OAKVILLE
Facility ID:	NAPA0637
Permit ID:	Not reported
Facility Status:	Not reported
Permit Type:	Not reported
District:	Not reported
Num of Tanks:	0

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5 **CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY** **CERS HAZ WASTE** **S121772027**
SE **7801 ST HELENA HWY** **CERS** **N/A**
< 1/8 **OAKVILLE, CA 94562**
0.016 mi.
84 ft.

Relative:
Lower

Actual:
151 ft.

CERS HAZ WASTE:

Name:	CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY
Address:	7801 ST HELENA HWY
City,State,Zip:	OAKVILLE, CA 94562
Site ID:	389503
CERS ID:	10156225
CERS Description:	Hazardous Waste Generator

CERS:

Name:	CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY
Address:	7801 ST HELENA HWY
City,State,Zip:	OAKVILLE, CA 94562
Site ID:	389503
CERS ID:	10156225
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	389503
Site Name:	CBUSO dba Robert Mondavi Oakville Winery
Violation Date:	08-15-2019
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)

CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY (Continued) **S121772027**

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 08/16/2019. The business failed to complete and electronically submit chemical inventory information for all reportable hazardous materials on site at or above reportable quantities. Both of the chlorine dioxide tanks had been replaced with larger ones. The tank sizes now are 300 gallons by the yeast room, and 500 gallons on the south east corner. Update these amounts in CERS. Complete and electronically submit the chemical inventory information for all reportable hazardous materials on site at or above reportable quantities.
Violation Division: Napa County Department of Environmental Management
Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-08-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-25-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 08-15-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Napa County Department of Environmental Management
Eval Program: HMRRP
Eval Source: CERS,

Affiliation:
Affiliation Type Desc: CUPA District
Entity Name: Napa County Env Mgmt
Entity Title: Not reported
Affiliation Address: 1195 Third Street, Suite 210
Affiliation City: Napa
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 94559
Affiliation Phone: (707) 253-4417,

Affiliation Type Desc: Facility Mailing Address

CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY (Continued) **S121772027**

Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	7801 St. Helena Hwy
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	John Gockman
Entity Title:	General Manager II
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Legal Owner
Entity Name:	Constellation Brands, Inc.
Entity Title:	Not reported
Affiliation Address:	116 Buffalo Street
Affiliation City:	Canandaigua
Affiliation State:	NY
Affiliation Country:	United States
Affiliation Zip:	14424
Affiliation Phone:	(585) 396-7600,
Affiliation Type Desc:	Environmental Contact
Entity Name:	SARA ALARCON
Entity Title:	Not reported
Affiliation Address:	7801 St. helena Highway
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Constellation Brands U.S. Operations, Inc. (CBUSO)
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:	,
Affiliation Type Desc:	Document Preparer
Entity Name:	Joy Malinowski
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

CBUSO DBA ROBERT MONDAVI OAKVILLE WINERY (Continued) **S121772027**

Affiliation Phone: ,

Affiliation Type Desc: Operator
Entity Name: Constellation Brands US Operations dba Robert Mondavi Oakville Winery
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: (707) 974-0743,

A6 **INGLENOOK VINEYARDS** **UST** **U003114985**
ESE **7830 ST HELENA HWY** **N/A**
< 1/8 **OAKVILLE, CA**
0.029 mi.
155 ft. **Site 3 of 3 in cluster A**

Relative: NAPA CO. UST:
Lower
Name: INGLENOOK VINEYARDS
Actual: Address: 7830 ST HELENA HWY
152 ft. City,State,Zip: OAKVILLE
Facility ID: NAPA0075
Permit ID: Not reported
Facility Status: Not reported
Permit Type: Not reported
District: Not reported
Num of Tanks: 0

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7 **YOUNT MILL COMPOSTING** **SWF/LF** **S106900230**
NE **1141 OAKVILLE CROSS RD.** **CERS** **N/A**
< 1/8 **OAKVILLE, CA 94558**
0.037 mi.
195 ft.

Relative: SWF/LF (SWIS):
Lower
Name: YOUNT MILL COMPOSTING
Actual: Address: 1141 OAKVILLE CROSS RD.
147 ft. City,State,Zip: OAKVILLE, CA 94558
Region: STATE
Facility ID: 28-AA-0033
SWIS Number: 28-AA-0033
Point of Contact: Kate Whitney
Is Archived: No
Is Closed Illegal Abandoned: No
Is Site Inert Debris Engineered Fill: No
Is Financial Assurances Responsible: No
Absorbed On: Not reported
Operational Status: Active
Absorbed By: Not reported
Closed Illegal Abandoned Category: Not reported
EPA Federal Registry ID: Not reported
ARB District: Bay Area
SWRCB Region: San Francisco Bay
Local Government: Napa County (Unincorporated)

YOUNT MILL COMPOSTING (Continued) **S106900230**

Reporting Agency Legal Name:	County of Napa
Reporting Agency Department:	Planning Building & Environmt'l Services, Local Enforcement Agency
Enforcing Agency Legal Name:	County of Napa
Enforcing Agency Department:	Planning Building & Environmt'l Services, Local Enforcement Agency
Regulation Status:	Notification

Activity:

SWIS Number:	28-AA-0033
Site Name:	Yount Mill Composting
Activity:	Agricultural Material Composting Operation
Activity Is Archived:	No
Category:	Composting
Activity Classification:	Solid Waste Operation
WDR Number:	Not reported
WDR Landfill Class:	Not reported
Cease Operation:	Not reported
Cease Operation Type:	Not reported
Inspection Frequency:	Quarterly
Throughput:	Not reported
Throughput Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity Date:	Not reported
Capacity:	Not reported
Capacity Units:	Not reported
Total Acreage:	Not reported
Disposal Acreage:	Not reported
Permitted Elevation:	0
Permitted Elevation Type:	Not reported
Permitted Depth:	Not reported
Permitted Depth Type:	Not reported
Point of Contact:	Kate Whitney
Site Operational Status:	Active
Site Regulatory Status:	Notification
Site Is Archived:	No
Is Closed Illegal Abandoned:	No
Is Site Inert Debris Engineered Fill:	No
Is Financial Assurances Responsible:	No
Absorbed On:	Not reported
Absorbed By:	Not reported
Closed Illegal Abandoned Category:	Not reported
EPA Federal Registry ID:	Not reported
County:	Napa
ARB District:	Bay Area
SWRCB Region:	San Francisco Bay
Local Government:	Napa County (Unincorporated)
Street Address:	1141 Oakville Cross Rd.
City:	Oakville
State:	CA
ZIP Code:	94558
Reporting Agency Legal Name:	County of Napa
Reporting Agency Department:	Planning Building & Environmt'l Services, Local Enforcement Agency
Enforcing Agency Legal Name:	County of Napa
Enforcing Agency Department:	Planning Building & Environmt'l Services, Local Enforcement Agency

Operator:

SWIS Number:	28-AA-0033
Site Name:	Yount Mill Composting

YOUNT MILL COMPOSTING (Continued) **S106900230**

Site Operational Status:	Active
Site Type:	Non-Disposal Only
Site Regulatory Status:	Notification
Latitude:	38.43893
Longitude:	-122.39766
Is Archived:	No
Operator:	Yount Mill Composting
Started On:	Not reported
Contact Name:	Andrew Hoxsey
Contact Title:	Operator
Contact Email:	Not reported
Contact Phone:	(707) 944-0857
Street Address:	P.O. Box 434
Operator City:	Oakville
Operator State:	CA
Operator Zip:	94562

Owner:

SWIS Number:	28-AA-0033
Owner:	Napa Wine Co
Owner Address:	1141 Oakville Cross Road
Owner City:	Oakville
Owner State:	CA
Owner Zip:	94562
Site Name:	Yount Mill Composting
Site Operational Status:	Active
Site Type:	Non-Disposal Only
Site Regulatory Status:	Notification
Latitude:	38.43893
Longitude:	-122.39766
Is Archived:	No
Started On:	Not reported
Contact Name:	Ren Harris
Contact Title:	Operator
Contact Email:	Not reported
Contact Phone:	(707) 944-0414

CERS:

Name:	YOUNT MILL COMPOSTING
Address:	1141 OAKVILLE CROSS RD.
City,State,Zip:	OAKVILLE, CA
Site ID:	513160
CERS ID:	28-AA-0033
CERS Description:	Solid Waste and Recycle Sites

Affiliation:

Affiliation Type Desc:	Legal Operator
Entity Name:	Yount Mill Composting
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	7079440857,

YOUNT MILL COMPOSTING (Continued) **S106900230**

Affiliation Type Desc:	Legal Owner
Entity Name:	Napa Wine Co
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Oakville
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94562
Affiliation Phone:	7079440414,

B8 **FARM RESIDENCE** **SWEEPS UST** **U001597835**
SW **1350 WALNUT DRIVE** **HIST UST** **N/A**
< 1/8 **OAKVILLE, CA 94562**
0.048 mi.
252 ft. **Site 1 of 3 in cluster B**

Relative:
Higher

Actual:
159 ft.

SWEEPS UST:

Name:	FARM RESIDENCE
Address:	1350 WALNUT DR
City:	OAKVILLE
Status:	Active
Comp Number:	44550
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	4
SWRCB Tank Id:	28-000-044550-000001
Tank Status:	A
Capacity:	250
Active Date:	07-01-85
Tank Use:	UNKNOWN
STG:	P
Content:	Not reported
Number Of Tanks:	1

HIST UST:

Name:	FARM RESIDENCE
Address:	1350 WALNUT DRIVE
City,State,Zip:	OAKVILLE, CA 94562
File Number:	0002B03D
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002B03D.pdf
Region:	STATE
Facility ID:	00000044550
Facility Type:	Other
Other Type:	RESIDENCE
Contact Name:	Not reported
Telephone:	7079449110
Owner Name:	MRS. ALFRED WILSEY
Owner Address:	2590 JACKSON ST.
Owner City,St,Zip:	SAN FRANCISCO, CA 94115
Total Tanks:	0001
Tank Num:	001
Container Num:	1

FARM RESIDENCE (Continued) **U001597835**

Year Installed:	Not reported
Tank Capacity:	00000250
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	None

Click here for Geo Tracker PDF:

B9 **ROBERT MONDAVI VINEYARDS-TOKAL** **HIST UST** **U001597839**
SW **1358 WALNUT DRIVE** **N/A**
< 1/8 **OAKVILLE, CA 94562**
0.076 mi.
400 ft. **Site 2 of 3 in cluster B**

Relative:
Higher

Actual:
159 ft.

HIST UST:

Name:	ROBERT MONDAVI VINEYARDS-TOKAL
Address:	1358 WALNUT DRIVE
City,State,Zip:	OAKVILLE, CA 94562
File Number:	0001EFBF
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001EFBF.pdf
Region:	STATE
Facility ID:	00000034541
Facility Type:	Other
Other Type:	VINEYARDS
Contact Name:	RANCH CHARLES WILLIAMS
Telephone:	7079442305
Owner Name:	ROBERT MONDAVI VINEYARDS INC.
Owner Address:	5589 SILVERADO TRAIL
Owner City,St,Zip:	NAPA, CA 94558
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

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B10 **ROBERT MONDAVI VINEYARDS-TOKAL** **UST** **U001597840**
SW **1427 WALNUT DR** **SWEEPS UST** **N/A**
< 1/8 **OAKVILLE, CA** **HIST UST**
0.079 mi.
419 ft. **Site 3 of 3 in cluster B**

Relative:
Higher

Actual:
160 ft.

NAPA CO. UST:

Name:	ROBERT MONDAVI VINEYARDS-TOKAL
Address:	1427 WALNUT DR
City,State,Zip:	OAKVILLE
Facility ID:	NAPA0330
Permit ID:	Not reported
Facility Status:	Not reported

ROBERT MONDAVI VINEYARDS-TOKAL (Continued) **U001597840**

Permit Type: Not reported
District: Not reported
Num of Tanks: 0

SWEEPS UST:
Name: ROBERT MONDAVI VINEYARDS-TOKAL
Address: 1427 WALNUT DR
City: OAKVILLE
Status: Not reported
Comp Number: 34559
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 28-000-034559-000001
Tank Status: Not reported
Capacity: 6000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: 2

Name: ROBERT MONDAVI VINEYARDS-TOKAL
Address: 1427 WALNUT DR
City: OAKVILLE
Status: Not reported
Comp Number: 34559
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 28-000-034559-000002
Tank Status: Not reported
Capacity: 6000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

HIST UST:
Name: ROBERT MONDAVI VINEYARDS-TOKAL
Address: 1427 WALNUT DRIVE
City,State,Zip: OAKVILLE, CA 94562
File Number: 0001EFBE
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0001EFBE.pdf
Region: STATE
Facility ID: 00000034559
Facility Type: Other
Other Type: VINEYARDS
Contact Name: CHARLES WILLIAMS

ROBERT MONDAVI VINEYARDS-TOKAL (Continued) **U001597840**

Telephone:	7079442305
Owner Name:	ROBERT MONDAVI VINEYARDS INC
Owner Address:	5589 SILVERADO TRAIL
Owner City,St,Zip:	NAPA, CA 94558
Total Tanks:	0002
Tank Num:	001
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

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C11 **FARM** **SWEEPS UST** **S106926077**
NNW **7962 ST HELENA HWY** **N/A**
1/8-1/4 **OAKVILLE, CA 94562**
0.143 mi.
756 ft. **Site 1 of 2 in cluster C**

Relative: SWEEPS UST:
Lower

Name:	FARM
Address:	7962 ST HELENA HWY
City:	OAKVILLE
Status:	Active
Comp Number:	35916
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	1
SWRCB Tank Id:	28-000-035916-000001
Tank Status:	A
Capacity:	400
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

Actual:
142 ft.

C12
NNW
1/8-1/4
0.143 mi.
756 ft.

FARM — **HIST UST** — **U001597834**
7962 ST HELENA HWY — **N/A**
OAKVILLE, CA 94562

Site 2 of 2 in cluster C

Relative:
Lower

Actual:
142 ft.

HIST UST:

Name:	FARM
Address:	7962 ST HELENA HWY
City,State,Zip:	OAKVILLE, CA 94562
File Number:	0002ADF8
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002ADF8.pdf
Region:	STATE
Facility ID:	00000035916
Facility Type:	Other
Other Type:	FARM
Contact Name:	L. MAGGINI
Telephone:	7079442362
Owner Name:	ALFONSO MAGGINI
Owner Address:	7962 ST. HELENA HWY
Owner City,St,Zip:	OAKVILLE, CA 94562
Total Tanks:	0001
Tank Num:	001
Container Num:	001
Year Installed:	1955
Tank Capacity:	00000400
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	5/16
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

13
SW
1/4-1/2
0.330 mi.
1742 ft.

ROBERT MONDAVI WINERY/TO-KALOM — **LUST** — **S113096896**
1421 WALNUT DR — **N/A**
OAKVILLE, CA 94562

Relative:
Higher

Actual:
167 ft.

NAPA CO. LUST:

Name:	ROBERT MONDAVI WINERY/TO-KALOM
Address:	1421 WALNUT DR
City,State,Zip:	OAKVILLE, CA 94562
Permit ID:	248264
Status:	Open
Permit Type:	Non-LOP
District:	0

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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

Lists of Federal Delisted NPL sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

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: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/16/2022
Date Data Arrived at EDR: 05/19/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 71

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

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: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

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: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

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 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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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 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 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST 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 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 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

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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/01/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Lists of 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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 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: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

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: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield 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: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
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: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 11/21/2022
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: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

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: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
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: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 10/17/2022
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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

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: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 76

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 03/21/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/14/2022
Number of Days to Update: 85

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 04/03/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/11/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
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: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
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: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 12/12/2022
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: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 11/14/2022
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: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
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: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
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: 03/31/2022
Date Data Arrived at EDR: 04/14/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 89

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
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: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/02/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/01/2022
Next Scheduled EDR Contact: 10/17/2022
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: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 05/20/2022
Date Data Arrived at EDR: 05/20/2022
Date Made Active in Reports: 08/09/2022
Number of Days to Update: 81

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
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: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/16/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/12/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 42

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 04/19/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
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: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 07/05/2022
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/17/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/06/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/10/2022
Date Data Arrived at EDR: 06/10/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/12/2022
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
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: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/29/2022
Date Data Arrived at EDR: 06/29/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 22

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 09/02/2022
Number of Days to Update: 79

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 04/21/2022
Date Data Arrived at EDR: 04/22/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 81

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 11/07/2022
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: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/01/2022
Next Scheduled EDR Contact: 10/10/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
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: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/07/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 06/29/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/11/2022
Date Made Active in Reports: 09/23/2022
Number of Days to Update: 74

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/11/2022
Next Scheduled EDR Contact: 10/24/2022
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: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 01/13/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/15/2022
Number of Days to Update: 86

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 03/22/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 76

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/24/2022
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: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 04/21/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 82

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
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: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/21/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 3

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/03/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 78

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/01/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 06/30/2022
Next Scheduled EDR Contact: 10/10/2022
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: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/26/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 6

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

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: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 75

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
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: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/11/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/27/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 76

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 11/14/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 03/28/2022
Date Data Arrived at EDR: 04/28/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 78

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
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: 03/28/2022
Date Data Arrived at EDR: 04/28/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 78

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/26/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/22/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 76
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 84
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/07/2022
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: 05/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
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: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
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: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
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: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
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.

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

SR-29 OAKVILLE CROSSING
NO ADDRESS
NAPA, CA 94558

TARGET PROPERTY COORDINATES

Latitude (North):	38.436755 - 38ˆ 26’ 12.32’’
Longitude (West):	122.402763 - 122ˆ 24’ 9.95’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	552124.8
UTM Y (Meters):	4254238.0
Elevation:	155 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12021749 RUTHERFORD, CA
Version Date:	2018

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).

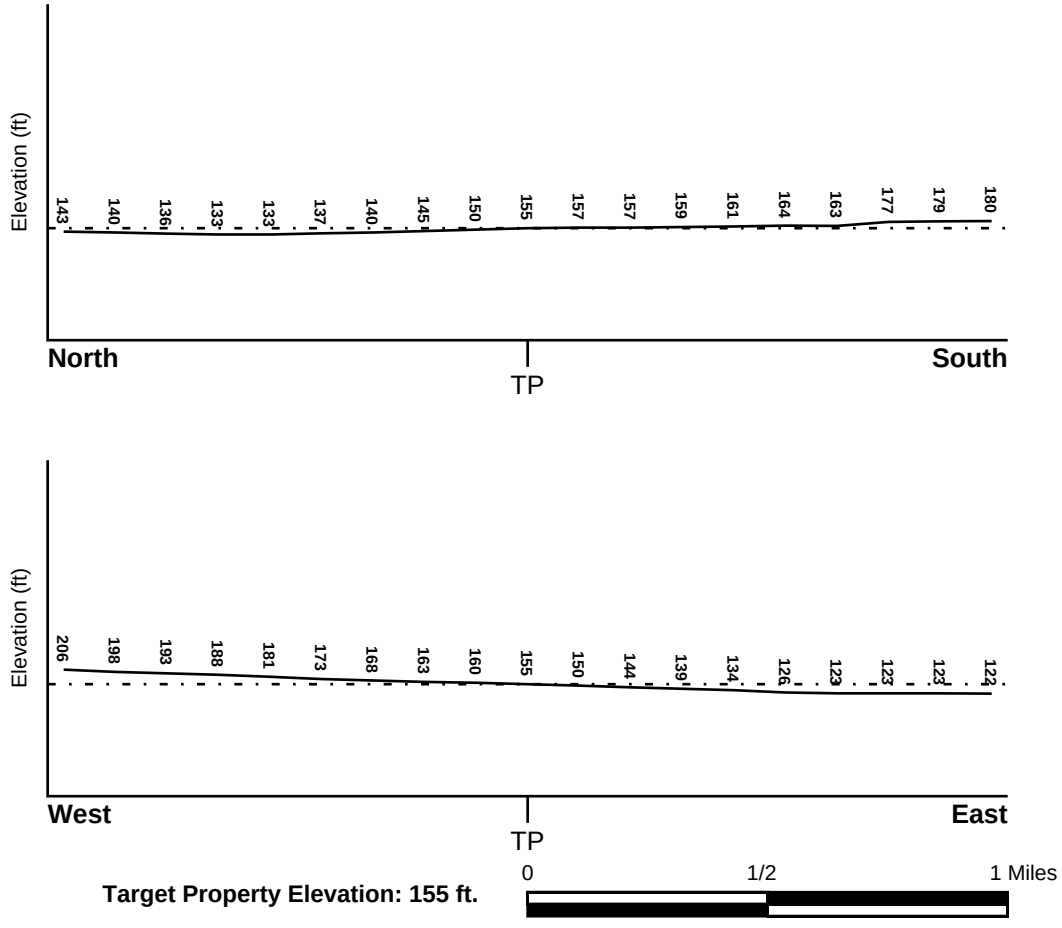
TOPOGRAPHIC INFORMATION

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 ENE

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
06055C0395E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06055C0385E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
RUTHERFORD	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

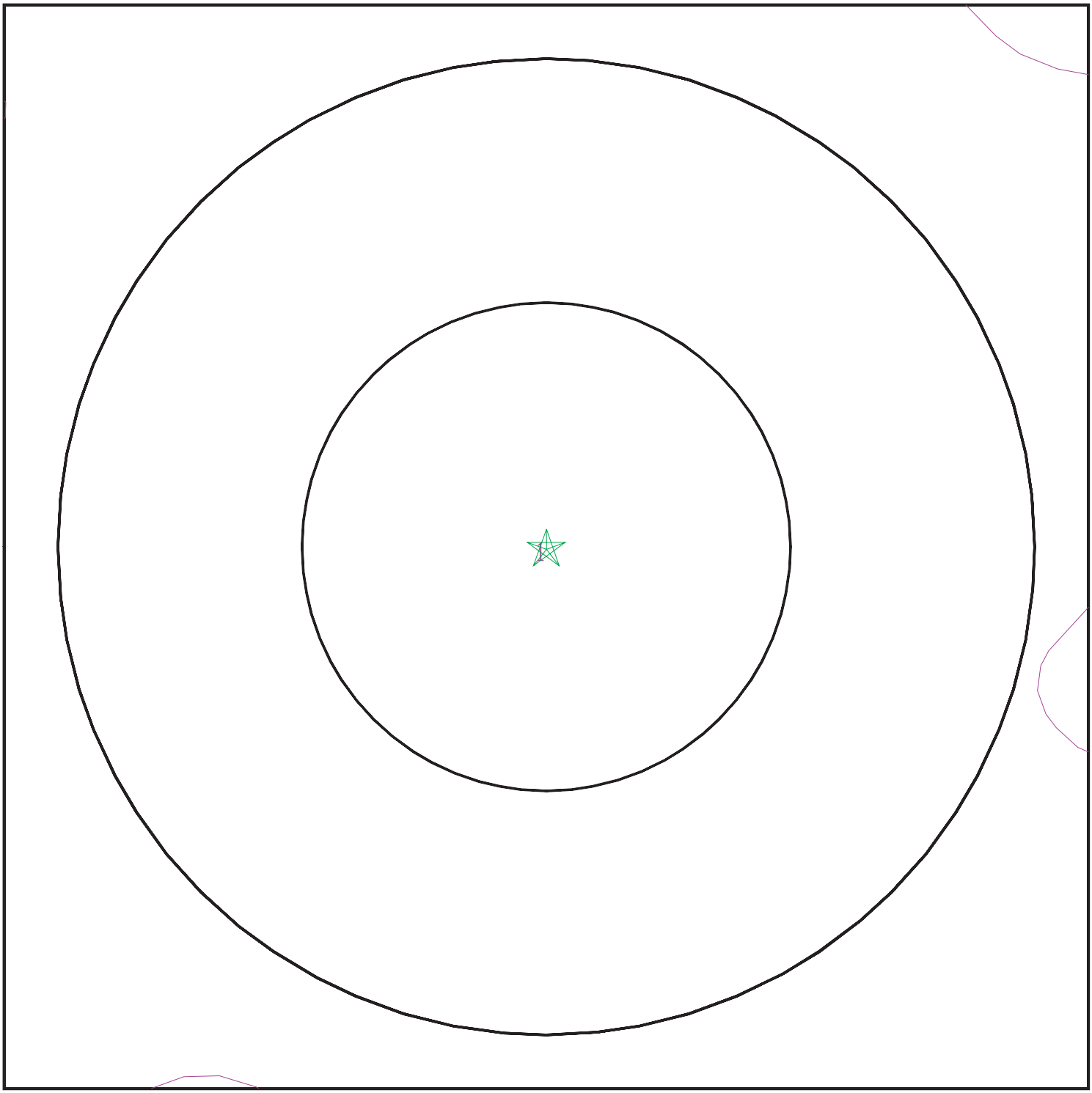
Era:	Paleozoic
System:	Permian
Series:	Ultramafic rocks
Code:	uM *(decoded above as Era, System & Series)*

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 - 7131548.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	SR-29 Oakville Crossing	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7131548.2s
LAT/LONG:	38.436755 / 122.402763	DATE:	September 27, 2022 8:05 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: BALE

Soil Surface Texture: 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 poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 153 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	24 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	24 inches	59 inches	stratified gravelly sandy loam to loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

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.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

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
D11	USGS40000188353	1/2 - 1 Mile NNW
E14	USGS40000188305	1/2 - 1 Mile ESE
F16	USGS40000188363	1/2 - 1 Mile NNE
H26	USGS40000188371	1/2 - 1 Mile NW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

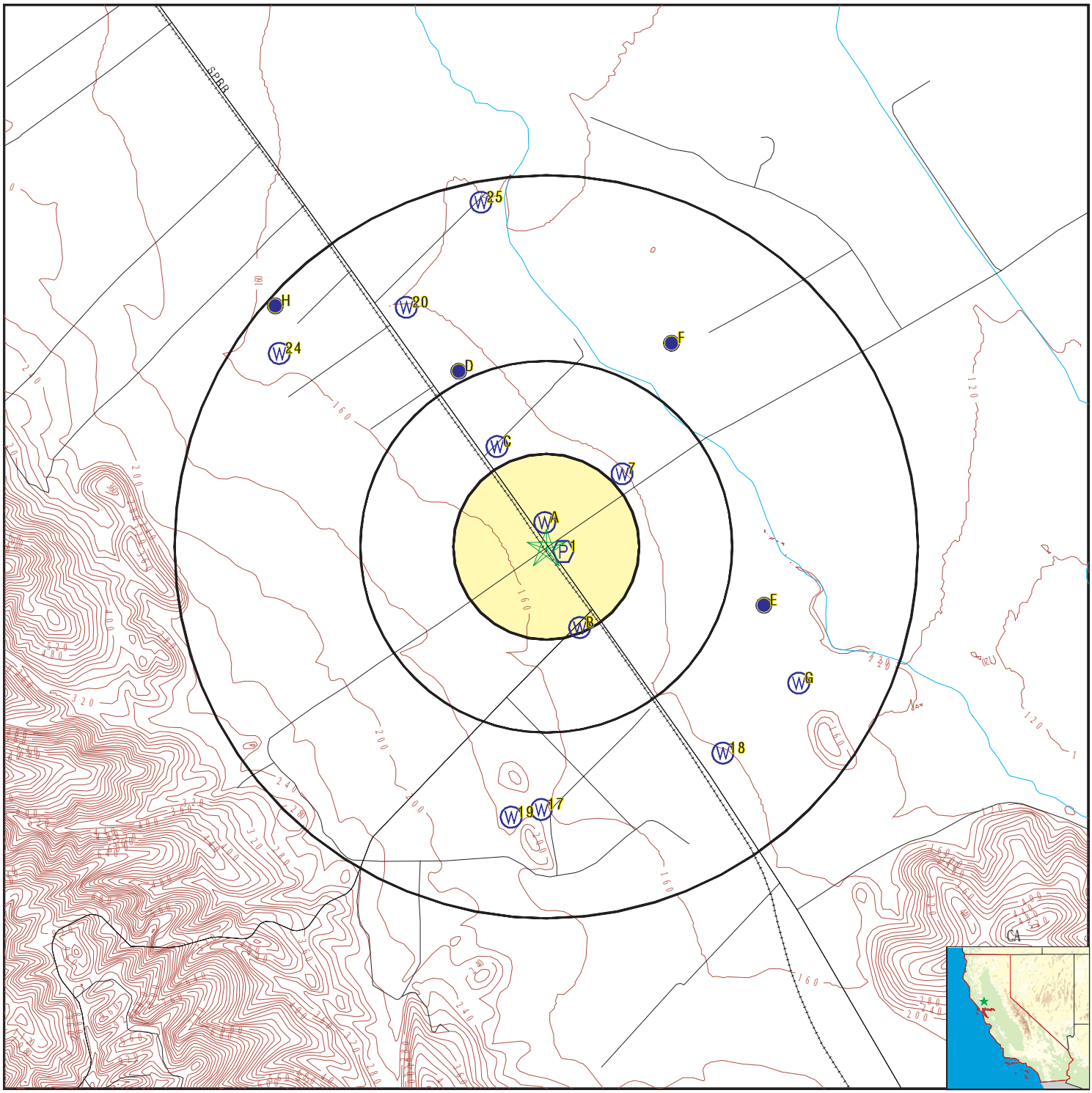
MAP ID	WELL ID	LOCATION FROM TP
1	CA2801014	0 - 1/8 Mile ESE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	CADDW0000012874	0 - 1/8 Mile North
A3	CADDW0000017319	0 - 1/8 Mile North
A4	CADDW0000004333	0 - 1/8 Mile NNW
B5	CADDW0000009177	1/8 - 1/4 Mile SSE
B6	CADDW0000000216	1/8 - 1/4 Mile SSE
7	CADWR0000037137	1/4 - 1/2 Mile NE
C8	CADDW0000013961	1/4 - 1/2 Mile NNW
C9	CADDW0000021013	1/4 - 1/2 Mile NNW
C10	CADDW0000015479	1/4 - 1/2 Mile NNW
D12	CADWR9000039261	1/2 - 1 Mile NNW
E13	CADWR9000039229	1/2 - 1 Mile ESE
F15	CADWR9000039267	1/2 - 1 Mile NNE
17	CADDW0000008997	1/2 - 1 Mile South
18	CADWR0000032409	1/2 - 1 Mile SE
19	CADDW0000019940	1/2 - 1 Mile South
20	CADDW0000002855	1/2 - 1 Mile NNW
G21	CALLNL000000165	1/2 - 1 Mile ESE
G22	CAUSGSN00000703	1/2 - 1 Mile ESE
G23	CAUSGS000000968	1/2 - 1 Mile ESE
24	CADWR9000039265	1/2 - 1 Mile NW
25	CADDW0000012505	1/2 - 1 Mile North
H27	CADPR0000000004	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 7131548.2s



- 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
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	SR-29 Oakville Crossing	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7131548.2s
LAT/LONG:	38.436755 / 122.402763	DATE:	September 27, 2022 8:05 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
ESE
0 - 1/8 Mile
Lower | **FRDS PWS** | **CA2801014**

Epa region:	09	State:	CA
Pwsid:	CA2801014	Pwsname:	RUDD WINES, INC., DBA RUDD
Cityserved:	Not Reported	Stateserved:	CA
Zipserved:	Not Reported	Fipscounty:	06055
Status:	Active	Retpopsrvd:	100
Pwssvcconn:	1	Psource longname:	Groundwater
Pwstype:	TNCWS	Owner:	Private
Contact:	Rudd Wines Inc DBA Rudd	Contactorgname:	RUDD WINES, INC., DBA RUDD
Contactphone:	Not Reported	Contactaddress1:	PO BOX 105
Contactaddress2:	Not Reported	Contactcity:	OAKVILLE
Contactstate:	CA	Contactzip:	94562
Pwsactivitycode:	A		

PWS ID:	CA2801014	PWS type:	System Owner/Responsible Party
PWS name:	GIRARD WINERY	PWS address:	Not Reported
PWS city:	OAKVILLE	PWS state:	CA
PWS zip:	94562	PWS name:	RUDD WINES, INC., DBA RUDD
PWS type code:	NC	Retail population served:	100
Contact:	Rudd Wines Inc DBA Rudd	Contact address:	PO BOX 105
Contact address:	OAKVILLE	Contact city:	CA
Contact state:	94	Contact zip:	Not Reported
Contact telephone:	Not Reported		

PWS ID:	CA2801014	Activity status:	Active
Date system activated:	Not Reported	Date system deactivated:	Not Reported
Retail population:	00000100	System name:	GIRARD WINERY
System address:	GIRARD WINERY	System address:	OAKVILLE
System city:	OAKVILLE	System state:	CA
System zip:	94562		

Population served:	Under 101 Persons	Treatment:	Untreated

Latitude:	382612	Longitude:	1222403

Violation id:	0000052	Orig code:	S
State:	CA	Violation Year:	2000
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	22	Violation name:	MCL, Monthly (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	01/01/2000
Cmp edt:	03/31/2000		

Violation ID:	0000052	Orig Code:	S
Enforcemnt FY:	2000	Enforcement Action:	03/14/2000
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		

PWS name:	RUDD WINES, INC., DBA RUDD		
Population served:	100	PWS type code:	NC
Violation ID:	0000052	Contaminant:	COLIFORM (TCR)
Violation type:	Max Contaminant Level, Monthly (TCR)		
Compliance start date:	1/1/2000 0:00:00	Compliance end date:	3/31/2000 0:00:00
Enforcement date:	3/14/2000 0:00:00	Enforcement action:	State Violation/Reminder Notice
Violation measurement:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A2
North
0 - 1/8 Mile
Lower

CA WELLS **CADDW0000012874**

Well ID:	2800561-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800561-001&store_num=		
GeoTracker Data:	Not Reported		

A3
North
0 - 1/8 Mile
Lower

CA WELLS **CADDW0000017319**

Well ID:	2800556-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800556-001&store_num=		
GeoTracker Data:	Not Reported		

A4
NNW
0 - 1/8 Mile
Lower

CA WELLS **CADDW0000004333**

Well ID:	2800556-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL #2	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800556-002&store_num=		
GeoTracker Data:	Not Reported		

B5
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **CADDW0000009177**

Well ID:	2800557-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800557-001&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B6
SSE **CA WELLS** **CADDW0000000216**
1/8 - 1/4 Mile
Lower

Well ID:	2800562-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800562-001&store_num=		
GeoTracker Data:	Not Reported		

7
NE **CA WELLS** **CADWR0000037137**
1/4 - 1/2 Mile
Lower

Well ID:	07N05W22G002M	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	07N05W22G002M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=07N05W22G002M&store_num=		
GeoTracker Data:	Not Reported		

C8
NNW **CA WELLS** **CADDW0000013961**
1/4 - 1/2 Mile
Lower

Well ID:	2801028-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801028-001&store_num=		
GeoTracker Data:	Not Reported		

C9
NNW **CA WELLS** **CADDW0000021013**
1/4 - 1/2 Mile
Lower

Well ID:	2801026-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801026-001&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C10
NNW
1/4 - 1/2 Mile
Lower

CA WELLS **CADDW0000015479**

Well ID:	2801026-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 02	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801026-002&store_num=		
GeoTracker Data:	Not Reported		

D11
NNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000188353**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W22E003M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	40
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	27	Level reading date:	1977-10-06
Feet below surface:	7.8	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1977-06-24	Feet below surface:	6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	4.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	4.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-02	Feet below surface:	6.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	3.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-16	Feet below surface:	3.5
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1975-04-21	Feet below surface:	1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-08	Feet below surface:	4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-13	Feet below surface:	-1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	3.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-10	Feet below surface:	1.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-29	Feet below surface:	3.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-29	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-28	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-25	Feet below surface:	-0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-15	Feet below surface:	0.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-24	Feet below surface:	0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-03	Feet below surface:	0.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-09	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-18	Feet below surface:	2.7
Feet to sea level:	Not Reported	Note:	Not Reported

D12
NNW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000039261**

State Well #:	07N05W22E003M	Station ID:	21631
Well Name:	Not Reported	Basin Name:	Napa Valley

Well Use:	Irrigation	Well Type:	Unknown
Well Depth:	40	Well Completion Rpt #:	Not Reported

E13
ESE
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000039229**

State Well #:	07N05W26D002M	Station ID:	37514
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	125	Well Completion Rpt #:	Not Reported

E14
ESE
1/2 - 1 Mile
Lower

FED USGS **USGS40000188305**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W26D002M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	125
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	28	Level reading date:	1977-10-05
Feet below surface:	17.5	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1977-06-25	Feet below surface:	21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-22	Feet below surface:	19
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-26	Feet below surface:	11.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-10	Feet below surface:	10
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-01	Feet below surface:	14
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-07-29	Feet below surface:	5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-02	Feet below surface:	5.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	7.4
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1975-07-11	Feet below surface:	7.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-21	Feet below surface:	5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	7.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-24	Feet below surface:	19.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-20	Feet below surface:	2.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-29	Feet below surface:	7.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	4.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-20	Feet below surface:	10.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-30	Feet below surface:	4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-25	Feet below surface:	5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	1.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-03-28	Feet below surface:	1.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-05-25	Feet below surface:	0.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	2.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-15	Feet below surface:	2.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-24	Feet below surface:	2.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-03	Feet below surface:	2.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-09	Feet below surface:	1.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-18	Feet below surface:	21
Feet to sea level:	Not Reported	Note:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F15
NNE
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000039267**

State Well #:	07N05W22H001M	Station ID:	40141
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	100	Well Completion Rpt #:	Not Reported

F16
NNE
1/2 - 1 Mile
Lower

FED USGS **USGS40000188363**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W22H001M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	100
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	28	Level reading date:	1977-10-05
Feet below surface:	13.7	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1977-06-23	Feet below surface:	9.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-19	Feet below surface:	12.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-26	Feet below surface:	23.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-17	Feet below surface:	10.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-01	Feet below surface:	13.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-04-21	Feet below surface:	11.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-02	Feet below surface:	10
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-10-29	Feet below surface:	9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-11	Feet below surface:	9
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1975-04-21	Feet below surface:	6.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	9.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	14
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-14	Feet below surface:	-2.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	12.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	11.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	11.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-30	Feet below surface:	9.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-27	Feet below surface:	10.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	8.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-01	Feet below surface:	6.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-05-25	Feet below surface:	5.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	4.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-15	Feet below surface:	5.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-24	Feet below surface:	6.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-06	Feet below surface:	6.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-10	Feet below surface:	2.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-19	Feet below surface:	10
Feet to sea level:	Not Reported	Note:	Not Reported

17
South
1/2 - 1 Mile
Higher

CA WELLS **CADDW0000008997**

Well ID:	2800299-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		

Other Name: WELL 1 GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800299-001&store_num=
GeoTracker Data: Not Reported

18
SE
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000032409**

Well ID: 07N05W27A001M Well Type: UNK
Source: Department of Water Resources
Other Name: 07N05W27A001M GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=07N05W27A001M&store_num=
GeoTracker Data: Not Reported

19
South
1/2 - 1 Mile
Higher

CA WELLS **CADDW0000019940**

Well ID: 2800299-002 Well Type: MUNICIPAL
Source: Department of Health Services
Other Name: WELL 002 GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800299-002&store_num=
GeoTracker Data: Not Reported

20
NNW
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000002855**

Well ID: 2801075-003 Well Type: MUNICIPAL
Source: Department of Health Services
Other Name: OAKVILLE WINERY WELL GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801075-003&store_num=
GeoTracker Data: Not Reported

G21
ESE
1/2 - 1 Mile
Lower

CA WELLS **CALLNL000000165**

Well ID: 102222 Well Type: MUNICIPAL
Source: Lawrence Livermore National Laboratory
Other Name: 07N/05W-26E01 M GAMA PFAS Testing: Not Reported
Groundwater Quality Data: Not Reported
GeoTracker Data: Not Reported

Chemical: Krypton Results: .0000000907436

Units:	cm3STP/g	Date:	12/30/2004
Chemical:	Argon	Results:	.000413468
Units:	cm3STP/g	Date:	12/30/2004
Chemical:	Tritium (Hydrogen 3)	Results:	1.3
Units:	pCi/L	Date:	02/18/2005
Chemical:	Helium-4	Results:	.00000016952
Units:	cm3STP/g	Date:	12/30/2004
Chemical:	Xenon	Results:	.0000000119089
Units:	cm3STP/g	Date:	12/30/2004
Chemical:	Helium-3/Helium-4	Results:	.00000219116
Units:	atom ratio	Date:	12/30/2004
Chemical:	Neon	Results:	.000000269727
Units:	cm3STP/g	Date:	12/30/2004

G22
ESE
1/2 - 1 Mile
Lower

CA WELLS **CAUSGSN00000703**

Well ID:	USGS-382553122232501	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-382553122232501	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-382553122232501&store_num=		
GeoTracker Data:	Not Reported		

G23
ESE
1/2 - 1 Mile
Lower

CA WELLS **CAUSGS000000968**

24
NW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000039265**

State Well #:	07N05W21G001M	Station ID:	21630
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	32	Well Completion Rpt #:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

25
North
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000012505**

Well ID:	2801075-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL NO. 1 RIVER WELL	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801075-001&store_num=		
GeoTracker Data:	Not Reported		

H26
NW
1/2 - 1 Mile
Lower

FED USGS **USGS40000188371**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W21G001M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	27
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	28	Level reading date:	1977-10-06
Feet below surface:	3.6	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1977-06-24	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	3.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-13	Feet below surface:	-1.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-02	Feet below surface:	3.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	0
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1975-07-14	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-21	Feet below surface:	2.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	10
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-13	Feet below surface:	2.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	2.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	-0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-24	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-17	Feet below surface:	-1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	-0.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-05-28	Feet below surface:	-1.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-26	Feet below surface:	-1.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-08-08	Feet below surface:	-2.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-15	Feet below surface:	-0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-24	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-03	Feet below surface:	2.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-09	Feet below surface:	0.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-19	Feet below surface:	6.8
Feet to sea level:	Not Reported	Note:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
CA WELLS	**CADPR0000000004**

H27
NW
1/2 - 1 Mile
Higher

Well ID:	76831	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76831	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76831&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94558	82	9

Federal EPA Radon Zone for NAPA County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94558

Number of sites tested: 17

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.324 pCi/L	88%	12%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

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.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

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.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
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

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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SR-29/Rutherford Road
No Address
Napa, CA 94558

Inquiry Number: 7133544.2s
September 29, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	73
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-8
Physical Setting Source Map Findings	A-10
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 (E1527-21), 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

NO ADDRESS
NAPA, CA 94558

COORDINATES

Latitude (North):	38.4587600 - 38ˆ 27' 31.53''
Longitude (West):	122.4227870 - 122ˆ 25' 22.03''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	550361.9
UTM Y (Meters):	4256668.5
Elevation:	175 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12021749 RUTHERFORD, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140608
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NO ADDRESS
NAPA, CA 94558

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	BAULIEU VINEYARDS	HWY 29 & RUTHERFORD	HAZNET, HWTS	Lower	1 ft.
A2	LONG MEADOW RANCH RU	1796 ST HELENA HWY	CERS	Higher	1 ft.
A3	TRAINA VINEYARD	7738 ST HELENA HWY	FINDS	Higher	1 ft.
A4	1X ST. HELENA WINERY	8440 ST. HELENA HWY	HAZNET, HWTS	Higher	1 ft.
A5	NIEBAUM COPPOLA ESTA	1991 ST HELENA HWY	FINDS	Higher	1 ft.
B6	JIM S AUTO REPAIR	2528 SAINT HELENA	EDR Hist Auto	Higher	1 ft.
B7	SALVADOR SIGNAL SERV	2526 SAINT HELENA	EDR Hist Auto	Higher	1 ft.
A8	BEAULIEU VINEYARD	1960 ST HELENA HWY	HAZNET, HWTS	Lower	1 ft.
9	WCI, FAW, MW WASTEWA	2812 ST. HELENA HIGH	CIWQS, CERS	Higher	1 ft.
A10	OLIVER RANCH	7554 SAINT HELENA HW	FINDS	Higher	1 ft.
A11	ST. SUPERY WINERY	8440 SAINT HELENA HW	FINDS	Higher	1 ft.
C12	NIEBAUM COPPOLA ESTA	1991 ST HELENA HWY	HAZNET, NPDES, WDS, CIWQS, CERS	Lower	1 ft.
C13		1960 SAINT HELENA HW	ERNS	Lower	1 ft.
C14	JACKSON FAMILY WINES	2030 ST. HELENA HWY	FINDS, ECHO	Lower	1 ft.
A15	CAKEBREAD VINEYARD	8300 SAINT HELENA HW	FINDS	Higher	1 ft.
C16	DIAGEO CHATEAU AND E	1960 SAINT HELENA HW	CHMIRS, EMI	Lower	1 ft.
C17	JACKSON FAMILY WINES	2030 ST. HELENA HWY	RCRA NonGen / NLR	Lower	1 ft.
A18	GEIS, RUTH	8576 ST. HELENA HWY	UST	Lower	20, 0.004, ESE
B19	BEAULIEU VINEYARD WI	POSTAL ADDRESS IS UN	SEMS	Lower	196, 0.037, NNW
D20	COPPER CANE WINERY	1960 SAINT HELENA HW	CERS HAZ WASTE, CERS	Lower	406, 0.077, NNE
21	LA LUNA HANDY STORE	1153 RUTHERFORD RD	LUST, Cortese, HIST CORTESE, CERS	Lower	436, 0.083, ENE
D22	BEAULIEU VINEYARD	1960 ST HELENA HIGHW	HIST UST	Lower	521, 0.099, NNE
D23	BEAULIEU VINEYARDS	1960 ST HELENA HWY	UST, HIST FTTS	Lower	521, 0.099, NNE
D24	BEAULIEU VINEYARD	1960 ST HELENA HWY	SWEEPS UST, NPDES, WDS, CERS	Lower	521, 0.099, NNE
E25	ANTHONY PEJU	8466 ST HELENA HWY	SWEEPS UST	Lower	1143, 0.216, SE
E26	PEJU WINERY & VINEYA	8466 ST. HELENA HWY	RCRA NonGen / NLR	Lower	1302, 0.247, SE
27	CHAIX TRUST	1204 MANLEY LANE	LUST, HIST UST	Lower	2098, 0.397, SE

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

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small 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 CONTROLS ..... Institutional Controls Sites List

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR ..... EnviroStor Database

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

Lists of state and tribal brownfield 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
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
HIST Cal-Sites ..... Historical Calsites Database

SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register
PFAS ---- PFAS Contamination Site Location Listing
AQUEOUS FOAM ---- Former Fire Training Facility Assessments Listing

Local Lists of Registered Storage Tanks

CA FID UST ---- Facility Inventory Database
CERS TANKS ---- California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ---- Formerly Used Defense Sites
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
UXO ---- Unexploded Ordnance Sites
DOCKET HWC ---- Hazardous Waste Compliance Docket Listing
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN ---- Bond Expenditure Plan
CUPA Listings ---- CUPA Resources List
DRYCLEANERS ---- Cleaner Facilities
ENF ---- Enforcement Action Listing
Financial Assurance ---- Financial Assurance Information Listing
ICE ---- ICE
HWP ---- EnviroStor Permitted Facilities Listing
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program 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
WIP ---- Well Investigation Program Case List
MILITARY PRIV SITES ---- MILITARY PRIV SITES (GEOTRACKER)
PROJECT ---- PROJECT (GEOTRACKER)
WDR ---- Waste Discharge Requirements Listing
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)
MINES MRDS ---- Mineral Resources Data System
HWTS ---- Hazardous Waste Tracking System

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.

EXECUTIVE SUMMARY

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.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal sites subject to CERCLA removals and CERCLA orders

SEMS: 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.

A review of the SEMS list, as provided by EDR, and dated 07/26/2022 has revealed that there is 1 SEMS site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEAULIEU VINEYARD WI Site ID: 0905953 EPA Id: CAN000905953	POSTAL ADDRESS IS UN	NNW 0 - 1/8 (0.037 mi.)	B19	51

Federal ERNS list

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 06/14/2022 has revealed that there is 1 ERNS site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported NRC Report #: 876949 Incident Date Time: 2008-06-19 08:00:00	1960 SAINT HELENA HW	0 - 1/8 (0.000 mi.)	C13	37

Lists of state and tribal leaking storage tanks

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 2 LUST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LA LUNA HANDY STORE	***1153 RUTHERFORD RD***	***ENE 0 - 1/8 (0.083 mi.)***	***21***	***53***
Database: LUST REG 2, Date of Government Version: 09/30/2004 Database: LUST, Date of Government Version: 05/23/2022 Status: Completed - Case Closed Facility Id: 28-0328 Facility Status: Case Closed Global Id: T0605500282 date9: 6/9/1998				
CHAIX TRUST	***1204 MANLEY LANE***	***SE 1/4 - 1/2 (0.397 mi.)***	***27***	***71***
Database: NAPA CO. LUST, Date of Government Version: 01/09/2017 Status: Open Permit ID: 248341				

Lists of state and tribal registered storage tanks

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 are 2 UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GEIS, RUTH	8576 ST. HELENA HWY	ESE 0 - 1/8 (0.004 mi.)	A18	50
Database: NAPA CO. UST, Date of Government Version: 09/05/2019 Facility Id: NAPA0695				
BEAULIEU VINEYARDS	***1960 ST HELENA HWY***	***NNE 0 - 1/8 (0.099 mi.)***	***D23***	***56***
Database: NAPA CO. UST, Date of Government Version: 09/05/2019 Facility Id: NAPA0016				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

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 04/18/2022 has revealed that there

is 1 CERS HAZ WASTE site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
COPPER CANE WINERY	***1960 SAINT HELENA HW***	***NNE 0 - 1/8 (0.077 mi.)***	***D20***	***51***

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 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEAULIEU VINEYARD Status: A Tank Status: A Comp Number: 4393	***1960 ST HELENA HWY***	***NNE 0 - 1/8 (0.099 mi.)***	***D24***	***57***
ANTHONY PEJU Status: A Tank Status: A Comp Number: 23350	8466 ST HELENA HWY	SE 1/8 - 1/4 (0.216 mi.)	E25	66

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 is 1 HIST UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BEAULIEU VINEYARD Facility Id: 00000004393	1960 ST HELENA HIGHW	NNE 0 - 1/8 (0.099 mi.)	D22	56

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 04/03/2022 has revealed that there is 1 CHMIRS site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
DIAGEO CHATEAU AND E OES Incident Number: 08-5092	***1960 SAINT HELENA HW***	***0 - 1/8 (0.000 mi.)***	***C16***	***42***

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 06/20/2022 has revealed that there are 2 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON FAMILY WINES EPA ID:: CAC002966810	2030 ST. HELENA HWY	0 - 1/8 (0.000 mi.)	C17	48
PEJU WINERY & VINEYA EPA ID:: CAC003077929	8466 ST. HELENA HWY	SE 1/8 - 1/4 (0.247 mi.)	E26	68

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 05/13/2022 has revealed that there are 6 FINDS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TRAINA VINEYARD Registry ID:: 110055749310	7738 ST HELENA HWY	0 - 1/8 (0.000 mi.)	A3	12
NIEBAUM COPPOLA ESTA Registry ID:: 110065404672	1991 ST HELENA HWY	0 - 1/8 (0.000 mi.)	A5	13
OLIVER RANCH Registry ID:: 110055905908	7554 SAINT HELENA HW	0 - 1/8 (0.000 mi.)	A10	17
ST. SUPERY WINERY Registry ID:: 110055656044	8440 SAINT HELENA HW	0 - 1/8 (0.000 mi.)	A11	17
CAKEBREAD VINEYARD Registry ID:: 110055817282	8300 SAINT HELENA HW	0 - 1/8 (0.000 mi.)	A15	41

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON FAMILY WINES Registry ID:: 110070400221	***2030 ST. HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C14***	***41***

EXECUTIVE SUMMARY

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 04/02/2022 has revealed that there is 1 ECHO site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
JACKSON FAMILY WINES	***2030 ST. HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C14***	***41***
Registry ID: 110070400221				

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 (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 06/21/2022 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LA LUNA HANDY STORE	***1153 RUTHERFORD RD***	***ENE 0 - 1/8 (0.083 mi.)***	***21***	***53***
Cleanup Status: COMPLETED - CASE CLOSED				

EMI: Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

A review of the EMI list, as provided by EDR, and dated 12/31/2020 has revealed that there is 1 EMI site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
DIAGEO CHATEAU AND E	***1960 SAINT HELENA HW***	***0 - 1/8 (0.000 mi.)***	***C16***	***42***
Facility Id: 17870				

HAZNET: 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 from non-California manifests & continuation sheets are not included at the present time. 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, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the HAZNET list, as provided by EDR, and dated 12/31/2021 has revealed that there are 4 HAZNET sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
1X ST. HELENA WINERY	***8440 ST. HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***A4***	***12***
GEPAID: CAC000284761				

Lower Elevation	Address	Direction / Distance	Map ID	Page
BAULIEU VINEYARDS	***HWY 29 & RUTHERFORD***	***0 - 1/8 (0.000 mi.)***	***A1***	***9***
GEPAID: CAC002228977				
BEAULIEU VINEYARD	***1960 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***A8***	***14***

GEPAID: CAL000002429

NIEBAUM COPPOLA ESTA	***1991 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C12***	***17***

GEPAID: CAL000257707

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 is 1 HIST CORTESE site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LA LUNA HANDY STORE	***1153 RUTHERFORD RD***	***ENE 0 - 1/8 (0.083 mi.)***	***21***	***53***

Reg Id: 28-0328

NPDES: A listing of NPDES permits, including stormwater.

A review of the NPDES list, as provided by EDR, and dated 05/09/2022 has revealed that there is 1 NPDES site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NIEBAUM COPPOLA ESTA	***1991 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C12***	***17***

Facility Status: Active

WDS: California Water Resources Control Board - Waste Discharge System.

A review of the WDS list, as provided by EDR, and dated 06/19/2007 has revealed that there is 1 WDS site within approximately 0.001 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NIEBAUM COPPOLA ESTA	***1991 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C12***	***17***

Facility Status: A
Facility Id: 2 28I014098

CIWQS: 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.

A review of the CIWQS list, as provided by EDR, and dated 08/16/2022 has revealed that there are 2 CIWQS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WCI, FAW, MW WASTEWA	***2812 ST. HELENA HIGH***	***0 - 1/8 (0.000 mi.)***	***9***	***16***

Lower Elevation	Address	Direction / Distance	Map ID	Page
NIEBAUM COPPOLA ESTA	***1991 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C12***	***17***

EXECUTIVE SUMMARY

CERS: 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

A review of the CERS list, as provided by EDR, and dated 04/18/2022 has revealed that there are 3 CERS sites within approximately 0.001 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LONG MEADOW RANCH RU	1796 ST HELENA HWY	0 - 1/8 (0.000 mi.)	A2	10
WCI, FAW, MW WASTEWA	***2812 ST. HELENA HIGH***	***0 - 1/8 (0.000 mi.)***	***9***	***16***

Lower Elevation	Address	Direction / Distance	Map ID	Page
NIEBAUM COPPOLA ESTA	***1991 ST HELENA HWY***	***0 - 1/8 (0.000 mi.)***	***C12***	***17***

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.

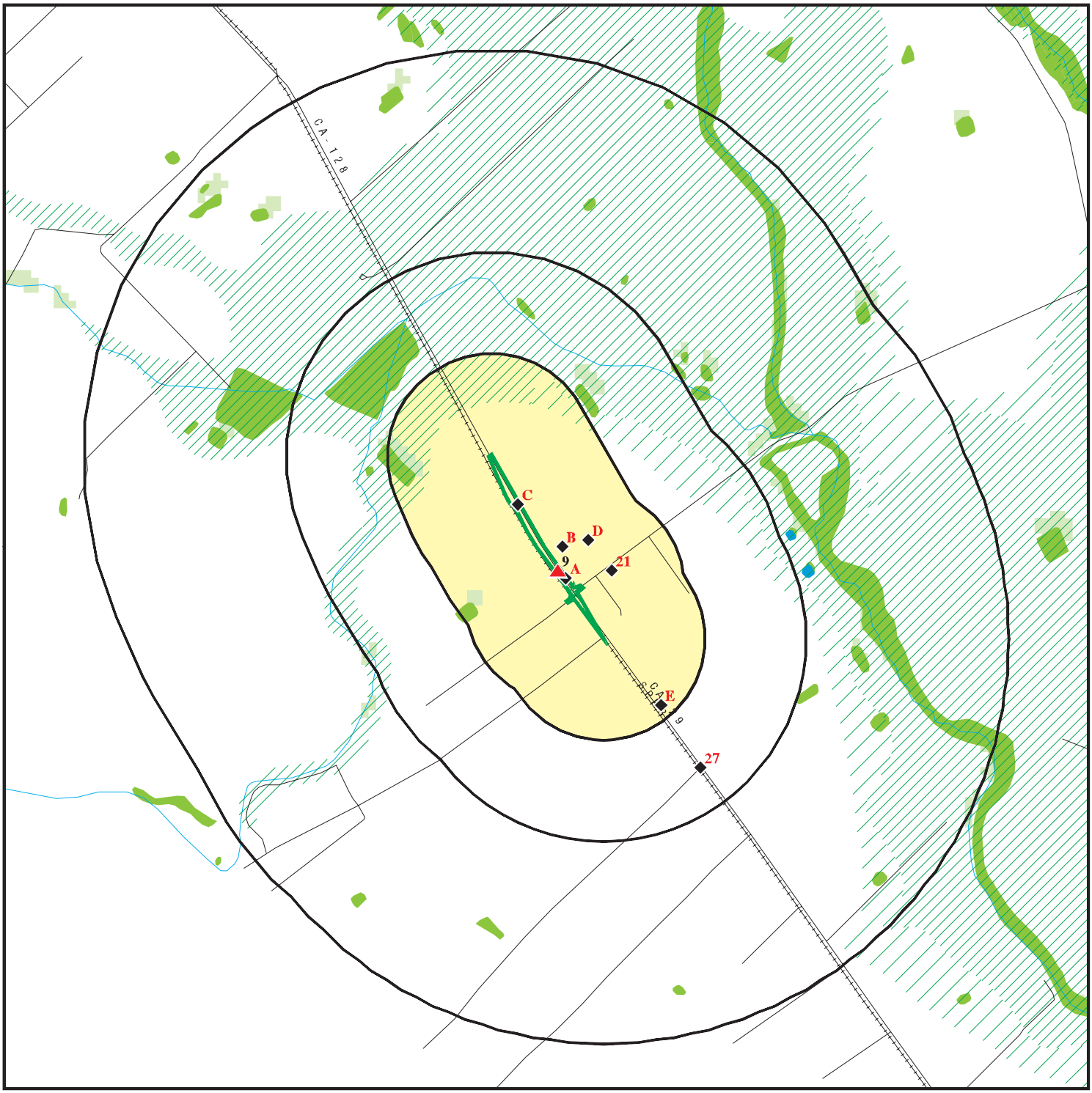
A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 2 EDR Hist Auto sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIM S AUTO REPAIR	2528 SAINT HELENA	0 - 1/8 (0.000 mi.)	B6	14
SALVADOR SIGNAL SERV	2526 SAINT HELENA	0 - 1/8 (0.000 mi.)	B7	14

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7133544.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

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:	SR-29/Rutherford Road	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
LAT/LONG:	38.45876 / 122.422787	INQUIRY #:	7133544.2s
		DATE:	September 29, 2022 1:42 pm

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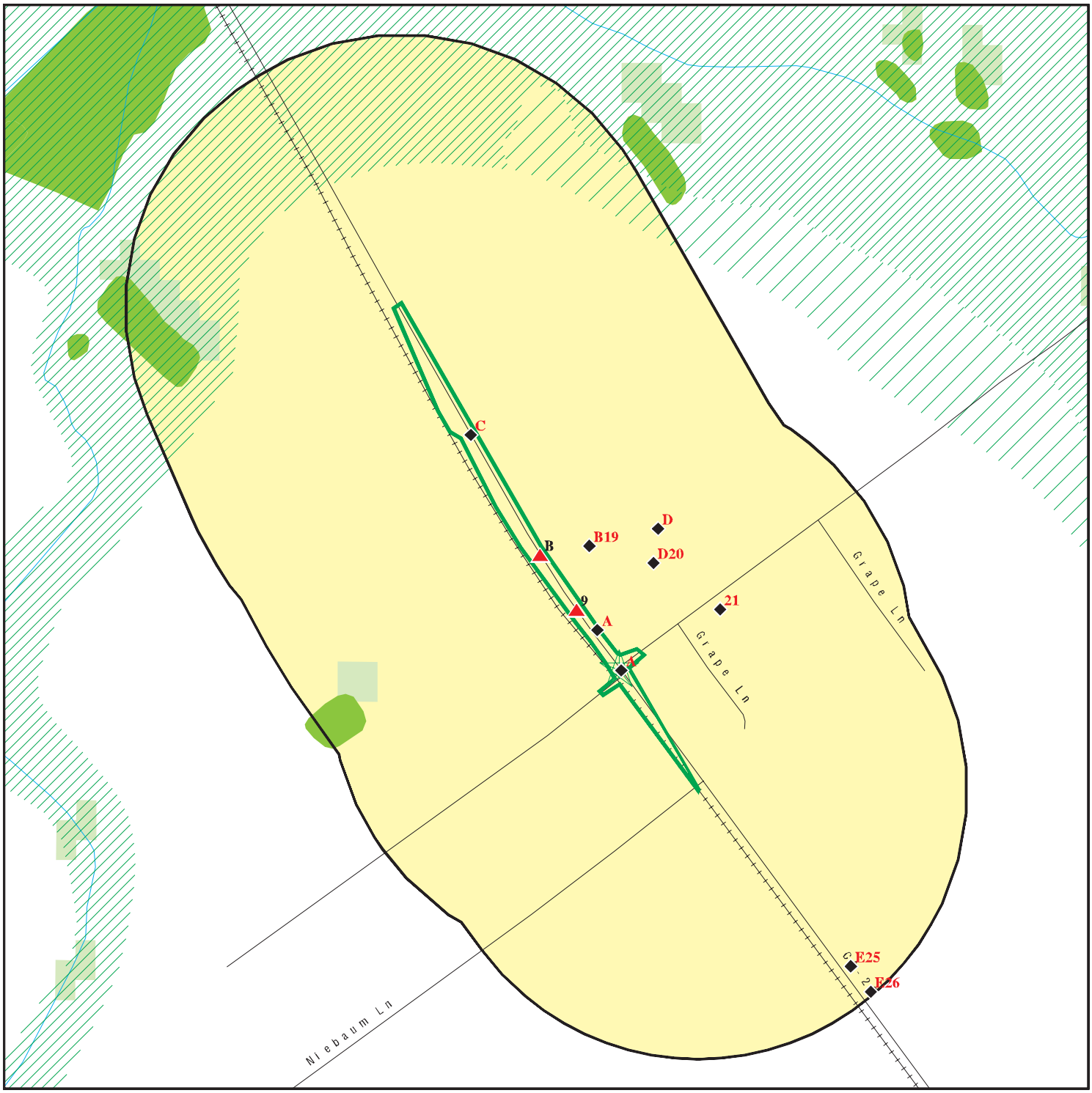
DETAIL MAP - 7133544.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/8 1/4 1/2 Miles

- Indian Reservations BIA
- 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:	SR-29/Rutherford Road	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7133544.2s
LAT/LONG:	38.45876 / 122.422787	DATE:	September 29, 2022 1:43 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								
Lists of Federal NPL (Superfund) sites								
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
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		1	0	0	NR	NR	1
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
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 CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		1	NR	NR	NR	NR	1
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		1	0	1	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		2	0	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield 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	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	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	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		1	0	NR	NR	NR	1
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
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		1	1	NR	NR	NR	2
HIST UST	0.250		1	0	NR	NR	NR	1
CA FID UST	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
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		1	NR	NR	NR	NR	1
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		1	1	NR	NR	NR	2
FUDS	1.000		0	0	0	0	NR	0
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		6	NR	NR	NR	NR	6
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		1	NR	NR	NR	NR	1
DOCKET HWC	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
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		1	0	0	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		1	NR	NR	NR	NR	1
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		4	NR	NR	NR	NR	4
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		1	0	0	NR	NR	1
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		1	NR	NR	NR	NR	1
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		1	NR	NR	NR	NR	1
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		2	NR	NR	NR	NR	2
CERS	0.001		3	NR	NR	NR	NR	3
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
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		2	NR	NR	NR	NR	2
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	33	2	1	0	0	36

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

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **BAULIEU VINEYARDS** **HAZNET** **S112905808**
HWY 29 & RUTHERFORD ST **HWTS** **N/A**
< 1/8 **RUTHERFORD, CA 0**
1 ft.

Site 1 of 10 in cluster A

Relative: **Lower**

Actual: **174 ft.**

HAZNET:

Name:	BAULIEU VINEYARDS
Address:	HWY 29 & RUTHERFORD ST
Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 000000000
Contact:	TIM ALLEN
Telephone:	7079675201
Mailing Name:	Not reported
Mailing Address:	PO BOX 219
Year:	1999
Gepaid:	CAC002228977
TSD EPA ID:	CAL000161743
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H01 - Transfer Station
Tons:	0.21

Additional Info:

Year:	1999
Gen EPA ID:	CAC002228977
Shipment Date:	19990726
Creation Date:	9/1/1999 0:00:00
Receipt Date:	19990728
Manifest ID:	98709955
Trans EPA ID:	CAL000188867
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAL000161743
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.21
Waste Quantity:	50
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	BAULIEU VINEYARDS
Address:	HWY 29 & RUTHERFORD ST
Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 0

BAULIEU VINEYARDS (Continued) **S112905808**

EPA ID:	CAC002228977
Inactive Date:	10/25/2000
Create Date:	07/26/1999
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	PO BOX 219
Mailing Address 2:	Not reported
Mailing City,State,Zip:	RUTHERFORD, CA 945730000
Owner Name:	BAULIEU VINEYARDS
Owner Address:	PO BOX 219
Owner Address 2:	Not reported
Owner City,State,Zip:	RUTHERFORD, CA 945730000
Contact Name:	TIM ALLEN
Contact Address:	PO BOX 219
Contact Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 945730000
Facility Status:	Inactive
Facility Type:	TEMPORARY
Category:	STATE
Latitude:	38.458719
Longitude:	-122.422752

A2 **LONG MEADOW RANCH RUTHERFORD ESTATE** **CERS** **S122492129**
1796 ST HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 2 of 10 in cluster A

Relative: Higher
Actual: 175 ft.

CERS:

Name:	LONG MEADOW RANCH RUTHERFORD ESTATE
Address:	1796 ST HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Site ID:	439713
CERS ID:	10765984
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-20-2018
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Not reported
Eval Division:	Napa County Department of Environmental Management
Eval Program:	HMRRP
Eval Source:	CERS,

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	07-20-2021
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	No signature obtained due to COVID-19 safety.
Eval Division:	Napa County Department of Environmental Management
Eval Program:	HMRRP
Eval Source:	CERS,

Affiliation:

Affiliation Type Desc:	CUPA District
Entity Name:	Napa County Env Mgmt

LONG MEADOW RANCH RUTHERFORD ESTATE (Continued) **S122492129**

Entity Title:	Not reported
Affiliation Address:	1195 Third Street, Suite 210
Affiliation City:	Napa
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94559
Affiliation Phone:	(707) 253-4417,
Affiliation Type Desc:	Document Preparer
Entity Name:	Joe Hardin
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:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	Joe Hardin
Entity Title:	Director of Agricultural Operations
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Operator
Entity Name:	Joseph Hardin
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:	(707) 287-8146,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	PO box 477
Affiliation City:	Rutherford
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94573
Affiliation Phone:	,
Affiliation Type Desc:	Environmental Contact
Entity Name:	Joseph Hardin
Entity Title:	Not reported
Affiliation Address:	PO box 477
Affiliation City:	RUTHERFORD
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94573
Affiliation Phone:	,

LONG MEADOW RANCH RUTHERFORD ESTATE (Continued) **S122492129**

Affiliation Type Desc:	Legal Owner
Entity Name:	LMR Wine Estates LLC
Entity Title:	Not reported
Affiliation Address:	PO box 477
Affiliation City:	Rutherford
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	94573
Affiliation Phone:	(707) 963-4555,

Affiliation Type Desc:	Parent Corporation
Entity Name:	Long Meadow Ranch Rutherford Estate
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:	,

A3 **TRAINA VINEYARD** **FINDS** **1016425685**
7738 ST HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 3 of 10 in cluster A

Relative: **Higher**
Actual: **175 ft.**

FINDS:
Registry ID: 110055749310

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A4 **1X ST. HELENA WINERY** **HAZNET** **S123727044**
8440 ST. HELENA HWY **HWTS** **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 4 of 10 in cluster A

Relative: **Higher**
Actual: **175 ft.**

HAZNET:

Name:	1X ST. HELENA WINERY
Address:	8440 ST. HELENA HWY
Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 945730000
Contact:	KOLFORD, KRISTI - ASST WINE MA
Telephone:	7079634507
Mailing Name:	Not reported
Mailing Address:	PO BOX 38
Year:	1990
Gepaid:	CAC000284761
TSD EPA ID:	TND000645770
CA Waste Code:	181 - Other inorganic solid waste

1X ST. HELENA WINERY (Continued) **S123727044**

Disposal Method: -
Tons: 0

HWTS:
Name: 1X ST. HELENA WINERY
Address: 8440 ST. HELENA HWY
Address 2: Not reported
City,State,Zip: RUTHERFORD, CA 94573
EPA ID: CAC000284761
Inactive Date: 10/25/2000
Create Date: 05/24/1990
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: PO BOX 38
Mailing Address 2: Not reported
Mailing City,State,Zip: RUTHERFORD, CA 945730000
Owner Name: SKALLI CORP.
Owner Address: Not reported
Owner Address 2: Not reported
Owner City,State,Zip: Not reported
Contact Name: KOLFORD, KRISTI - ASST WINE MA
Contact Address: Not reported
Contact Address 2: Not reported
City,State,Zip: Not reported
Facility Status: Inactive
Facility Type: TEMPORARY
Category: STATE
Latitude: 38.45867
Longitude: -122.422712

A5 **NIEBAUM COPPOLA ESTATE WINERY** **FINDS** **1023251781**
1991 ST HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 5 of 10 in cluster A

Relative: Higher

Actual: 175 ft.

FINDS:
Registry ID: 110071048324

Click Here for FRS Facility Detail Report:

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.
Registry ID: 110065404672

Click Here for FRS Facility Detail Report:

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

NIEBAUM COPPOLA ESTATE WINERY (Continued) **1023251781**

program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
OSHA ESTABLISHMENT
STATE MASTER

~~Click this hyperlink~~ while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

B6 **JIM S AUTO REPAIR** **EDR Hist Auto** **1009020328**
2528 SAINT HELENA HWY **N/A**
< 1/8 **NAPA, CA**
1 ft.

Site 1 of 3 in cluster B

Relative: Higher EDR Hist Auto

Actual: 175 ft.

Year:	Name:	Type:
1965	JIM S AUTO REPAIR	AUTOMOBILE REPAIRING
1970	JIM S AUTO REPAIR	AUTOMOBILE REPAIRING
1975	JIM S AUTO REPAIR	AUTOMOBILE REPAIRING

B7 **SALVADOR SIGNAL SERVICE** **EDR Hist Auto** **1009020575**
2526 SAINT HELENA HWY N **N/A**
< 1/8 **NAPA, CA**
1 ft.

Site 2 of 3 in cluster B

Relative: Higher EDR Hist Auto

Actual: 175 ft.

Year:	Name:	Type:
1954	SALVADOR SIGNAL SERVICE	GASOLINE STATIONS

A8 **BEAULIEU VINEYARD** **HAZNET** **S123763077**
1960 ST HELENA HWY **HWTS** **N/A**
< 1/8 **RUTHERFORD, CA 0**
1 ft.

Site 6 of 10 in cluster A

Relative: Lower HAZNET:

Actual: 174 ft.

Name:	BEAULIEU VINEYARD
Address:	1960 ST HELENA HWY
Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 000000000
Contact:	INACT PER SURVEY 1-12-95 MB
Telephone:	--
Mailing Name:	Not reported
Mailing Address:	1960 ST HELENA HWY PO BOX 329
Year:	1990
Gepaid:	CAL000002429
TSD EPA ID:	CAD004771168
CA Waste Code:	512 - Other empty containers 30 gallons or more
Disposal Method:	R01 - Recycler
Tons:	0.275
Year:	1990

BEAULIEU VINEYARD (Continued) **S123763077**

Gepaid: CAL000002429
TSD EPA ID: CAD004771168
CA Waste Code: 135 - Unspecified aqueous solution
Disposal Method: R01 - Recycler
Tons: 4.587

Year: 1990
Gepaid: CAL000002429
TSD EPA ID: CAD000628149
CA Waste Code: 181 - Other inorganic solid waste
Disposal Method: H01 - Transfer Station
Tons: 0.2293

Year: 1989
Gepaid: CAL000002429
TSD EPA ID: CAD990794133
CA Waste Code: -
Disposal Method: 03 -
Tons: 0

Year: 1989
Gepaid: CAL000002429
TSD EPA ID: CAD059494310
CA Waste Code: 561 - Detergent waste chemicals
Disposal Method: 99 -
Tons: 0.4586

Year: 1989
Gepaid: CAL000002429
TSD EPA ID: CAD059494310
CA Waste Code: 181 - Other inorganic solid waste
Disposal Method: 99 -
Tons: 0

Year: 1989
Gepaid: CAL000002429
TSD EPA ID: CAD059494310
CA Waste Code: 214 - Unspecified solvent mixture
Disposal Method: 99 -
Tons: 0.4587

HWTS:
Name: BEAULIEU VINEYARD
Address: 1960 ST HELENA HWY
Address 2: Not reported
City,State,Zip: RUTHERFORD, CA 0
EPA ID: CAL000002429
Inactive Date: 01/01/1995
Create Date: 11/14/1989
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 1960 ST HELENA HWY PO BOX 329
Mailing Address 2: Not reported
Mailing City,State,Zip: RUTHERFORD, CA 945730000
Owner Name: HEUBLEIN INC
Owner Address: Not reported

BEAULIEU VINEYARD (Continued) **S123763077**

Owner Address 2:	Not reported
Owner City,State,Zip:	Not reported
Contact Name:	INACT PER SURVEY 1-12-95 MB
Contact Address:	Not reported
Contact Address 2:	Not reported
City,State,Zip:	Not reported
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	STATE
Latitude:	38.459264
Longitude:	-122.423162

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9 **WCI, FAW, MW WASTEWATER POND SYSTEM** **CIWQS S121690520**
2812 ST. HELENA HIGHWAY **CERS N/A**
< 1/8 **ST. HELENA, CA 94574**
1 ft.

Relative: Higher
Actual: 175 ft.

CIWQS:

Name:	WCI, FAW, MW WASTEWATER POND SYSTEM
Address:	2812 ST. HELENA HIGHWAY
City,State,Zip:	ST. HELENA, CA 94574
Agency:	Freemark Abbey Winery .. (CWMS member)
Agency Address:	Po Box 410, St Helena, CA 94574
Place/Project Type:	Other
SIC/NAICS:	2084
Region:	2
Program:	WDRMUNIOTH
Regulatory Measure Status:	Historical
Regulatory Measure Type:	WDR
Order Number:	98-064-02
WDID:	2 283088001
NPDES Number:	Not reported
Adoption Date:	07/15/1998
Effective Date:	07/15/1998
Termination Date:	07/15/1998
Expiration/Review Date:	07/15/1998
Design Flow:	0.015
Major/Minor:	Not reported
Complexity:	C
TTWQ:	3
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.459539
Longitude:	-122.42352

CERS:

Name:	WCI, FAW, MW WASTEWATER POND SYSTEM
Address:	2812 ST. HELENA HIGHWAY
City,State,Zip:	ST. HELENA, CA 94574
Site ID:	332812
CERS ID:	271776
CERS Description:	Waste Discharge Requirements

A10 **OLIVER RANCH** **FINDS** **1016437137**
7554 SAINT HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 7 of 10 in cluster A

Relative: FINDS:
Higher Registry ID: 110055905908

Actual:
175 ft. Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A11 **ST. SUPERY WINERY** **FINDS** **1016419017**
8440 SAINT HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 8 of 10 in cluster A

Relative: FINDS:
Higher Registry ID: 110055656044

Actual:
175 ft. Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

C12 **NIEBAUM COPPOLA ESTATE WINERY** **HAZNET** **S106101858**
1991 ST HELENA HWY **NPDES** **N/A**
< 1/8 **RUTHERFORD, CA 94573** **WDS**
1 ft. **CIWQS**
CERS

Site 1 of 5 in cluster C

Relative: HAZNET:
Lower

Name:	NIEBAUM COPPOLA ESTATE WINERY
Address:	1991 ST HELENA HWY
Address 2:	Not reported
City,State,Zip:	RUTHERFORD, CA 94573
Contact:	GREG QUIRICI
Telephone:	7072005879
Mailing Name:	Not reported
Mailing Address:	PO BOX 208
Year:	2021
Gepaid:	CAL000257707
TSD EPA ID:	UTD981552177
CA Waste Code:	141 - Off-specification, aged or surplus inorganics
Disposal Method:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons:	0.05
Year:	2021
Gepaid:	CAL000257707
TSD EPA ID:	NED981723513
CA Waste Code:	331 - Off-specification, aged or surplus organics

Actual:
172 ft.

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Disposal Method: H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons: 3.4

Year: 2021
Gepaid: CAL000257707
TSD EPA ID: CAD059494310
CA Waste Code: 212 - Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.01

Year: 2021
Gepaid: CAL000257707
TSD EPA ID: NED981723513
CA Waste Code: 141 - Off-specification, aged or surplus inorganics
Disposal Method: H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons: 0.1

Year: 2018
Gepaid: CAL000257707
TSD EPA ID: CAD059494310
CA Waste Code: 352 - Other organic solids
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.20000

Year: 2015
Gepaid: CAL000257707
TSD EPA ID: AZD049318009
CA Waste Code: 551 - Laboratory waste chemicals
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.0035

Year: 2015
Gepaid: CAL000257707
TSD EPA ID: UTD981552177
CA Waste Code: 551 - Laboratory waste chemicals
Disposal Method: H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Tons: 0.039

Year: 2011
Gepaid: CAL000257707
TSD EPA ID: CAD980884183
CA Waste Code: 791 - Liquids with pH <= 2
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.0075

Year: 2011
Gepaid: CAL000257707
TSD EPA ID: CAD980884183
CA Waste Code: 331 - Off-specification, aged or surplus organics
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 2.3325

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Detail Two:

Year:	2018
EM Manifest ID:	006306496SKS20180209_D_1
Shipment Date:	2/9/2018
Receipt Date:	3/2/2018
Manifest Number:	006306496SKS
Generator EPA ID:	CAL000257707
Name:	NIEBAUM COPPOLA ESTATE WINERY
Address:	Not reported
Address 2:	Not reported
City:	Not reported
Zip:	Not reported
Telephone:	Not reported
Contact:	Not reported
Contact Telephone:	Not reported
Transporter 1 EPA ID:	TXR000081205
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	MAD039322250
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	CAD059494310
TSDF Name:	CLEAN HARBORS SAN JOSE
TSDF Address 1:	Not reported
TSDF Address 2:	Not reported
TSDF City:	Not reported
TSDF Zip:	Not reported
TSDF Telephone:	Not reported

State:

Year:	2018
EM Manifest ID:	006306496SKS20180209_D_1
Generator EPA ID:	CAL000257707
Shipment Date:	2018-02-09
Manifest Number:	006306496SKS
Line Number:	1
Method Code:	H141
Quantity Tons:	0.20000
Quantity Waste:	400.000000
Quantity Unit:	P
Number of Containers:	2
Type of Container:	NULL
Quantity Type:	NULL
State Code:	352

Additional Info:

Year:	2015
Gen EPA ID:	CAL000257707
Shipment Date:	20151022
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	008745896FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	UTD981552177

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D002
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.0335
Waste Quantity:	67
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151022
Creation Date:	5/4/2016 22:15:36
Receipt Date:	20151103
Manifest ID:	008745896FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D001
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.003
Waste Quantity:	6
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151022
Creation Date:	6/11/2016 18:30:14
Receipt Date:	20151113
Manifest ID:	008745897FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	AZD049318009
Trans Name:	CLEAN HARBORS ARIZONA LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D009
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.0035
Waste Quantity:	7

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Quantity Unit:	P
Additional Code 1:	D002
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151022
Creation Date:	5/4/2016 22:15:36
Receipt Date:	20151103
Manifest ID:	008745896FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D002
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.0095
Waste Quantity:	19
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151022
Creation Date:	5/4/2016 22:15:36
Receipt Date:	20151103
Manifest ID:	008745896FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	D002
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.0175
Waste Quantity:	35
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151022
Creation Date:	5/4/2016 22:15:36

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Receipt Date:	20151103
Manifest ID:	008745896FLE
Trans EPA ID:	MAD039322250
Trans Name:	CLEAN HARBORS ENVIRONMENTAL SERVICE INC
Trans 2 EPA ID:	AZR000513770
Trans 2 Name:	SLT
TSDF EPA ID:	UTD981552177
Trans Name:	CLEAN HARBORS ARAGONITE LLC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	551 - Laboratory waste chemicals 561 Detergent and soap
RCRA Code:	Not reported
Meth Code:	H040 - Incineration--Thermal Destruction Other Than Use As A Fuel
Quantity Tons:	0.009
Waste Quantity:	18
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2011
Gen EPA ID:	CAL000257707
Shipment Date:	20110707
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP
Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	343 - Unspecified organic liquid mixture
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.135
Waste Quantity:	270
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20110707
Creation Date:	Not reported
Receipt Date:	Not reported
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D035
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.155
Waste Quantity:	310
Quantity Unit:	P
Additional Code 1:	D001
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20110707
Creation Date:	6/24/2012 20:30:07
Receipt Date:	20110720
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP
Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D001
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.045
Waste Quantity:	90
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20110707
Creation Date:	6/24/2012 20:30:07
Receipt Date:	20110720
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP
Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	791 - Liquids with pH < 2 792 Liquids with pH < 2 with metals

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

RCRA Code:	D002
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.0075
Waste Quantity:	15
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20110707
Creation Date:	6/24/2012 20:30:07
Receipt Date:	20110720
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP
Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	D035
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	2.275
Waste Quantity:	4550
Quantity Unit:	P
Additional Code 1:	D001
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20110707
Creation Date:	6/24/2012 20:30:07
Receipt Date:	20110720
Manifest ID:	000025814DAT
Trans EPA ID:	CAR000210617
Trans Name:	21ST CENTURY ENVIRONMENTAL MANAGEMENT OF CALIFORNIA LP
Trans 2 EPA ID:	CAR000179382
Trans 2 Name:	ENV ENVIRONMENTAL INTERNATIONAL INC
TSDF EPA ID:	CAD980884183
Trans Name:	GENERAL ENVIRONMENTAL MGT LLC DBA PSC ENVIRONMENTAL SERVICES
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.0125
Waste Quantity:	25
Quantity Unit:	P
Additional Code 1:	Not reported

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

NPDES:

Name:	NIEBAUM COPPOLA ESTATE WINERY LP DBA INGLENOOK
Address:	1991 ST HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Facility Status:	Active
NPDES Number:	CAS000001
Region:	2
Agency Number:	0
Regulatory Measure ID:	182459
Place ID:	Not reported
Order Number:	97-03-DWQ
WDID:	2 28I014098
Regulatory Measure Type:	Enrollee
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	06/10/1998
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	1991 St Helena Highway PO Box 208
Discharge Name:	Niebaum Coppola Estate Winery LP
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	2
Regulatory Measure ID:	182459
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	2 28I014098
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

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Processed Date:	06/10/1998
Status:	Active
Status Date:	06/10/1998
Place Size:	1800
Place Size Unit:	Acres
Contact:	Taylor Smith
Contact Title:	Production and Packaging Administrator
Contact Phone:	707-968-1181
Contact Phone Ext:	Not reported
Contact Email:	taylor.smith@inglenook.com
Operator Name:	Niebaum Coppola Estate Winery LP
Operator Address:	1991 St Helena Highway
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573
Operator Contact:	Kristen Sullivan
Operator Contact Title:	Not reported
Operator Contact Phone:	707-968-1181
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	kristen.sullivan@inglenook.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:	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:	N
Receiving Water Name:	Bear Creek
Certifier:	Kristen Sullivan
Certifier Title:	Chief Financial Officer
Certification Date:	27-MAY-15
Primary Sic:	2084-Wines, Brandy, and Brandy Spirits
Secondary Sic:	Not reported
Tertiary Sic:	Not reported
NPDES Number:	CAS000001

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Status:	Active
Agency Number:	0
Region:	2
Regulatory Measure ID:	182459
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	2 28I014098
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	06/10/1998
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Niebaum Coppola Estate Winery LP
Discharge Address:	1991 St Helena Highway PO Box 208
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

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
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Name:	NIEBAUM COPPOLA WINERY
Address:	1991 ST HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
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:	2 28C369088
Regulatory Measure Type:	Construction
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:	Terminated
Status Date:	12/06/2016
Operator Name:	Niebaum Coppola Estate Winery LP
Operator Address:	1991 St Helena Hwy
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573

NPDES as of 03/2018:

NPDES Number:	CAS000002
Status:	Terminated
Agency Number:	0
Region:	2
Regulatory Measure ID:	444635
Order Number:	2009-0009-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

WDID:	2 28C369088
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	03/05/2014
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	11/09/2016
Discharge Name:	Niebaum Coppola Estate Winery LP
Discharge Address:	1991 St Helena Hwy
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

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:	2
Regulatory Measure ID:	444635
Order Number:	Not reported
Regulatory Measure Type:	Construction
Place ID:	Not reported
WDID:	2 28C369088
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:	11/09/2016
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Received Date:	02/28/2014
Processed Date:	03/05/2014
Status:	Terminated
Status Date:	12/06/2016
Place Size:	1.4
Place Size Unit:	Acres
Contact:	John Polley
Contact Title:	Director of Facilities & Maintenance
Contact Phone:	707-967-7157
Contact Phone Ext:	Not reported
Contact Email:	john.polley@inglenook.com
Operator Name:	Niebaum Coppola Estate Winery LP
Operator Address:	1991 St Helena Hwy
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573
Operator Contact:	Rick Keller
Operator Contact Title:	Facility Manager
Operator Contact Phone:	707-967-7148
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	rick.keller@Inglenook.com
Operator Type:	Private Business
Developer:	Niebaum Coppola Estate Winery LP
Developer Address:	1991 St Helena Hwy
Developer City:	Rutherford
Developer State:	California
Developer Zip:	94573

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Developer Contact:	Rick Keller
Developer Contact Title:	Director of Facilities & Maintenance
Constype Linear Utility Ind:	N
Emergency Phone:	707-738-3616
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	N
Constype Below Ground Ind:	N
Constype Cable Line Ind:	N
Constype Comm Line Ind:	N
Constype Commertial Ind:	N
Constype Electrical Line Ind:	N
Constype Gas Line Ind:	N
Constype Industrial Ind:	N
Constype Other Description:	Not reported
Constype Other Ind:	N
Constype Recons Ind:	N
Constype Residential Ind:	N
Constype Transport Ind:	N
Constype Utility Description:	Not reported
Constype Utility Ind:	N
Constype Water Sewer Ind:	N
Dir Discharge Uswater Ind:	N
Receiving Water Name:	Napa River
Certifier:	Rick Keller
Certifier Title:	Director of Facilities
Certification Date:	05-JAN-15
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Name:	NIEBAUM COPPOLA ESTATE WINERY LP DBA INGLENOOK
Address:	1991 ST HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
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:	2 28I014098
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:	06/10/1998
Operator Name:	Niebaum Coppola Estate Winery LP
Operator Address:	1991 St Helena Highway PO Box 208

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573

NPDES as of 03/2018:

NPDES Number:	Not reported
Status:	Not reported
Agency Number:	Not reported
Region:	2
Regulatory Measure ID:	182459
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	2 28I014098
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:	06/10/1998
Status:	Active
Status Date:	06/10/1998
Place Size:	1800
Place Size Unit:	Acres
Contact:	Taylor Smith
Contact Title:	Production and Packaging Administrator
Contact Phone:	707-968-1181
Contact Phone Ext:	Not reported
Contact Email:	taylor.smith@inglenook.com
Operator Name:	Niebaum Coppola Estate Winery LP
Operator Address:	1991 St Helena Highway
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573
Operator Contact:	Kristen Sullivan
Operator Contact Title:	Not reported
Operator Contact Phone:	707-968-1181
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	kristen.sullivan@inglenook.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:	Not reported
Emergency Phone Ext:	Not reported
Constype Above Ground Ind:	Not reported
Constype Below Ground Ind:	Not reported

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

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:	Bear Creek
Certifier:	Kristen Sullivan
Certifier Title:	Chief Financial Officer
Certification Date:	27-MAY-15
Primary Sic:	2084-Wines, Brandy, and Brandy Spirits
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

NPDES Number:	CAS000001
Status:	Active
Agency Number:	0
Region:	2
Regulatory Measure ID:	182459
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	2 28I014098
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	06/10/1998
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Niebaum Coppola Estate Winery LP
Discharge Address:	1991 St Helena Highway PO Box 208
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

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
Certification Date:	Not reported
Primary Sic:	Not reported
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

WDS:

Name:	NIEBAUM COPPOLA ESTATE WINERY
Address:	1991 ST HELENA HWY
City:	RUTHERFORD
Facility ID:	San Francisco Bay 28I014098
Facility Type:	Not reported
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	2
Facility Telephone:	Not reported
Facility Contact:	Not reported
Agency Name:	NIEBAUM COPPOLA ESTATE WINERY

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Agency Address:	Not reported
Agency City,St,Zip:	0
Agency Contact:	Not reported
Agency Telephone:	Not reported
Agency Type:	Not reported
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Not reported
Primary Waste:	Not reported
Waste Type2:	Not reported
Waste2:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CIWQS:

Name:	NIEBAUM COPPOLA WINERY
Address:	1991 ST HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Agency:	Niebaum Coppola Estate Winery LP
Agency Address:	1991 St Helena Hwy, Rutherford, CA 94573
Place/Project Type:	Construction
SIC/NAICS:	Not reported
Region:	2
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	2 28C369088
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	03/05/2014
Termination Date:	11/09/2016
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	38.45857

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Longitude: -122.42364

CERS:
Name: NIEBAUM COPPOLA ESTATE WINERY LP DBA INGLENOOK
Address: 1991 ST HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Site ID: 537922
CERS ID: 244332
CERS Description: Industrial Facility Storm Water

Violations:
Site ID: 537922
Site Name: Niebaum Coppola Estate Winery LP DBA Inglenook
Violation Date: 07-02-1999
Citation: 2014-0057-DWQ - Industrial General Permit
Violation Description: SW - Deficient Report
Violation Notes: Non-submittal of Annual Report. Due 7//1/1999
Violation Division: Water Boards
Violation Program: INDSTW
Violation Source: SMARTS,

Evaluation:
Eval General Type: Other/Unknown
Eval Date: 01-16-2003
Violations Found: No
Eval Type: Construction Storm Water Compliance Evaluation
Eval Notes: Not reported
Eval Division: Water Boards
Eval Program: INDSTW
Eval Source: SMARTS,

Eval General Type: Complaint Inspection
Eval Date: 10-18-2002
Violations Found: No
Eval Type: Industrial Storm Water Complaint Inspection
Eval Notes: Not reported
Eval Division: Water Boards
Eval Program: INDSTW
Eval Source: SMARTS,

Enforcement Action:
Site ID: 537922
Site Name: Niebaum Coppola Estate Winery LP DBA Inglenook
Site Address: 1991 ST HELENA HWY
Site City: RUTHERFORD
Site Zip: 94573
Enf Action Date: 01-15-2003
Enf Action Type: Notice of Violation
Enf Action Description: Notice of Violation
Enf Action Notes: NOV requires removal of dirt piles, erosion control and 401 cert
Enf Action Division: Water Boards
Enf Action Program: INDSTW
Enf Action Source: SMARTS,

Affiliation:
Affiliation Type Desc: Owner/Operator

NIEBAUM COPPOLA ESTATE WINERY (Continued) **S106101858**

Entity Name:	Niebaum Coppola Estate Winery LP
Entity Title:	Operator
Affiliation Address:	1991 St Helena Highway PO Box 208
Affiliation City:	Rutherford
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94573
Affiliation Phone:	,

C13 **ERNS** **2008876949**
1960 SAINT HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 2 of 5 in cluster C

Relative: **Lower**
Actual: **172 ft.**

Incident Commons:

NRC Report #:	876949
Description of Incident:	THE CALLER REPORTED THAT A OIL SAFETY SWITCH CAPILLARY TUBE ON A REFRIGERATION UNIT DEVELOPED A FRACTURE DUE TO VIBRATION.
Type of Incident:	FIXED
Incident Cause:	EQUIPMENT FAILURE
Incident Date Time:	2008-06-19 08:00:00
Incident DTG:	DISCOVERED
Incident Location:	Not reported
Loaction Address:	1960 SAINT HELENA HWY
Location Street 1:	Not reported
Location Street 2:	Not reported
Location Nearest City:	RUTHERFORD
Location State:	CA
Location County:	NAPA
Location Zip:	94573
Distance From City:	Not reported
Distance Units:	Not reported
Direction From City:	Not reported
Lat Deg:	Not reported
Lat Min:	Not reported
Lat Sec:	Not reported
Lat Quad:	Not reported
Long Deg:	Not reported
Long Min:	Not reported
Long Sec:	Not reported
Long Quad:	Not reported
Location Section:	Not reported
Location Township:	Not reported
Location range:	Not reported
Potential Range:	N

Incidents:

NRC Report #:	876949
Aircraft Type:	Not reported
Aircraft Model:	Not reported
Aircraft ID:	Not reported
Aircraft Fuel Capacity:	Not reported
Aircraft Fuel Capacity Units:	Not reported
Aircraft Fuel on Board:	Not reported
Aircraft Fuel on Board Units:	Not reported
Aircraft Spot Number:	Not reported

(Continued) **2008876949**

Aircraft Hanger:	Not reported
Aircraft Runway Number:	Not reported
Road Mile Marker:	Not reported
Building ID:	Not reported
Type of Fixed Object:	OTHER
Power Generating Facility:	U
Generating Capacity:	Not reported
Type of Fuel:	Not reported
NPDES:	Not reported
NPDES Compliance:	U
Pipeline Type:	Not reported
DOT Regulated:	U
Pipeline Above Ground:	ABOVE
Exposed Underwater:	N
Pipeline Covered:	U
Railroad Hotline:	Not reported
Grade Crossing:	U
Location Subdivision:	Not reported
Railroad Milepost:	Not reported
Type Vehicle Involved:	Not reported
Crossing Device Type:	Not reported
Device Operational:	Y
DOT Crossing Number:	Not reported
Brake Failure:	U
Description of Tank:	Not reported
Tank Above Ground:	ABOVE
Transportable Container:	U
Tank Regulated:	U
Tank Regulated By:	Not reported
Tank ID:	Not reported
Capacity of Tank:	Not reported
Capacity of Tank Units:	Not reported
Actual Amount:	Not reported
Actual Amount Units:	Not reported
Platform Rig Name:	Not reported
Platform Letter:	Not reported
Location Area ID:	Not reported
Location Block ID:	Not reported
OCSG Number:	Not reported
OCSP Number:	Not reported
State Lease Number:	Not reported
Pier Dock Number:	Not reported
Berth Slip Number:	Not reported
Continuous Release Type:	Not reported
Initial Continuous Release No:	Not reported
Continuous Release Permit:	Not reported
Allision:	U
Type of Structure:	Not reported
Structure Name:	Not reported
Structure Operational:	U
Airbag Deployed:	U
Date Tiem Normal Service:	Not reported
Service Disruption Time:	Not reported
Service Disruption Units:	Not reported
Transit Bus Flag:	Not reported
CR Begin Date:	Not reported
CR End Date:	Not reported

(Continued) **2008876949**

CR Change Date:	Not reported
FBI Contact:	Not reported
FBI Contact Date Time:	Not reported
Sub Part C Testing Req:	XXX
Conductor Testing:	Not reported
Engineer Testing:	Not reported
Trainman Testing:	Not reported
Yard Foreman Testing:	Not reported
RCL Operator Testing:	Not reported
Brakeman Testing:	Not reported
Train Dispatcher Testing:	Not reported
Signalman Testing:	Not reported
Other Employee Testing:	Not reported
Unknown Testing:	Not reported
Passenger Handling:	Not reported
Passenger Route:	XXX
Passenger Delay:	XXX

Incident Details:

NRC Report #:	876949
Fire Involved:	N
Fire Extinguished:	U
Any Evacuations:	N
Number Evacuated:	Not reported
Who Evacuated:	Not reported
Radius of Evacuation:	Not reported
Any Injuries:	N
Number Injured:	Not reported
Number Hospitalized:	Not reported
Any Fatalities:	N
Number Fatalities:	Not reported
Any Damages:	N
Damage Amount:	Not reported
Air Corridor Closed:	N
Air Corridor Desc:	Not reported
Air Closure Time:	Not reported
Waterway Closed:	N
Waterway Desc:	Not reported
Waterway Closure Time:	Not reported
Road Closed:	N
Road Desc:	Not reported
Road Closure Time:	Not reported
Closure Direction:	Not reported
Major Artery:	N
Track Closed:	N
Track Desc:	Not reported
Track Closure Time:	Not reported
Media Interest:	NONE
Medium Desc:	AIR
Additional Medium Info:	Not reported
Body of Water:	Not reported
Tributary of:	Not reported
Release Secured:	Y
Estimated Duration of Release:	Not reported
Release rate:	Not reported
Desc Remedial Action:	REPLACED THE SWITCH AND TUBING.
State Agency on Scene:	NONE

(Continued) **2008876949**

State Agency Report Number:	NONE
Other Agency Notified:	Not reported
Weather Conditions:	CLEAR
Air Temperature:	Not reported
Wind Speed:	Not reported
Wind Direction:	Not reported
Water Supply Contaminated:	U
Sheen Size:	Not reported
Sheen Color:	Not reported
Direction of Sheen Travel:	Not reported
Sheen Odor Description:	Not reported
Wave Condition:	Not reported
Current Speed:	Not reported
Current Direction:	Not reported
Water Temperature:	Not reported
Track Close Dir:	Not reported
Empl Fatality:	Not reported
Pass Fatality:	Not reported
Community Impact:	Not reported
Wind Speed Unit:	Not reported
Employee Injuries:	Not reported
Passenger Injuries:	Not reported
Occupant Fatality:	Not reported
Current Speed Unit:	Not reported
Road Closure Units:	Not reported
Track CLosure Units:	Not reported
Sheen Size Units:	Not reported
Additional Info:	CALLER WILL NOTIFY THE OES, LOCAL ENVIRONMENTAL MANAGEMENT AGENCY.
State Agency Notified:	NONE
Federal Agency Notified:	NONE
nearest River Mile Marker:	Not reported
Sheen Size Length:	Not reported
Sheen Size Length Units:	Not reported
Sheen Size Width:	Not reported
Sheen Size Width Units:	Not reported
Offshore:	N
Duration Unit:	Not reported
Release Rate Unit:	Not reported
Release Rate Rate:	Not reported
Passengers Transferred:	NO

Calls:

NRC Report #:	876949
Site ID:	2008876949
Date Time Received:	2008-07-11 15:38:58
Date Time Complete:	2008-07-11 15:46:32
Call Type:	INC
Responsible Company:	BEAULIEU VINEYARD
Responsible Org Type:	PRIVATE ENTERPRISE
Responsible City:	RUTHERFORD
Responsible State:	CA
Responsible Zip:	94573
On Behalf:	N
Source:	TELEPHONE

Material Involved:

(Continued) **2008876949**

NRC Report #:	876949
Chris Code:	RFG
Case Number:	000000-00-0
UN Number:	Not reported
Amount of Material:	30
Unit of Measure:	POUND(S)
Name of Material:	REFRIGERANT GASES (R-22)
If Reached Water:	NO
Amount in Water:	Not reported
Unit of Measure Reach Water:	Not reported

C14 **JACKSON FAMILY WINES - FREEMARK ABBEY** **FINDS 1024611834**
2030 ST. HELENA HWY **ECHO N/A**
< 1/8 **SAINT HELENA, CA 94574**
1 ft.

Site 3 of 5 in cluster C

Relative: Lower
Actual: 172 ft.

FINDS:
Registry ID: 110070400221

Click Here for FRS Facility Detail Report:

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:	1024611834
Registry ID:	110070400221
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110070400221
Name:	JACKSON FAMILY WINES - FREEMARK ABBEY
Address:	2030 ST. HELENA HWY
City,State,Zip:	SAINT HELENA, CA 94574

A15 **CAKEBREAD VINEYARD** **FINDS 1016430632**
8300 SAINT HELENA HWY **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 9 of 10 in cluster A

Relative: Higher
Actual: 175 ft.

FINDS:
Registry ID: 110055817282

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

C16 **DIAGEO CHATEAU AND ESTATE WINE** **CHMIRS** **S109603743**
1960 SAINT HELENA HWY **EMI** **N/A**
< 1/8 **RUTHERFORD, CA 94573**
1 ft.

Site 4 of 5 in cluster C

Relative: **Lower**

Actual: **172 ft.**

CHMIRS:

Name:	Not reported
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA
OES Incident Number:	08-5092
OES notification:	07/11/2008
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
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:	Merchant/Business
Cleanup By:	Responsible Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Lbs.
Other:	Not reported
Date/Time:	0800
Year:	2008
Agency:	Bealieu Vineyard
Incident Date:	6/19/2008
Admin Agency:	Napa County Dept. Environmental Mgmt
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	R-22
Quantity Released:	30

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

Unknown:	Not reported
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
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	Caller reported that an oil safety switch capillary tube on a refrigerant unit developed a fracture due to vibration.

EMI:

Name:	DIAGEO CHATEAU AND ESTATE WINE
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2007
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.005
Reactive Organic Gases Tons/Yr:	.0041835
Carbon Monoxide Emissions Tons/Yr:	.035
NOX - Oxides of Nitrogen Tons/Yr:	.034
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	.001
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.000976

Name:	DIAGEO CHATEAU AND ESTATE WINE
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2008
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.005
Reactive Organic Gases Tons/Yr:	.0041835
Carbon Monoxide Emissions Tons/Yr:	.035
NOX - Oxides of Nitrogen Tons/Yr:	.034

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: .001
Part. Matter 10 Micrometers and Smllr Tons/Yr: .000976

Name: DIAGEO CHATEAU AND ESTATE WINE
Address: 1960 SAINT HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Year: 2009
County Code: 28
Air Basin: SF
Facility ID: 17870
Air District Name: BA
SIC Code: 2084
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 8.0000000000000002E-3
Reactive Organic Gases Tons/Yr: 5.9483000000000001E-3
Carbon Monoxide Emissions Tons/Yr: 5.7000000000000002E-2
NOX - Oxides of Nitrogen Tons/Yr: 5.3999999999999999E-2
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 3.0000000000000001E-3
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0.002928

Name: DIAGEO CHATEAU AND ESTATE WINE
Address: 1960 SAINT HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Year: 2010
County Code: 28
Air Basin: SF
Facility ID: 17870
Air District Name: BA
SIC Code: 2084
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 8.0000000000000002E-3
Reactive Organic Gases Tons/Yr: 5.9483000000000001E-3
Carbon Monoxide Emissions Tons/Yr: 5.7000000000000002E-2
NOX - Oxides of Nitrogen Tons/Yr: 5.3999999999999999E-2
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0.00307377049180327
Part. Matter 10 Micrometers and Smllr Tons/Yr: 3.0000000000000001E-3

Name: DIAGEO CHATEAU AND ESTATE WINE
Address: 1960 SAINT HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Year: 2011
County Code: 28
Air Basin: SF
Facility ID: 17870
Air District Name: BA
SIC Code: 2084
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0.006

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

Reactive Organic Gases Tons/Yr:	0.0050202
Carbon Monoxide Emissions Tons/Yr:	0.046
NOX - Oxides of Nitrogen Tons/Yr:	0.048
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Name:	DIAGEO CHATEAU AND ESTATE WINE
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2012
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006
Reactive Organic Gases Tons/Yr:	0.0050202
Carbon Monoxide Emissions Tons/Yr:	0.046
NOX - Oxides of Nitrogen Tons/Yr:	0.048
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.0030737704918
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.003

Name:	DIAGEO CHATEAU AND ESTATE WINE
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2013
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006
Reactive Organic Gases Tons/Yr:	0.0050202
Carbon Monoxide Emissions Tons/Yr:	0.046
NOX - Oxides of Nitrogen Tons/Yr:	0.048
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.003
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.003

Name:	DIAGEO CHATEAU AND ESTATE WINES-BV
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2014
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006306648
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0.042990804
NOX - Oxides of Nitrogen Tons/Yr:	0.045395311
SOX - Oxides of Sulphur Tons/Yr:	7.3732e-005
Particulate Matter Tons/Yr:	0.002619984
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.002515255

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2015
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006269853
Reactive Organic Gases Tons/Yr:	0.006095526
Carbon Monoxide Emissions Tons/Yr:	0.042763145
NOX - Oxides of Nitrogen Tons/Yr:	0.045138936
SOX - Oxides of Sulphur Tons/Yr:	7.221e-005
Particulate Matter Tons/Yr:	0.002605704
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.002501543

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2016
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006269853
Reactive Organic Gases Tons/Yr:	0.0054092240559
Carbon Monoxide Emissions Tons/Yr:	0.042763144
NOX - Oxides of Nitrogen Tons/Yr:	0.045138938
SOX - Oxides of Sulphur Tons/Yr:	7.221e-005
Particulate Matter Tons/Yr:	0.002605704
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.002501543

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2017
County Code:	28
Air Basin:	SF
Facility ID:	17870

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.16308231
Reactive Organic Gases Tons/Yr:	0.023531255336
Carbon Monoxide Emissions Tons/Yr:	1.052704209
NOX - Oxides of Nitrogen Tons/Yr:	0.485916654
SOX - Oxides of Sulphur Tons/Yr:	0.041681165
Particulate Matter Tons/Yr:	0.006118283
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00595573

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2018
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.163190525
Reactive Organic Gases Tons/Yr:	0.023546870365
Carbon Monoxide Emissions Tons/Yr:	1.05340274
NOX - Oxides of Nitrogen Tons/Yr:	0.486239088
SOX - Oxides of Sulphur Tons/Yr:	0.041708824
Particulate Matter Tons/Yr:	0.006122343
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.005959681

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2019
County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.163190525
Reactive Organic Gases Tons/Yr:	0.023546870365
Carbon Monoxide Emissions Tons/Yr:	1.05340274
NOX - Oxides of Nitrogen Tons/Yr:	0.486239088
SOX - Oxides of Sulphur Tons/Yr:	0.041708824
Particulate Matter Tons/Yr:	0.006122343
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.005959681

Name:	BEAULIEU VINEYARD
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94573
Year:	2020

DIAGEO CHATEAU AND ESTATE WINE (Continued) **S109603743**

County Code:	28
Air Basin:	SF
Facility ID:	17870
Air District Name:	BA
SIC Code:	2084
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.011590977
Reactive Organic Gases Tons/Yr:	0.0089932768863
Carbon Monoxide Emissions Tons/Yr:	0.092154111
NOX - Oxides of Nitrogen Tons/Yr:	0.071186732
SOX - Oxides of Sulphur Tons/Yr:	0.000462494
Particulate Matter Tons/Yr:	0.003872923
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.003718822

C17 **JACKSON FAMILY WINES - FREEMARK ABBEY** **RCRA NonGen / NLR** **1024747038**
2030 ST. HELENA HWY **CAC002966810**
< 1/8 **SAINT HELENA, CA 94574**
1 ft.

Site 5 of 5 in cluster C

Relative: **Lower**
Actual: **172 ft.**

RCRA Listings:

Date Form Received by Agency:		20180615
Handler Name:	JACKSON FAMILY WINES - FREEMARK ABBEY	
Handler Address:		2030 ST. HELENA HWY
Handler City,State,Zip:		SAINT HELENA, CA 94574
EPA ID:		CAC002966810
Contact Name:		MARCUS HARRIS
Contact Address:		7600 ST. HELENA HEY
Contact City,State,Zip:		OAKVILLE, CA 94562
Contact Telephone:		707-948-1955
Contact Fax:		Not reported
Contact Email:		MARCUS.HARRIS@JFWMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		2030 ST. HELENA HWY
Mailing City,State,Zip:		SAINT HELENA, CA 94574
Owner Name:	JACKSON FAMILY WINES	
Owner Type:		Other
Operator Name:	MARCUS HARRIS	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No

JACKSON FAMILY WINES - FREEMARK ABBEY (Continued) **1024747038**

Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180831
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name: MARCUS HARRIS	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	7600 ST. HELENA HEY
Owner/Operator City,State,Zip:	OAKVILLE, CA 94562

JACKSON FAMILY WINES - FREEMARK ABBEY (Continued) **1024747038**

Owner/Operator Telephone: 707-948-1955
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: JACKSON FAMILY WINES
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 2030 ST. HELENA HWY
Owner/Operator City,State,Zip: SAINT HELENA, CA 94574
Owner/Operator Telephone: 707-948-1949
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20180615
Handler Name: JACKSON FAMILY WINES - FREEMARK ABBEY
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 312130
NAICS Description: WINERIES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

A18 **GEIS, RUTH** **UST** **U003749051**
ESE **8576 ST. HELENA HWY** **N/A**
< 1/8 **RUTHERFORD, CA**
0.004 mi.
20 ft. **Site 10 of 10 in cluster A**

Relative: **Lower**
Actual: **174 ft.**

NAPA CO. UST:
Name: GEIS, RUTH
Address: 8576 ST. HELENA HWY
City,State,Zip: RUTHERFORD
Facility ID: NAPA0695
Permit ID: Not reported
Facility Status: Not reported
Permit Type: Not reported

GEIS, RUTH (Continued) **U003749051**

District: Not reported
Num of Tanks: 0

B19 **BEAULIEU VINEYARD WINE SPILL** **SEMS** **1006426281**
NNW **POSTAL ADDRESS IS UNAVAILABLE FOR THE SITE** **CAN000905953**
< 1/8 **RUTHERFOFD, CA**
0.037 mi.
196 ft. **Site 3 of 3 in cluster B**

Relative:
Lower

Actual:
173 ft.

SEMS:
Site ID: 0905953
EPA ID: CAN000905953
Name: BEAULIEU VINEYARD WINE SPILL
Address: POSTAL ADDRESS IS UNAVAILABLE FOR THE SITE
Address 2: Not reported
City,State,Zip: RUTHERFOFD, CA
Cong District: Not reported
FIPS Code: 06055
Latitude: Not reported
Longitude: Not reported
FF: N
NPL: Not on the NPL
Non NPL Status: Removal Only Site (No Site Assessment Work Needed)

SEMS Detail:
Region: 09
Site ID: 0905953
EPA ID: CAN000905953
Site Name: BEAULIEU VINEYARD WINE SPILL
NPL: N
FF: N
OU: 00
Action Code: PJ
Action Name: RP EM REM
SEQ: 1
Start Date: 2003-01-08 05:00:00
Finish Date: 2003-01-08 05:00:00
Qual: C
Current Action Lead: EPA Ovrsght

D20 **COPPER CANE WINERY** **CERS HAZ WASTE** **S124439007**
NNE **1960 SAINT HELENA HWY** **CERS** **N/A**
< 1/8 **RUTHERFORD, CA 94558**
0.077 mi.
406 ft. **Site 1 of 4 in cluster D**

Relative:
Lower

Actual:
171 ft.

CERS HAZ WASTE:
Name: COPPER CANE WINERY
Address: 1960 SAINT HELENA HWY
City,State,Zip: RUTHERFORD, CA 94558
Site ID: 524234
CERS ID: 10805914
CERS Description: Hazardous Waste Generator

CERS:

COPPER CANE WINERY (Continued) **S124439007**

Name:	COPPER CANE WINERY
Address:	1960 SAINT HELENA HWY
City,State,Zip:	RUTHERFORD, CA 94558
Site ID:	524234
CERS ID:	10805914
CERS Description:	Chemical Storage Facilities

Evaluation:

Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-04-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	This was an initial inspection. An employee training program has been implemented.
Eval Division:	Napa County Department of Environmental Management
Eval Program:	HMRRP
Eval Source:	CERS,

Affiliation:

Affiliation Type Desc:	Environmental Contact
Entity Name:	Dominic Drozdowicz
Entity Title:	Not reported
Affiliation Address:	1275 Inglewood Ave
Affiliation City:	St.Helena
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94558
Affiliation Phone:	,

Affiliation Type Desc:	Legal Owner
Entity Name:	Copper CAne LLC
Entity Title:	Not reported
Affiliation Address:	1275 Inglewood Ave
Affiliation City:	St.Helena
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	94558
Affiliation Phone:	(707) 200-7070,

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1960 St Helena Hwy
Affiliation City:	St.Helena
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94558
Affiliation Phone:	,

Affiliation Type Desc:	Identification Signer
Entity Name:	Dominic Drozdowicz
Entity Title:	Production Supervisor
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported

COPPER CANE WINERY (Continued) **S124439007**

Affiliation Phone:	,
Affiliation Type Desc:	CUPA District
Entity Name:	Napa County Env Mgmt
Entity Title:	Not reported
Affiliation Address:	1195 Third Street, Suite 210
Affiliation City:	Napa
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94559
Affiliation Phone:	(707) 253-4417,
Affiliation Type Desc:	Document Preparer
Entity Name:	Dominic Drozdowicz
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:	,
Affiliation Type Desc:	Operator
Entity Name:	Copper CAne 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:	(707) 200-7070,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Copper Cane Winery
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:	,

21
ENE
< 1/8
0.083 mi.
436 ft.

LA LUNA HANDY STORE **LUST** **S104025361**
1153 RUTHERFORD RD **Cortese** **N/A**
RUTHERFORD, CA 94573 **HIST CORTESE**
CERS

Relative:
Lower

Actual:
170 ft.

LUST:

Name:	LA LUNA HANDY STORE
Address:	1153 RUTHERFORD RD
City,State,Zip:	RUTHERFORD, CA 94573-
Lead Agency:	NAPA COUNTY
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605500282
Global Id:	T0605500282
Latitude:	38.458694

LA LUNA HANDY STORE (Continued) **S104025361**

Longitude: -122.422745
Status: Completed - Case Closed
Status Date: 06/09/1998
Case Worker: ZZZ
RB Case Number: 28-0328
Local Agency: NAPA COUNTY
File Location: Not reported
Local Case Number: 0622
Potential Media Affect: Under Investigation
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0605500282
Contact Type: Local Agency Caseworker
Contact Name: UST CASE WORKER
Organization Name: NAPA COUNTY
Address: 1195 THIRD ST., ROOM 101
City: NAPA
Email: Not reported
Phone Number: 7072534269

LUST:
Global Id: T0605500282
Action Type: Other
Date: 11/07/1996
Action: Leak Reported

Global Id: T0605500282
Action Type: Other
Date: 11/07/1996
Action: Leak Stopped

Global Id: T0605500282
Action Type: Other
Date: 11/07/1996
Action: Leak Discovery

LUST:
Global Id: T0605500282
Status: Open - Case Begin Date
Status Date: 11/07/1996

Global Id: T0605500282
Status: Completed - Case Closed
Status Date: 06/09/1998

LUST REG 2:
Region: 2
Facility Id: 28-0328
Facility Status: Case Closed
Case Number: 0622
How Discovered: Tank Closure
Leak Cause: UNK
Leak Source: UNK

LA LUNA HANDY STORE (Continued) **S104025361**

Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

CORTESE:
Name: LA LUNA HANDY STORE
Address: 1153 RUTHERFORD RD
City,State,Zip: RUTHERFORD, CA
Region: CORTESE
Envirostor Id: Not reported
Global ID: T0605500282
Site/Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Status Date: Not reported
Site Code: Not reported
Latitude: Not reported
Longitude: Not reported
Owner: Not reported
Enf Type: Not reported
Swat R: Not reported
Flag: active
Order No: Not reported
Waste Discharge System No: Not reported
Effective Date: Not reported
Region 2: Not reported
WID Id: Not reported
Solid Waste Id No: Not reported
Waste Management Uit Name: Not reported
File Name: Active Open

HIST CORTESE:
edr_fname: LA LUNA HANDY STORE
edr_fadd1: 1153 RUTHERFORD
City,State,Zip: RUTHERFORD, CA 94573
Region: CORTESE
Facility County Code: 28
Reg By: LTNKA
Reg Id: 28-0328

CERS:
Name: LA LUNA HANDY STORE
Address: 1153 RUTHERFORD RD
City,State,Zip: RUTHERFORD, CA 94573-
Site ID: 222803
CERS ID: T0605500282
CERS Description: Leaking Underground Storage Tank Cleanup Site

Affiliation:
Affiliation Type Desc: Local Agency Caseworker
Entity Name: UST CASE WORKER - NAPA COUNTY
Entity Title: Not reported

LA LUNA HANDY STORE (Continued) **S104025361**

Affiliation Address:	1195 THIRD ST., ROOM 101
Affiliation City:	NAPA
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	7072534269,

D22 **BEAULIEU VINEYARD** **HIST UST** **U001598257**
NNE **1960 ST HELENA HIGHWAY** **N/A**
< 1/8 **RUTHERFORD, CA 94573**
0.099 mi.
521 ft. **Site 2 of 4 in cluster D**

Relative: **Lower**
Actual: **170 ft.**

HIST UST:

Name:	BEAULIEU VINEYARD
Address:	1960 ST HELENA HIGHWAY
City,State,Zip:	RUTHERFORD, CA 94573
File Number:	0002AF4A
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002AF4A.pdf
Region:	STATE
Facility ID:	00000004393
Facility Type:	Not reported
Other Type:	WINERY
Contact Name:	A.A. BELL
Telephone:	7079631451
Owner Name:	HEUBLEIN, INC.
Owner Address:	MUNSON ROAD
Owner City,St,Zip:	FARMINGTON, CT 06032
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1972
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor

Click here for Geo Tracker PDF:

D23 **BEAULIEU VINEYARDS** **UST** **1008175518**
NNE **1960 ST HELENA HWY** **HIST FTTS** **N/A**
< 1/8 **RUTHERFORD, CA 94573**
0.099 mi.
521 ft. **Site 3 of 4 in cluster D**

Relative: **Lower**
Actual: **170 ft.**

NAPA CO. UST:

Name:	BEAULIEU VINEYARD
Address:	1960 ST HELENA HWY
City,State,Zip:	RUTHERFORD
Facility ID:	NAPA0016
Permit ID:	Not reported
Facility Status:	Not reported
Permit Type:	Not reported

BEAULIEU VINEYARDS (Continued) **1008175518**

District: Not reported
Num of Tanks: 0

HIST FTTS INSP:
Inspection Number: 19881215R0902 1
Region: 09
Inspection Date: Not reported
Inspector: KALLO
Violation occurred: No
Investigation Type: EPCRA, Enforcement, SEE Conducted
Investigation Reason: Neutral Scheme, Region
Legislation Code: EPCRA
Facility Function: User

D24 **BEAULIEU VINEYARD** **SWEEPS UST** **1000593010**
NNE **1960 ST HELENA HWY** **NPDES** **N/A**
< 1/8 **RUTHERFORD, CA 94573** **WDS**
0.099 mi. **CERS**
521 ft. **Site 4 of 4 in cluster D**

Relative:
Lower

Actual:
170 ft.

SWEEPS UST:
Name: BEAULIEU VINEYARD
Address: 1960 ST HELENA HWY
City: RUTHERFORD
Status: Active
Comp Number: 4393
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: 1
SWRCB Tank Id: 28-000-004393-000001
Tank Status: A
Capacity: 550
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: 1

NPDES:
Name: BEAULIEU VINEYARD
Address: 1960 ST HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Facility Status: Active
NPDES Number: CAS000001
Region: 2
Agency Number: 0
Regulatory Measure ID: 182430
Place ID: Not reported
Order Number: 97-03-DWQ
WDID: 2 28I006123
Regulatory Measure Type: Enrollee
Program Type: Industrial
Adoption Date Of Regulatory Measure: Not reported

BEAULIEU VINEYARD (Continued) **1000593010**

Effective Date Of Regulatory Measure:	04/21/1992
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	PO Box 219
Discharge Name:	Beaulieu Vineyard
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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
Agency Number:	0
Region:	2
Regulatory Measure ID:	182430
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	2 28I006123
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/21/1992
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Beaulieu Vineyard
Discharge Address:	PO Box 219
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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

BEAULIEU VINEYARD (Continued) **1000593010**

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
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:	2
Regulatory Measure ID:	182430
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	2 28I006123
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:	04/21/1992
Status:	Active

BEAULIEU VINEYARD (Continued) **1000593010**

Status Date:	11/12/2015
Place Size:	199799
Place Size Unit:	SqFt
Contact:	Tim M Allen
Contact Title:	Not reported
Contact Phone:	707-967-5218
Contact Phone Ext:	Not reported
Contact Email:	tim.allen@twegloal.com
Operator Name:	Beaulieu Vineyard
Operator Address:	PO Box 219
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573
Operator Contact:	Tim Allen
Operator Contact Title:	Manager, Projects and Maintenance
Operator Contact Phone:	707-967-5218
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	tim.allen@tweglobal.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:	707-967-5218
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:	Napa River
Certifier:	Timothy Allen
Certifier Title:	Manager Projects & Maintenance
Certification Date:	26-JUN-15
Primary Sic:	2084-Wines, Brandy, and Brandy Spirits
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

Name:	BEAULIEU VINEYARD
Address:	1960 ST HELENA HWY

BEAULIEU VINEYARD (Continued) **1000593010**

City,State,Zip:	RUTHERFORD, CA 94573
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:	2 28I006123
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:	11/12/2015
Operator Name:	Beaulieu Vineyard
Operator Address:	PO Box 219
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573

NPDES as of 03/2018:

NPDES Number:	CAS000001
Status:	Active
Agency Number:	0
Region:	2
Regulatory Measure ID:	182430
Order Number:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place ID:	Not reported
WDID:	2 28I006123
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/21/1992
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Beaulieu Vineyard
Discharge Address:	PO Box 219
Discharge City:	Rutherford
Discharge State:	California
Discharge Zip:	94573
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

BEAULIEU VINEYARD (Continued) **1000593010**

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
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:	2
Regulatory Measure ID:	182430
Order Number:	Not reported
Regulatory Measure Type:	Industrial
Place ID:	Not reported
WDID:	2 28I006123
Program Type:	Not reported

BEAULIEU VINEYARD (Continued) **1000593010**

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:	04/21/1992
Status:	Active
Status Date:	11/12/2015
Place Size:	199799
Place Size Unit:	SqFt
Contact:	Tim M Allen
Contact Title:	Not reported
Contact Phone:	707-967-5218
Contact Phone Ext:	Not reported
Contact Email:	tim.allen@twegloal.com
Operator Name:	Beaulieu Vineyard
Operator Address:	PO Box 219
Operator City:	Rutherford
Operator State:	California
Operator Zip:	94573
Operator Contact:	Tim Allen
Operator Contact Title:	Manager, Projects and Maintenance
Operator Contact Phone:	707-967-5218
Operator Contact Phone Ext:	Not reported
Operator Contact Email:	tim.allen@tweglobal.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:	707-967-5218
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

BEAULIEU VINEYARD (Continued) **1000593010**

Dir Discharge Uswater Ind:	N
Receiving Water Name:	Napa River
Certifier:	Timothy Allen
Certifier Title:	Manager Projects & Maintenance
Certification Date:	26-JUN-15
Primary Sic:	2084-Wines, Brandy, and Brandy Spirits
Secondary Sic:	Not reported
Tertiary Sic:	Not reported

WDS:

Name:	BEAULIEU VINEYARD
Address:	1960 ST. HELENA HWY
City:	RUTHERFORD
Facility ID:	San Francisco Bay 28I006123
Facility Type:	Not reported
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	2
Facility Telephone:	Not reported
Facility Contact:	Not reported
Agency Name:	IDV NORTH AMERICA INC
Agency Address:	Not reported
Agency City,St,Zip:	0
Agency Contact:	Not reported
Agency Telephone:	Not reported
Agency Type:	Not reported
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Not reported
Primary Waste:	Not reported
Waste Type2:	Not reported
Waste2:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

CERS:

BEAULIEU VINEYARD (Continued) **1000593010**

Name: BEAULIEU VINEYARD
Address: 1960 ST HELENA HWY
City,State,Zip: RUTHERFORD, CA 94573
Site ID: 527217
CERS ID: 209043
CERS Description: Industrial Facility Storm Water

Violations:
Site ID: 527217
Site Name: Beaulieu Vineyard
Violation Date: 08-15-2015
Citation: 2014-0057-DWQ - Industrial General Permit
Violation Description: SW - Failure to Obtain Permit
Violation Notes: Failure to recertify permit coverage under IGP 2014-0057-DWQ
Violation Division: Water Boards
Violation Program: INDSTW
Violation Source: SMARTS,

Site ID: 527217
Site Name: Beaulieu Vineyard
Violation Date: 07-02-1999
Citation: 2014-0057-DWQ - Industrial General Permit
Violation Description: SW - Deficient Report
Violation Notes: Non-submittal of Annual Report. Due 7//1/1999
Violation Division: Water Boards
Violation Program: INDSTW
Violation Source: SMARTS,

Site ID: 527217
Site Name: Beaulieu Vineyard
Violation Date: 07-02-2007
Citation: 2014-0057-DWQ - Industrial General Permit
Violation Description: SW - Late Report
Violation Notes: Failure to submit the 2006-2007 Annual Report by 7/1/07 due date.
Violation Division: Water Boards
Violation Program: INDSTW
Violation Source: SMARTS,

Enforcement Action:
Site ID: 527217
Site Name: Beaulieu Vineyard
Site Address: 1960 ST HELENA HWY
Site City: RUTHERFORD
Site Zip: 94573
Enf Action Date: 08-06-2007
Enf Action Type: Notice of Non-Compliance for Non-Filers
Enf Action Description: Notice of Non-Compliance for Non-Filers
Enf Action Notes: N/A
Enf Action Division: Water Boards
Enf Action Program: INDSTW
Enf Action Source: SMARTS,

Site ID: 527217
Site Name: Beaulieu Vineyard
Site Address: 1960 ST HELENA HWY
Site City: RUTHERFORD
Site Zip: 94573

BEAULIEU VINEYARD (Continued) **1000593010**

Enf Action Date:	10-30-2015
Enf Action Type:	Notice of Non-Compliance for Non-Filers
Enf Action Description:	Notice of Non-Compliance for Non-Filers
Enf Action Notes:	Failure to recertify permit coverage under IGP 2014-0057-DWQ. Swppp And Facility Map Not Uploaded
Enf Action Division:	Water Boards
Enf Action Program:	INDSTW
Enf Action Source:	SMARTS,
Site ID:	527217
Site Name:	Beaulieu Vineyard
Site Address:	1960 ST HELENA HWY
Site City:	RUTHERFORD
Site Zip:	94573
Enf Action Date:	11-13-2007
Enf Action Type:	Notice of Non-Compliance for Non-Filers
Enf Action Description:	Notice of Non-Compliance for Non-Filers
Enf Action Notes:	N/A
Enf Action Division:	Water Boards
Enf Action Program:	INDSTW
Enf Action Source:	SMARTS,

Affiliation:

Affiliation Type Desc:	Owner/Operator
Entity Name:	Beaulieu Vineyard
Entity Title:	Operator
Affiliation Address:	PO Box 219
Affiliation City:	Rutherford
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	94573
Affiliation Phone:	,

E25 **ANTHONY PEJU** **SWEEPS UST** **S106922724**
SE **8466 ST HELENA HWY** **N/A**
1/8-1/4 **RUTHERFORD, CA 94573**
0.216 mi.
1143 ft. **Site 1 of 2 in cluster E**

Relative: **Lower**

Actual: **166 ft.**

SWEEPS UST:

Name:	ANTHONY PEJU
Address:	8466 ST HELENA HWY
City:	RUTHERFORD
Status:	Active
Comp Number:	23350
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	1
SWRCB Tank Id:	28-000-023350-000001
Tank Status:	A
Capacity:	500
Active Date:	07-01-85
Tank Use:	M.V. FUEL

ANTHONY PEJU (Continued) **S106922724**

STG: P
Content: DIESEL
Number Of Tanks: 5

Name: ANTHONY PEJU
Address: 8466 ST HELENA HWY
City: RUTHERFORD
Status: Active
Comp Number: 23350
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: 2
SWRCB Tank Id: 28-000-023350-000002
Tank Status: A
Capacity: 500
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: ANTHONY PEJU
Address: 8466 ST HELENA HWY
City: RUTHERFORD
Status: Active
Comp Number: 23350
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: 3
SWRCB Tank Id: 28-000-023350-000003
Tank Status: A
Capacity: 500
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Name: ANTHONY PEJU
Address: 8466 ST HELENA HWY
City: RUTHERFORD
Status: Active
Comp Number: 23350
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: 4
SWRCB Tank Id: 28-000-023350-000004
Tank Status: A

ANTHONY PEJU (Continued) **S106922724**

Capacity:	Not reported
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported
Name:	ANTHONY PEJU
Address:	8466 ST HELENA HWY
City:	RUTHERFORD
Status:	Active
Comp Number:	23350
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	5
SWRCB Tank Id:	28-000-023350-000005
Tank Status:	A
Capacity:	Not reported
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	Not reported

E26 **PEJU WINERY & VINEYARDS** **RCRA NonGen / NLR** **1026472297**
SE **8466 ST. HELENA HWY** **CAC003077929**
1/8-1/4 **RUTHERFORD, CA 94558**
0.247 mi.
1302 ft. **Site 2 of 2 in cluster E**

Relative: **Lower**

Actual: **165 ft.**

RCRA Listings:

Date Form Received by Agency:		20200805
Handler Name:	PEJU WINERY & VINEYARDS	
Handler Address:		8466 ST. HELENA HWY
Handler City,State,Zip:		RUTHERFORD, CA 94558
EPA ID:		CAC003077929
Contact Name:		BOB WEST/PEJU WINERY
Contact Address:		8466 ST. HELENA HWY
Contact City,State,Zip:		RUTHERFORD, CA 94558
Contact Telephone:		707-963-3600
Contact Fax:		Not reported
Contact Email:		APRIL@ADVANCED-EC.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		8466 ST. HELENA HWY
Mailing City,State,Zip:		RUTHERFORD, CA 94558
Owner Name:	PEJU WINERY & VINEYARDS	

PEJU WINERY & VINEYARDS (Continued) **1026472297**

Owner Type:		Other
Operator Name:	BOB WEST/PEJU WINERY	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported
Permit Workload Universe:		Not reported
Permit Progress Universe:		Not reported
Post-Closure Workload Universe:		Not reported
Closure Workload Universe:		Not reported
202 GPRA Corrective Action Baseline:		No
Corrective Action Workload Universe:		No
Subject to Corrective Action Universe:		No
Non-TSDFs Where RCRA CA has Been Imposed Universe:		No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:		No
TSDFs Only Subject to CA under Discretionary Auth Universe:		No
Corrective Action Priority Ranking:		No NCAPS ranking
Environmental Control Indicator:		No
Institutional Control Indicator:		No
Human Exposure Controls Indicator:		N/A
Groundwater Controls Indicator:		N/A
Operating TSDF Universe:		Not reported
Full Enforcement Universe:		Not reported
Significant Non-Complier Universe:		No
Unaddressed Significant Non-Complier Universe:		No
Addressed Significant Non-Complier Universe:		No
Significant Non-Complier With a Compliance Schedule Universe:		No
Financial Assurance Required:		Not reported
Handler Date of Last Change:		20200814
Recognized Trader-Importer:		No
Recognized Trader-Exporter:		No
Importer of Spent Lead Acid Batteries:		No
Exporter of Spent Lead Acid Batteries:		No
Recycler Activity Without Storage:		No
Manifest Broker:		No

PEJU WINERY & VINEYARDS (Continued) **1026472297**

Sub-Part P Indicator: No

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: PEJU WINERY & VINEYARDS
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 8466 ST. HELENA HWY
Owner/Operator City,State,Zip: RUTHERFORD, CA 94558
Owner/Operator Telephone: 707-963-3600
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: BOB WEST/PEJU WINERY
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 8466 ST. HELENA HWY
Owner/Operator City,State,Zip: RUTHERFORD, CA 94558
Owner/Operator Telephone: 707-963-3600
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20200805
Handler Name: PEJU WINERY & VINEYARDS
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 111332
NAICS Description: GRAPE VINEYARDS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

27
SE
1/4-1/2
0.397 mi.
2098 ft.

CHAIX TRUST
1204 MANLEY LANE
RUTHERFORD, CA 94573

LUST U001598262
HIST UST N/A

Relative:
Lower

Actual:
163 ft.

NAPA CO. LUST:

Name:	CHAIX TRUST
Address:	1204 MANLEY LN
City,State,Zip:	RUTHERFORD, CA 94573
Permit ID:	248341
Status:	Open
Permit Type:	Non-LOP
District:	0

HIST UST:

Name:	CHAIX TRUST
Address:	1204 MANLEY LANE
City,State,Zip:	RUTHERFORD, CA 94573
File Number:	0002AE64
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002AE64.pdf
Region:	STATE
Facility ID:	00000034517
Facility Type:	Other
Other Type:	FARM
Contact Name:	ED CHAIX
Telephone:	7079442327
Owner Name:	CHAIX TRUST
Owner Address:	1204 MANLEY LANE
Owner City,St,Zip:	RUTHERFORD, CA 94573
Total Tanks:	0003
Tank Num:	001
Container Num:	1
Year Installed:	1972
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	1973
Tank Capacity:	00002000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	3/16
Leak Detection:	Visual, Stock Inventor

CHAIX TRUST (Continued) **U001598262**

Click here for Geo Tracker PDF:

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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

Lists of Federal Delisted NPL sites

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

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: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/16/2022
Date Data Arrived at EDR: 05/19/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 71

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

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: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

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: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

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 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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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 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 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST 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 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 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

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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/01/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Lists of 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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 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: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

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: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield 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: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
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: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 11/21/2022
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: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
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: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
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: 04/25/2022
Date Data Arrived at EDR: 04/26/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
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: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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

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: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 76

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 03/21/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/14/2022
Number of Days to Update: 85

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 04/03/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/11/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
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: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
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: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
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: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 12/12/2022
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: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 11/14/2022
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: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
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: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
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: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
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: 03/31/2022
Date Data Arrived at EDR: 04/14/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 89

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
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: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/01/2022
Next Scheduled EDR Contact: 10/10/2022
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

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/21/2022
Date Data Arrived at EDR: 03/22/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 3

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
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: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/02/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/01/2022
Next Scheduled EDR Contact: 10/17/2022
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: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 73
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 05/20/2022
Date Data Arrived at EDR: 05/20/2022
Date Made Active in Reports: 08/09/2022
Number of Days to Update: 81

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
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: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/16/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/12/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 42

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 04/19/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
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: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
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: 07/05/2022
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/17/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/06/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/10/2022
Date Data Arrived at EDR: 06/10/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/08/2022
Next Scheduled EDR Contact: 10/17/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/12/2022
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: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/17/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
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: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/29/2022
Date Data Arrived at EDR: 06/29/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 22

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 09/02/2022
Number of Days to Update: 79

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 04/21/2022
Date Data Arrived at EDR: 04/22/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 81

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 11/07/2022
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: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/01/2022
Next Scheduled EDR Contact: 10/10/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
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: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/10/2022
Date Data Arrived at EDR: 02/11/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 82

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/07/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/07/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/11/2022
Date Made Active in Reports: 09/23/2022
Number of Days to Update: 74

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/11/2022
Next Scheduled EDR Contact: 10/24/2022
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: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
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: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 01/13/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/15/2022
Number of Days to Update: 86

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 03/22/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 76

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
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: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/24/2022
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: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 04/20/2022
Date Data Arrived at EDR: 04/21/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 82

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
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: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/21/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 3

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/03/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 78

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/01/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
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: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 06/30/2022
Next Scheduled EDR Contact: 10/10/2022
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: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/26/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 04/29/2022
Date Data Arrived at EDR: 04/29/2022
Date Made Active in Reports: 05/05/2022
Number of Days to Update: 6

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
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: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

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: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 75

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 07/05/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

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: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
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: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/11/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/27/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 76

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 04/18/2022
Date Data Arrived at EDR: 04/19/2022
Date Made Active in Reports: 07/12/2022
Number of Days to Update: 84

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/12/2022
Next Scheduled EDR Contact: 11/14/2022
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: 07/12/2022
Next Scheduled EDR Contact: 10/31/2022
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: 03/28/2022
Date Data Arrived at EDR: 04/28/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 78

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
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: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
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: 03/28/2022
Date Data Arrived at EDR: 04/28/2022
Date Made Active in Reports: 07/15/2022
Number of Days to Update: 78

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
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: 05/26/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
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: 06/22/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 76

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 84

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/07/2022
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: 05/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
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: 06/28/2022
Next Scheduled EDR Contact: 10/17/2022
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: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
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: 07/06/2022
Next Scheduled EDR Contact: 10/24/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
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: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
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.

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, 2010 and 2015 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

SR-29/RUTHERFORD ROAD
NO ADDRESS
NAPA, CA 94558

TARGET PROPERTY COORDINATES

Latitude (North):	38.45876 - 38ˆ 27’ 31.54’’
Longitude (West):	122.422787 - 122ˆ 25’ 22.03’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	550361.9
UTM Y (Meters):	4256668.5
Elevation:	175 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12021749 RUTHERFORD, CA
Version Date:	2018

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).

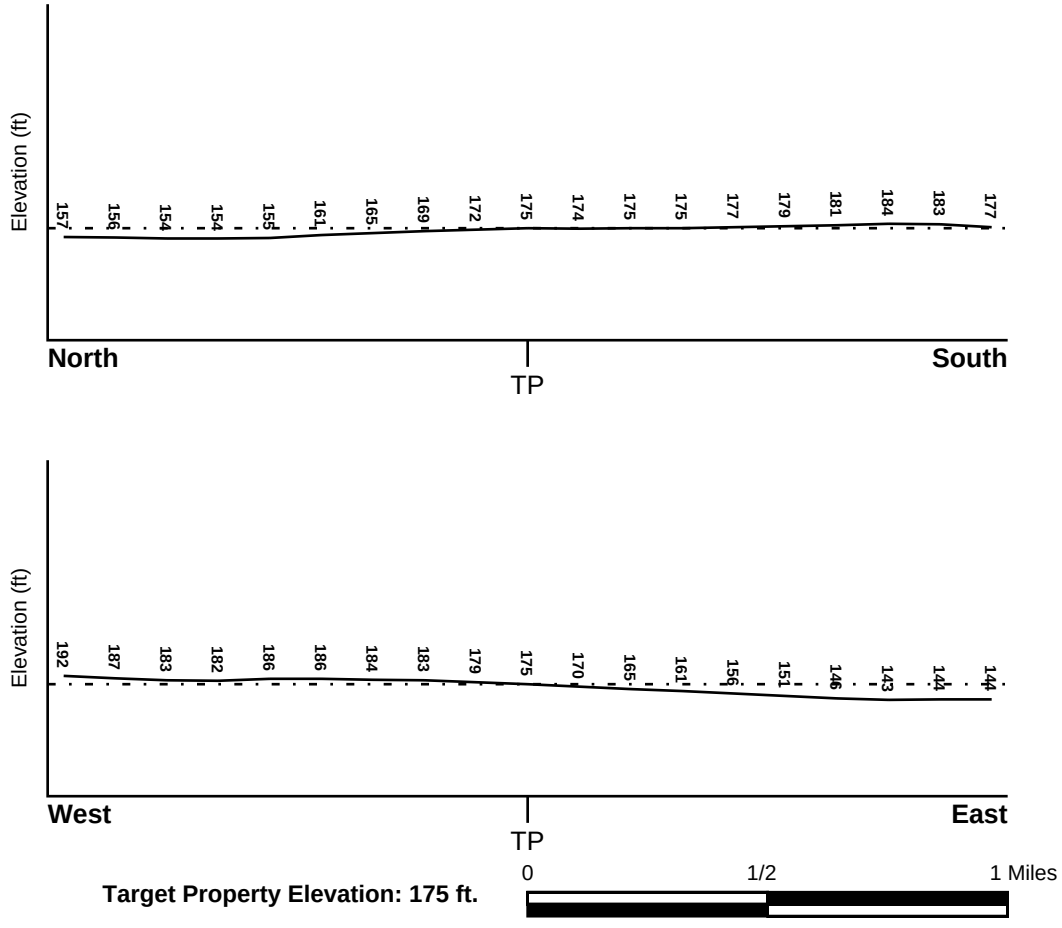
TOPOGRAPHIC INFORMATION

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 ENE

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
06055C0385E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06055C0380E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
RUTHERFORD	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

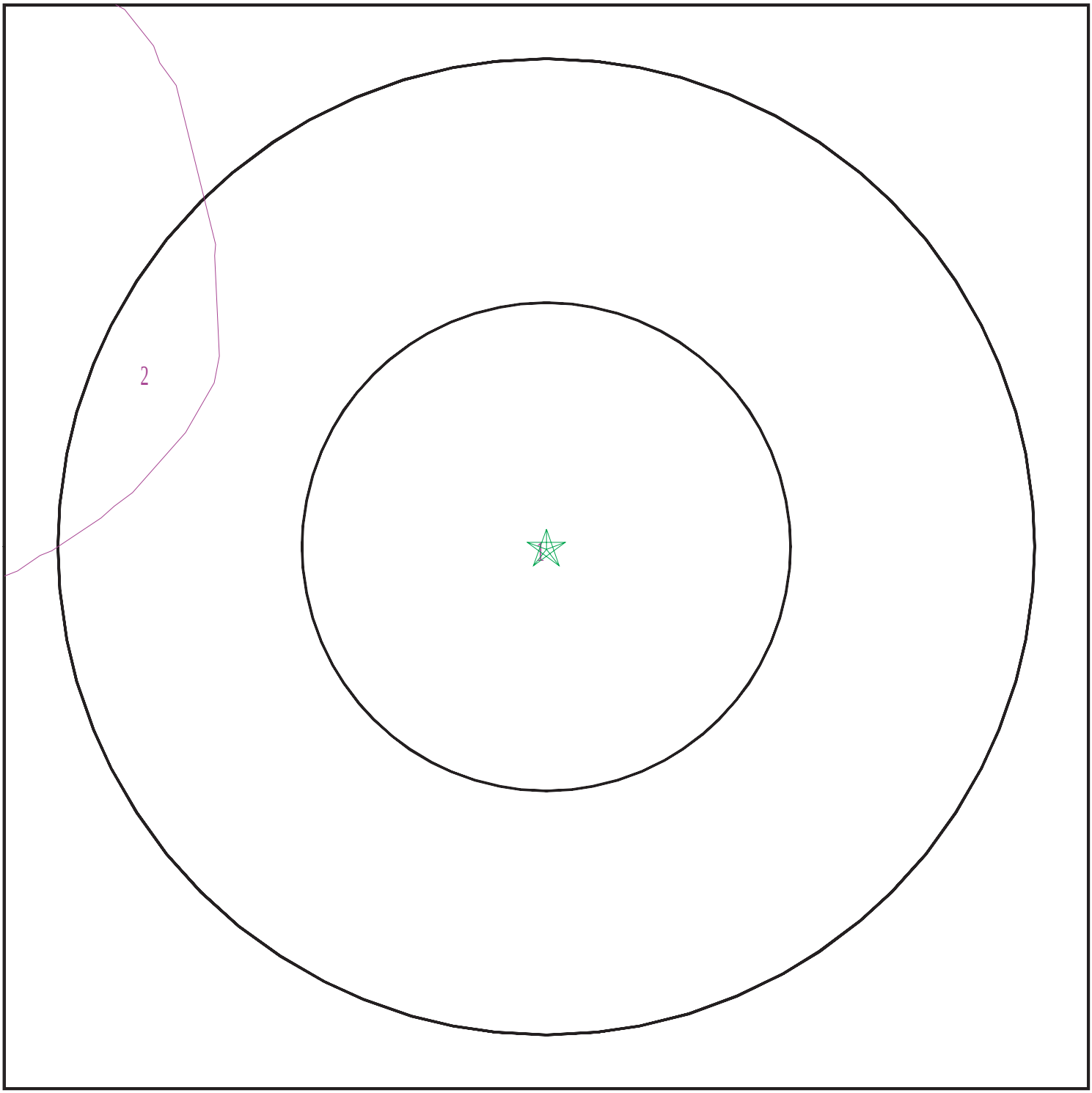
Era:	Paleozoic
System:	Permian
Series:	Ultramafic rocks
Code:	uM *(decoded above as Era, System & Series)*

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 - 7133544.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	SR-29/Rutherford Road	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7133544.2s
LAT/LONG:	38.45876 / 122.422787	DATE:	September 29, 2022 1:43 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: BALE

Soil Surface Texture: clay 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 poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 153 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	24 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	24 inches	59 inches	stratified gravelly sandy loam to loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

Soil Map ID: 2

Soil Component Name: BALE

Soil Surface Texture: 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 poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 153 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	24 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	24 inches	59 inches	stratified gravelly sandy loam to loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6

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
A3	USGS40000188425	1/8 - 1/4 Mile South
B5	USGS40000188454	1/4 - 1/2 Mile NNE
D15	USGS40000188406	1/2 - 1 Mile SW
E22	USGS40000188458	1/2 - 1 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
28	USGS40000188444	1/2 - 1 Mile East
G29	USGS40000188371	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

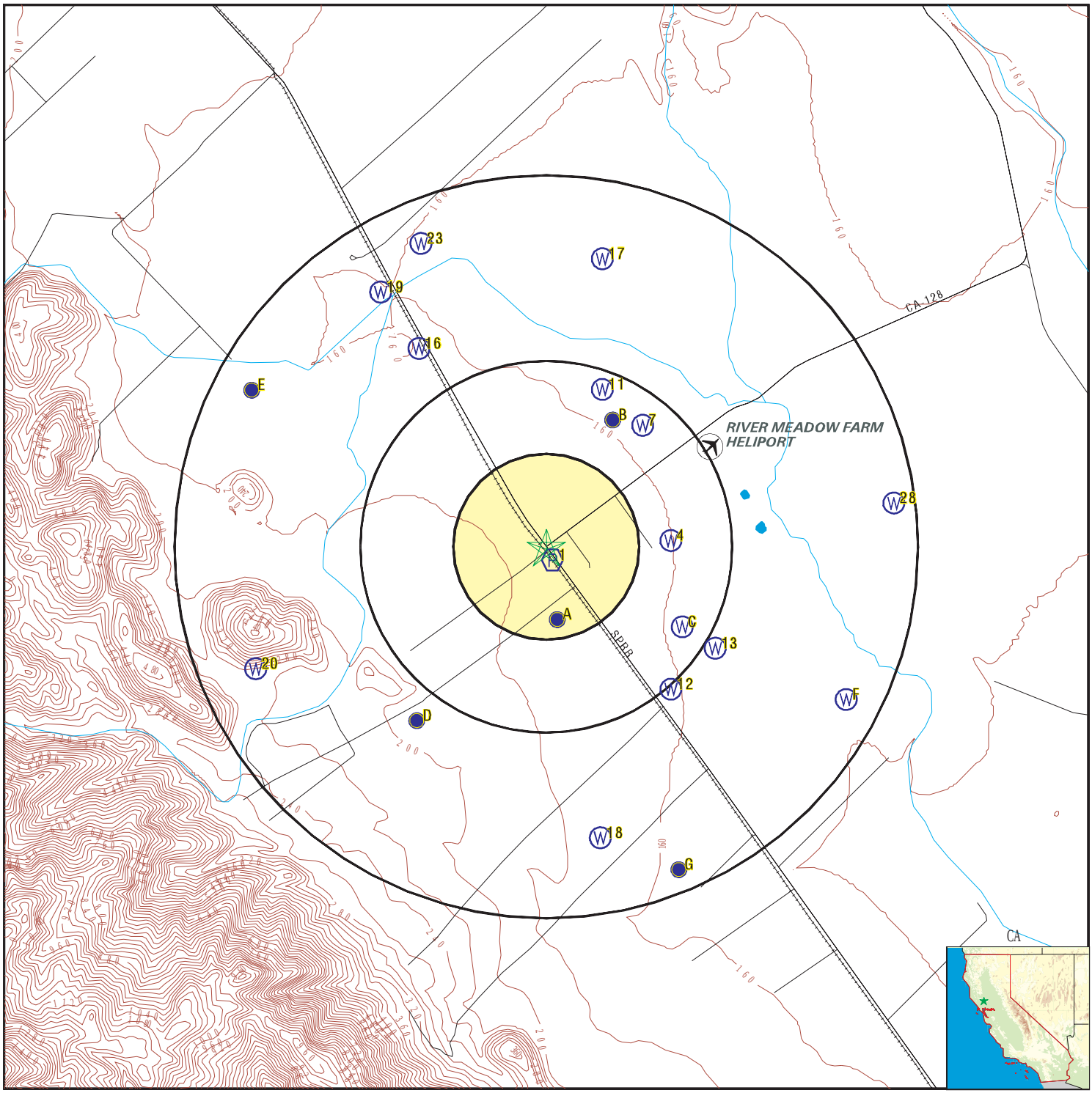
MAP ID	WELL ID	LOCATION FROM TP
1	CA2800536	0 - 1/8 Mile SSE

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	CADWR9000039307	1/8 - 1/4 Mile SSE
4	CADPR0000003169	1/4 - 1/2 Mile East
B6	CADWR9000039339	1/4 - 1/2 Mile NNE
7	CADWR9000039334	1/4 - 1/2 Mile NE
C8	CALLNL000000507	1/4 - 1/2 Mile ESE
C9	CAUSGS000002459	1/4 - 1/2 Mile ESE
C10	CAUSGSN00014115	1/4 - 1/2 Mile ESE
11	CADWR9000039342	1/4 - 1/2 Mile NNE
12	CADPR0000002818	1/2 - 1 Mile SE
13	CADDW0000014132	1/2 - 1 Mile ESE
D14	CADWR9000039290	1/2 - 1 Mile SW
16	CADDW0000007343	1/2 - 1 Mile NNW
17	CADDW0000007346	1/2 - 1 Mile North
18	CADPR0000001838	1/2 - 1 Mile South
19	CADDW0000000386	1/2 - 1 Mile NNW
20	CADPR0000000381	1/2 - 1 Mile WSW
E21	CADWR9000039341	1/2 - 1 Mile WNW
23	CADDW0000000012	1/2 - 1 Mile NNW
F24	CADDW0000021901	1/2 - 1 Mile ESE
F25	CADDW0000021376	1/2 - 1 Mile ESE
G26	CADPR0000000004	1/2 - 1 Mile SSE
E27	CADWR9000039343	1/2 - 1 Mile WNW

PHYSICAL SETTING SOURCE MAP - 7133544.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	SR-29/Rutherford Road	CLIENT:	GeoCon Environmental Cons.
ADDRESS:	No Address Napa CA 94558	CONTACT:	Luann Beadle
		INQUIRY #:	7133544.2s
LAT/LONG:	38.45876 / 122.422787	DATE:	September 29, 2022 1:43 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SSE
0 - 1/8 Mile
Higher | **FRDS PWS** | **CA2800536**

Epa region:	09	State:	CA
Pwsid:	CA2800536	Pwsname:	GRGICH HILLS
Cityserved:	Not Reported	Stateserved:	CA
Zipserved:	Not Reported	Fipscounty:	06055
Status:	Active	Retpopsrvd:	25
Pwssvcconn:	15	Psource longname:	Groundwater
Pwstype:	NTNCWS	Owner:	Private
Contact:	KEVIN VECCHIARELLI	Contactorgname:	GRGICH HILLS
Contactphone:	7079632784	Contactaddress1:	PO BOX 450
Contactaddress2:	Not Reported	Contactcity:	RUTHERFORD
Contactstate:	CA	Contactzip:	94573
Pwsactivitycode:	A		

PWS ID:	CA2800536	PWS type:	System Owner/Responsible Party
PWS name:	GRGICH HILLS	PWS address:	Not Reported
PWS city:	RUTHERFORD	PWS state:	CA
PWS zip:	94573	PWS name:	GRGICH HILLS
PWS type code:	NTNC	Retail population served:	25
Contact:	KEVIN VECCHIARELLI	Contact address:	PO BOX 450
Contact address:	RUTHERFORD	Contact city:	CA
Contact state:	94	Contact zip:	7079632784
Contact telephone:	Not Reported		

PWS ID:	CA2800536	Activity status:	Active
Date system activated:	7706	Date system deactivated:	Not Reported
Retail population:	00000025	System name:	GRGICH HILLS
System address:	GRGICH HILLS	System address:	1829 ST HELENA HWY
System city:	RUTHERFORD	System state:	CA
System zip:	94573		

Population served:	Under 101 Persons	Treatment:	Untreated

Latitude:	382730	Longitude:	1222517

Violation id:	0300023	Orig code:	S
State:	CA	Violation Year:	2002
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	23	Violation name:	Monitoring, Routine Major (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	01/01/2002
Cmp edt:	12/31/2002		

Violation id:	0400027	Orig code:	S
State:	CA	Violation Year:	2004
Contamination code:	3100	Contamination Name:	Coliform (TCR)
Violation code:	23	Violation name:	Monitoring, Routine Major (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	04/01/2004
Cmp edt:	06/30/2004		

Violation id:	0858133	Orig code:	S
State:	CA	Violation Year:	2008
Contamination code:	3100	Contamination Name:	Coliform (TCR)

Violation code:	23	Violation name:	Monitoring, Routine Major (TCR)
Rule code:	110	Rule name:	TCR
Violation measur:	Not Reported	Unit of measure:	Not Reported
State mcl:	Not Reported	Cmp bdt:	09/01/2008
Cmp edt:	09/30/2008		

Violation ID:	0300023	Orig Code:	S
Enforcemnt FY:	2003	Enforcement Action:	01/29/2003
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		

Violation ID:	0858133	Orig Code:	S
Enforcemnt FY:	2009	Enforcement Action:	10/16/2008
Enforcement Detail:	St Violation/Reminder Notice		
Enforcement Category:	Informal		

PWS name:	GRGICH HILLS	Population served:	25
PWS type code:	NTNC	Violation ID:	0300023
Contaminant:	COLIFORM (TCR)	Violation type:	Monitoring, Routine Major (TCR)
Compliance start date:	1/1/2002 0:00:00	Compliance end date:	12/31/2002 0:00:00
Enforcement date:	1/29/2003 0:00:00	Enforcement action:	State Violation/Reminder Notice
Violation measurement:	Not Reported		

PWS name:	GRGICH HILLS	Population served:	25
PWS type code:	NTNC	Violation ID:	0400027
Contaminant:	COLIFORM (TCR)	Violation type:	Monitoring, Routine Major (TCR)
Compliance start date:	4/1/2004 0:00:00	Compliance end date:	6/30/2004 0:00:00
Enforcement date:	No Enf Action as of	Enforcement action:	7/8/2009 0:00:00
Violation measurement:	Not Reported		

A2
SSE
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR9000039307**

State Well #:	07N05W16L001M	Station ID:	6865
Well Name:	131	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Single Well
Well Depth:	221	Well Completion Rpt #:	28-434

A3
South
1/8 - 1/4 Mile
Higher

FED USGS **USGS40000188425**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W16L001M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	221
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	37	Level reading date:	1983-10-12

Feet below surface:	40.2	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1983-04-08	Feet below surface:	6.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-10-21	Feet below surface:	41.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-03-25	Feet below surface:	10.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-10-16	Feet below surface:	43.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-04-13	Feet below surface:	15.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-09-16	Feet below surface:	47.0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-03-27	Feet below surface:	8.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-10-01	Feet below surface:	44.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-04-12	Feet below surface:	13.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1978-10-10	Feet below surface:	55.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-10-06	Feet below surface:	60.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	45.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	38.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-13	Feet below surface:	45.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-02	Feet below surface:	52.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	41.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	39.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-10-03	Feet below surface:	43.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	38.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-21	Feet below surface:	10.2
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1974-10-11	Feet below surface:	43.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	27.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-13	Feet below surface:	3.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	23
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	17.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	15.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-29	Feet below surface:	11.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-24	Feet below surface:	3.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	9.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-01	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-27	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	8.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-22	Feet below surface:	15.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-25	Feet below surface:	10.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-06	Feet below surface:	42
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-04	Feet below surface:	7.4
Feet to sea level:	Not Reported	Note:	Not Reported

4
East **CA WELLS** **CADPR0000003169**
1/4 - 1/2 Mile
Lower

Well ID:	76829	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76829	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76829&store_num=		
GeoTracker Data:	Not Reported		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B5
NNE
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000188454**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W09Q003M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	25
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	28	Level reading date:	1977-10-05
Feet below surface:	21.4	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1977-06-24	Feet below surface:	-0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	22.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-02-01	Feet below surface:	3.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	18.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-16	Feet below surface:	21.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-03	Feet below surface:	21.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	18.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	15.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	11.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	10.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-29	Feet below surface:	12.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-18	Feet below surface:	13.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	11.8
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1974-03-14	Feet below surface:	4.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	16.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	7.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	18.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-28	Feet below surface:	11.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-22	Feet below surface:	4.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-01	Feet below surface:	3.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-25	Feet below surface:	3.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-10	Feet below surface:	4.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-21	Feet below surface:	5.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-25	Feet below surface:	5.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-05	Feet below surface:	7.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-09	Feet below surface:	2.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-03-21	Feet below surface:	3.8
Feet to sea level:	Not Reported	Note:	Not Reported

B6
NNE **CA WELLS** **CADWR9000039339**
1/4 - 1/2 Mile
Lower

State Well #:	07N05W09Q001M	Station ID:	21623
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Irrigation	Well Type:	Unknown
Well Depth:	333	Well Completion Rpt #:	Not Reported

7
NE **CA WELLS** **CADWR9000039334**
1/4 - 1/2 Mile
Lower

State Well #:	07N05W09Q002M	Station ID:	6859
Well Name:	Not Reported	Basin Name:	Napa Valley

Well Use:	Unknown	Well Type:	Unknown
Well Depth:	232	Well Completion Rpt #:	Not Reported

C8
ESE
1/4 - 1/2 Mile
Lower

CA WELLS **CALLNL000000507**

Well ID:	102245	Well Type:	MUNICIPAL
Source:	Lawrence Livermore National Laboratory		
Other Name:	07N/05W-16J01 M	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	Not Reported		
GeoTracker Data:	Not Reported		

Chemical:	Helium-4	Results:	.000000181453
Units:	cm3STP/g	Date:	03/02/2005
Chemical:	Helium-3/Helium-4	Results:	.00000413402
Units:	atom ratio	Date:	03/02/2005
Chemical:	Neon	Results:	.000000250183
Units:	cm3STP/g	Date:	03/02/2005
Chemical:	Argon	Results:	.000382773
Units:	cm3STP/g	Date:	03/02/2005
Chemical:	Tritium (Hydrogen 3)	Results:	6.86
Units:	pCi/L	Date:	02/24/2005
Chemical:	Xenon	Results:	.0000000109767
Units:	cm3STP/g	Date:	03/02/2005
Chemical:	Krypton	Results:	.0000000847964
Units:	cm3STP/g	Date:	03/02/2005

C9
ESE
1/4 - 1/2 Mile
Lower

CA WELLS **CAUSGS000002459**

C10
ESE
1/4 - 1/2 Mile
Lower

CA WELLS **CAUSGSN00014115**

Well ID:	USGS-382720122245701	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-382720122245701	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-382720122245701&store_num=		

GeoTracker Data: Not Reported

11
NNE **CA WELLS** **CADWR9000039342**
1/4 - 1/2 Mile
Lower

State Well #:	07N05W09Q003M	Station ID:	21624
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	25	Well Completion Rpt #:	Not Reported

12
SE **CA WELLS** **CADPR0000002818**
1/2 - 1 Mile
Lower

Well ID:	76828	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76828	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76828&store_num=		
GeoTracker Data:	Not Reported		

13
ESE **CA WELLS** **CADDW0000014132**
1/2 - 1 Mile
Lower

Well ID:	2801046-002	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL #2	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801046-002&store_num=		
GeoTracker Data:	Not Reported		

D14
SW **CA WELLS** **CADWR9000039290**
1/2 - 1 Mile
Higher

State Well #:	07N05W16N002M	Station ID:	27615
Well Name:	138	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Single Well
Well Depth:	321	Well Completion Rpt #:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D15
SW
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000188406**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W16N002M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	321
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	39	Level reading date:	1983-10-11
Feet below surface:	51.1	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1983-04-08	Feet below surface:	3.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-10-21	Feet below surface:	62.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-03-25	Feet below surface:	3.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-10-16	Feet below surface:	34.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-04-13	Feet below surface:	8.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-09-16	Feet below surface:	60.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-03-27	Feet below surface:	3.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-10-01	Feet below surface:	65.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-04-12	Feet below surface:	4.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1978-10-17	Feet below surface:	62.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-10-05	Feet below surface:	82.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-06-24	Feet below surface:	98.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	62.9
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1977-01-27	Feet below surface:	60.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-13	Feet below surface:	55.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-02	Feet below surface:	60.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	18.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	14.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-21	Feet below surface:	3.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-05	Feet below surface:	22.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	21.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	49.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	28.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-13	Feet below surface:	7.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	26.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	14
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	13.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-27	Feet below surface:	9.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-24	Feet below surface:	11.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	9.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-01	Feet below surface:	11.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-26	Feet below surface:	12.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	12.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-22	Feet below surface:	21.5
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1965-03-25	Feet below surface:	11
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-08	Feet below surface:	26.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-04	Feet below surface:	7.8
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1949-10-04	Feet below surface:	45.7
Feet to sea level:	Not Reported	Note:	Not Reported

16
NNW **CA WELLS** **CADDW0000007343**
1/2 - 1 Mile
Lower

Well ID:	2800536-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 1	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2800536-001&store_num=		
GeoTracker Data:	Not Reported		

17
North **CA WELLS** **CADDW0000007346**
1/2 - 1 Mile
Lower

Well ID:	2801064-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801064-001&store_num=		
GeoTracker Data:	Not Reported		

18
South **CA WELLS** **CADPR0000001838**
1/2 - 1 Mile
Lower

Well ID:	76832	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76832	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76832&store_num=		
GeoTracker Data:	Not Reported		

19
NNW **CA WELLS** **CADDW0000000386**
1/2 - 1 Mile
Lower

Well ID:	2801073-003	Well Type:	MUNICIPAL
Source:	Department of Health Services		

Other Name:	WELL #3	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801073-003&store_num=		
GeoTracker Data:	Not Reported		

20
WSW **CA WELLS** **CADPR0000000381**
1/2 - 1 Mile
Higher

Well ID:	76830	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76830	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76830&store_num=		
GeoTracker Data:	Not Reported		

E21
WNW **CA WELLS** **CADWR9000039341**
1/2 - 1 Mile
Lower

State Well #:	07N05W17B002M	Station ID:	21629
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	82	Well Completion Rpt #:	Not Reported

E22
WNW **FED USGS** **USGS40000188458**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W17B002M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	82
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	27	Level reading date:	1977-10-05
Feet below surface:	26.2	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1977-06-24	Feet below surface:	33.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	23.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	18.6

Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-13	Feet below surface:	19.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-03	Feet below surface:	24.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-30	Feet below surface:	8.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	27.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	9.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	13.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	14.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-21	Feet below surface:	18.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	12.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	1.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-16	Feet below surface:	13.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-29	Feet below surface:	0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-17	Feet below surface:	-0.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-25	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-03	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-26	Feet below surface:	-0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-21	Feet below surface:	0.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-25	Feet below surface:	1.1
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1964-04-06	Feet below surface:	0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-09	Feet below surface:	1.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-19	Feet below surface:	10.8
Feet to sea level:	Not Reported	Note:	Not Reported

23
NNW
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000000012**

Well ID:	2801012-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	WELL 01	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801012-001&store_num=		
GeoTracker Data:	Not Reported		

F24
ESE
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000021901**

Well ID:	2801037-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801037-001&store_num=		
GeoTracker Data:	Not Reported		

F25
ESE
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000021376**

Well ID:	2801027-001	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	LPA REPORTED PRIMARY SOURCE		
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=2801027-001&store_num=		
GeoTracker Data:	Not Reported		

G26
SSE
1/2 - 1 Mile
Lower

CA WELLS **CADPR0000000004**

Well ID:	76831	Well Type:	UNK
Source:	Department of Pesticide Regulation		
Other Name:	76831	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DPR&samp_date=&global_id=&assigned_name=76831&store_num=
GeoTracker Data: Not Reported

E27
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000039343**

State Well #:	07N05W17B001M	Station ID:	21628
Well Name:	Not Reported	Basin Name:	Napa Valley
Well Use:	Residential	Well Type:	Unknown
Well Depth:	160	Well Completion Rpt #:	Not Reported

28
East
1/2 - 1 Mile
Lower

FED USGS **USGS40000188444**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W15F001M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	135
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	38	Level reading date:	1983-10-13
Feet below surface:	18.8	Feet to sea level:	Not Reported
Note:	Not Reported		

Level reading date:	1983-04-07	Feet below surface:	11.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-10-19	Feet below surface:	19.0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1982-03-25	Feet below surface:	15.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-10-16	Feet below surface:	20.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1981-04-13	Feet below surface:	19.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-09-16	Feet below surface:	18.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1980-03-27	Feet below surface:	17.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-10-01	Feet below surface:	19.5

Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1979-04-12	Feet below surface:	14.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1978-10-10	Feet below surface:	21
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-10-05	Feet below surface:	28.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-06-24	Feet below surface:	28.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	32.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-17	Feet below surface:	24.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-08-03	Feet below surface:	22.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	31.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	30
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-05	Feet below surface:	23.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	24
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-22	Feet below surface:	17.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-16	Feet below surface:	23
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	28.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-14	Feet below surface:	17.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-13	Feet below surface:	30.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-06-04	Feet below surface:	23.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	30.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-29	Feet below surface:	29
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-24	Feet below surface:	1.5
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1970-03-30	Feet below surface:	0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-04-01	Feet below surface:	4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-26	Feet below surface:	8.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-05-08	Feet below surface:	7.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-22	Feet below surface:	10.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-25	Feet below surface:	10.4
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-08	Feet below surface:	11.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1963-04-10	Feet below surface:	4.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-19	Feet below surface:	27.5
Feet to sea level:	Not Reported	Note:	Not Reported

G29
SSE **FED USGS** **USGS40000188371**
1/2 - 1 Mile
Lower

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007N005W21G001M	Type:	Well
Description:	Not Reported	HUC:	18050002
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:	27
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	28	Level reading date:	1977-10-06
Feet below surface:	3.6	Feet to sea level:	Not Reported
Note:	Not Reported		
Level reading date:	1977-06-24	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-04-20	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1977-01-27	Feet below surface:	3.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-11-13	Feet below surface:	-1.5
Feet to sea level:	Not Reported	Note:	Not Reported

Level reading date:	1976-08-02	Feet below surface:	3.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-05-02	Feet below surface:	0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1976-02-04	Feet below surface:	0.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-11-03	Feet below surface:	0
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-07-14	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1975-04-21	Feet below surface:	2.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-10-11	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-07-26	Feet below surface:	10
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1974-03-13	Feet below surface:	2.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-10-18	Feet below surface:	2.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1973-05-30	Feet below surface:	-0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-10-19	Feet below surface:	3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1972-03-24	Feet below surface:	-0.5
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1971-03-17	Feet below surface:	-1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1970-03-30	Feet below surface:	-0.9
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1969-05-28	Feet below surface:	-1.1
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1968-03-26	Feet below surface:	-1.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1967-08-08	Feet below surface:	-2.2
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1966-04-15	Feet below surface:	-0.6
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1965-03-24	Feet below surface:	-0.3
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1964-04-03	Feet below surface:	2.8
Feet to sea level:	Not Reported	Note:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Level reading date:	1963-04-09	Feet below surface:	0.7
Feet to sea level:	Not Reported	Note:	Not Reported
Level reading date:	1962-07-19	Feet below surface:	6.8
Feet to sea level:	Not Reported	Note:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94558	82	9

Federal EPA Radon Zone for NAPA County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94558

Number of sites tested: 17

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.324 pCi/L	88%	12%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

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, 2010 and 2015 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.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

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.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
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

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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SR-29 Oakville Crossing

No Address

Napa, CA 94558

Inquiry Number: 7131548.5

September 27, 2022

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

09/27/22

Site Name:

SR-29 Oakville Crossing
No Address
Napa, CA 94558
EDR Inquiry # 7131548.5

Client Name:

GeoCon Environmental Cons.
6671 Brisa Street
Livermore, CA 94550
Contact: Luann Beadle

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
1993	1"=500'	Acquisition Date: July 10, 1993	USGS/DOQQ
1982	1"=500'	Flight Date: July 08, 1982	USDA
1973	1"=500'	Flight Date: September 27, 1973	USGS
1970	1"=500'	Flight Date: April 19, 1970	USGS
1968	1"=500'	Flight Date: April 18, 1968	USGS
1952	1"=500'	Flight Date: September 12, 1952	USDA
1947	1"=500'	Flight Date: March 01, 1947	USGS

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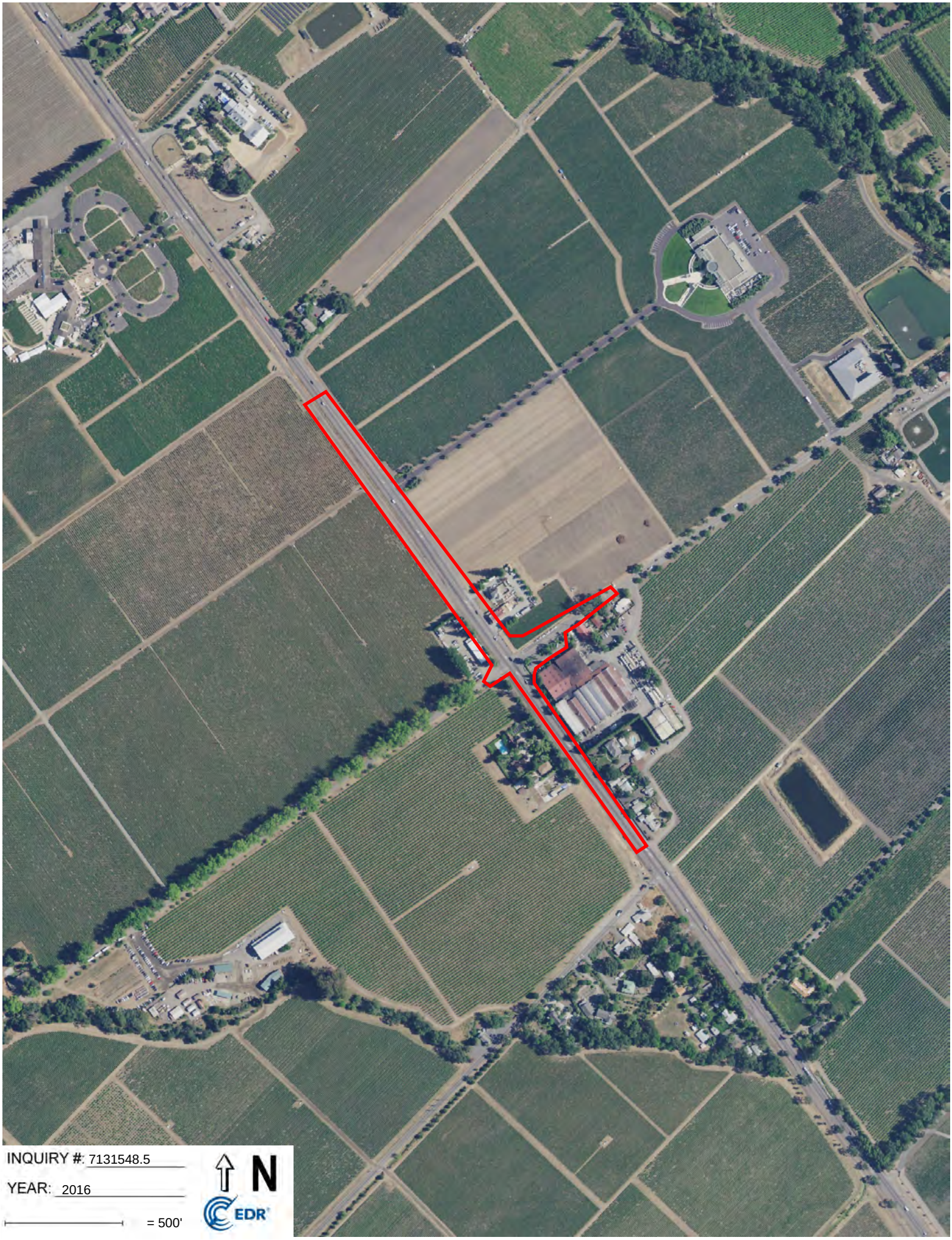
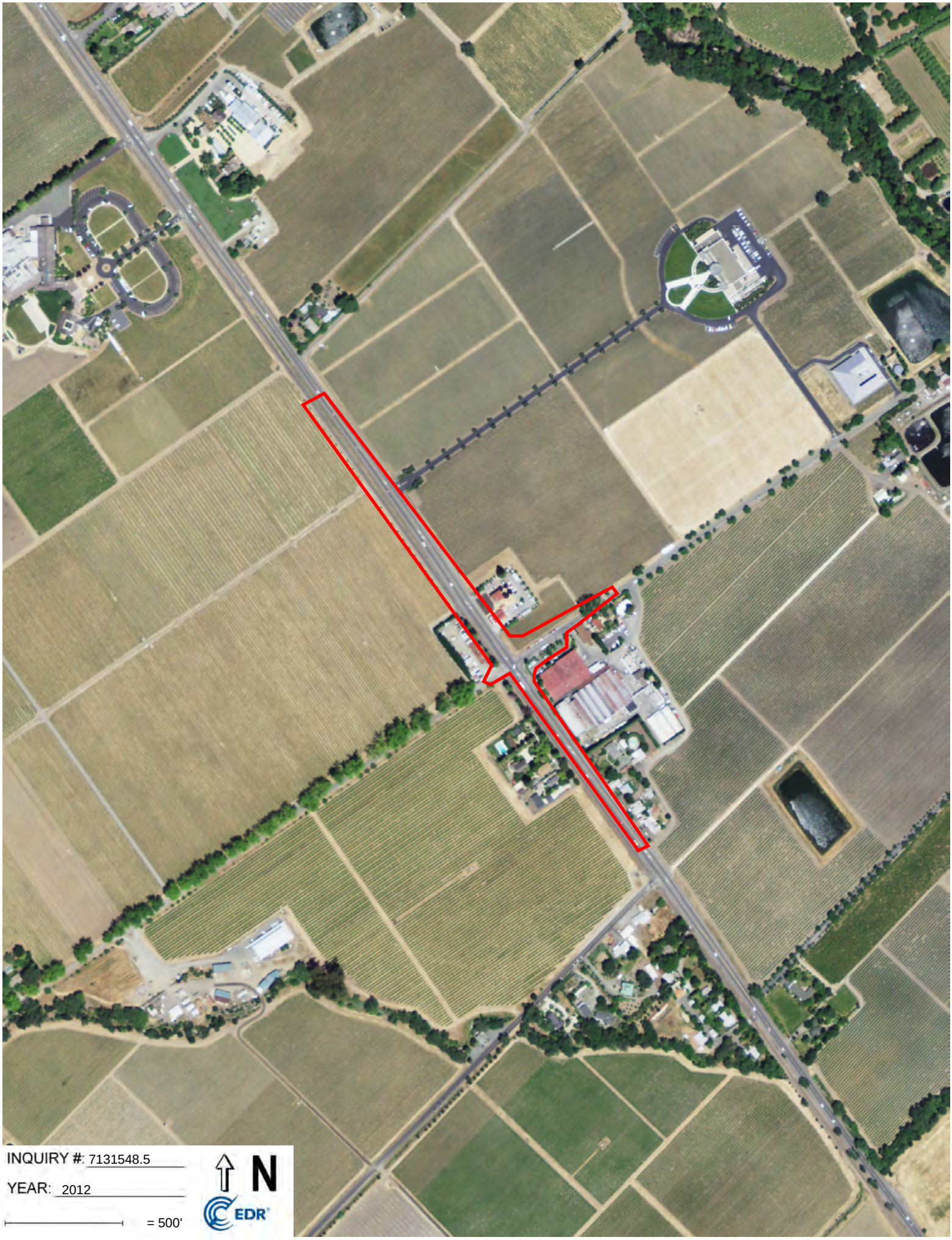

INQUIRY #: 7131548.5
YEAR: 2016
= 500'
N
EDR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YEAR: 2012
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EDR

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YEAR: 2009
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YEAR: 2006
= 500'
N
EDR

INQUIRY #: 7131548.5
YEAR: 1993
= 500'
N
EDR

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YEAR: 1982
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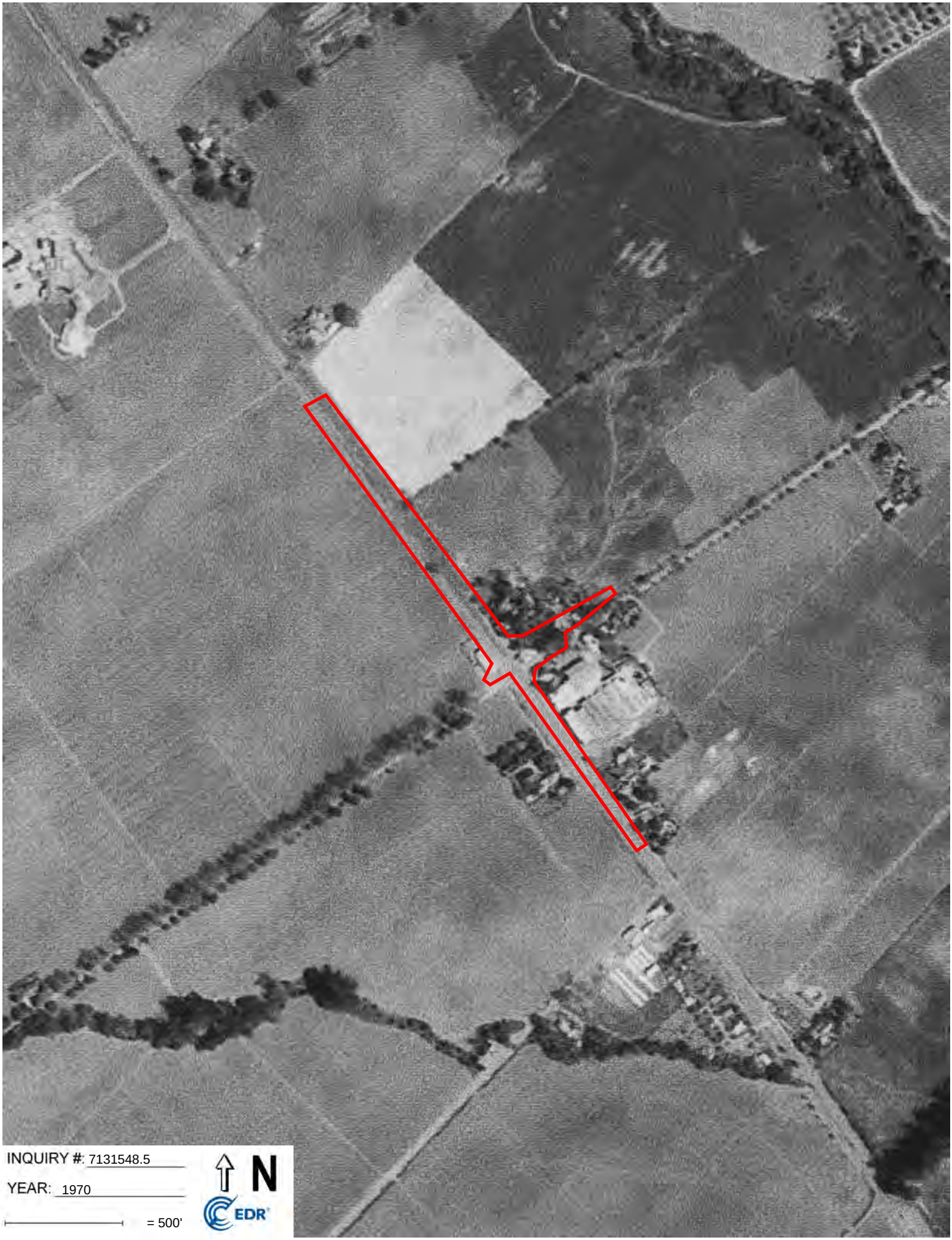
YEAR: 1973
= 500'
N
EDR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YEAR: 1970
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EDR

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YEAR: 1968
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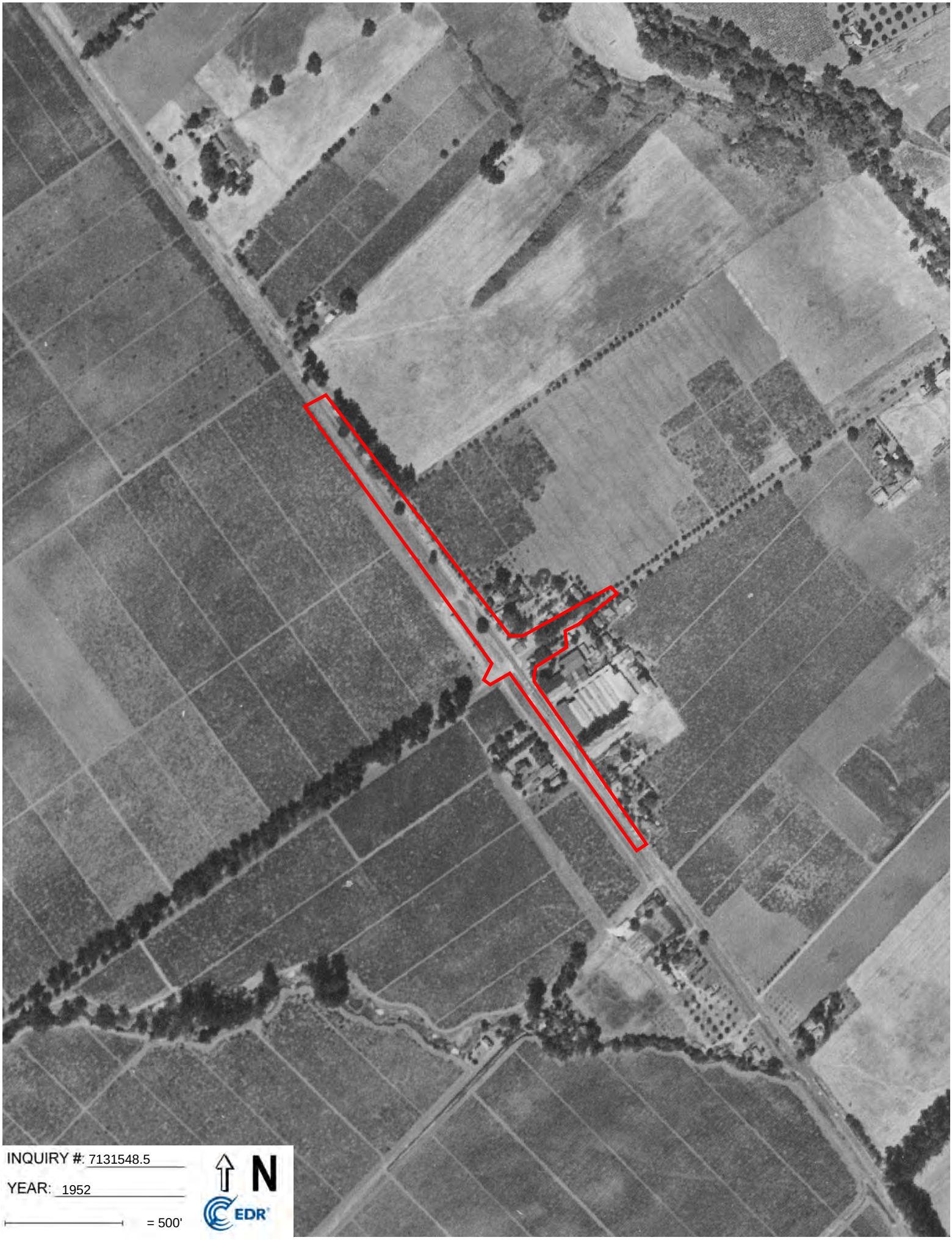
N
EDR


INQUIRY #: 7131548.5
YEAR: 1952
= 500'
N
EDR

INQUIRY #: 7131548.5
YEAR: 1947
= 500'
N
EDR

SR-29/Rutherford Road

No Address

Napa, CA 94558

Inquiry Number: 7133544.4

September 29, 2022

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

09/29/22

Site Name:

SR-29/Rutherford Road
No Address
Napa, CA 94558
EDR Inquiry # 7133544.4

Client Name:

GeoCon Environmental Cons.
6671 Brisa Street
Livermore, CA 94550
Contact: Luann Beadle

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by GeoCon Environmental Cons. 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: E9333-02-01

Coordinates:

Latitude:	38.45876 38° 27' 32" North
Longitude:	-122.422787 -122° 25' 22" West
UTM Zone:	Zone 10 North
UTM X Meters:	550360.63
UTM Y Meters:	4256875.16
Elevation:	174.10' above sea level

Maps Provided:

2018
2015
2012
1973
1968
1951
1942
1902

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets

Rutherford
2018
7.5-minute, 24000

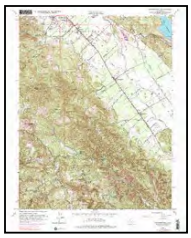
2015 Source Sheets

Rutherford
2015
7.5-minute, 24000

2012 Source Sheets

Rutherford
2012
7.5-minute, 24000

1973 Source Sheets



Rutherford
1973
7.5-minute, 24000
Aerial Photo Revised 1968

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

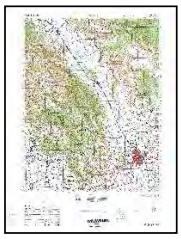
1968 Source Sheets

Rutherford
1968
7.5-minute, 24000
Aerial Photo Revised 1968

1951 Source Sheets

Rutherford
1951
7.5-minute, 24000
Aerial Photo Revised 1948

1942 Source Sheets



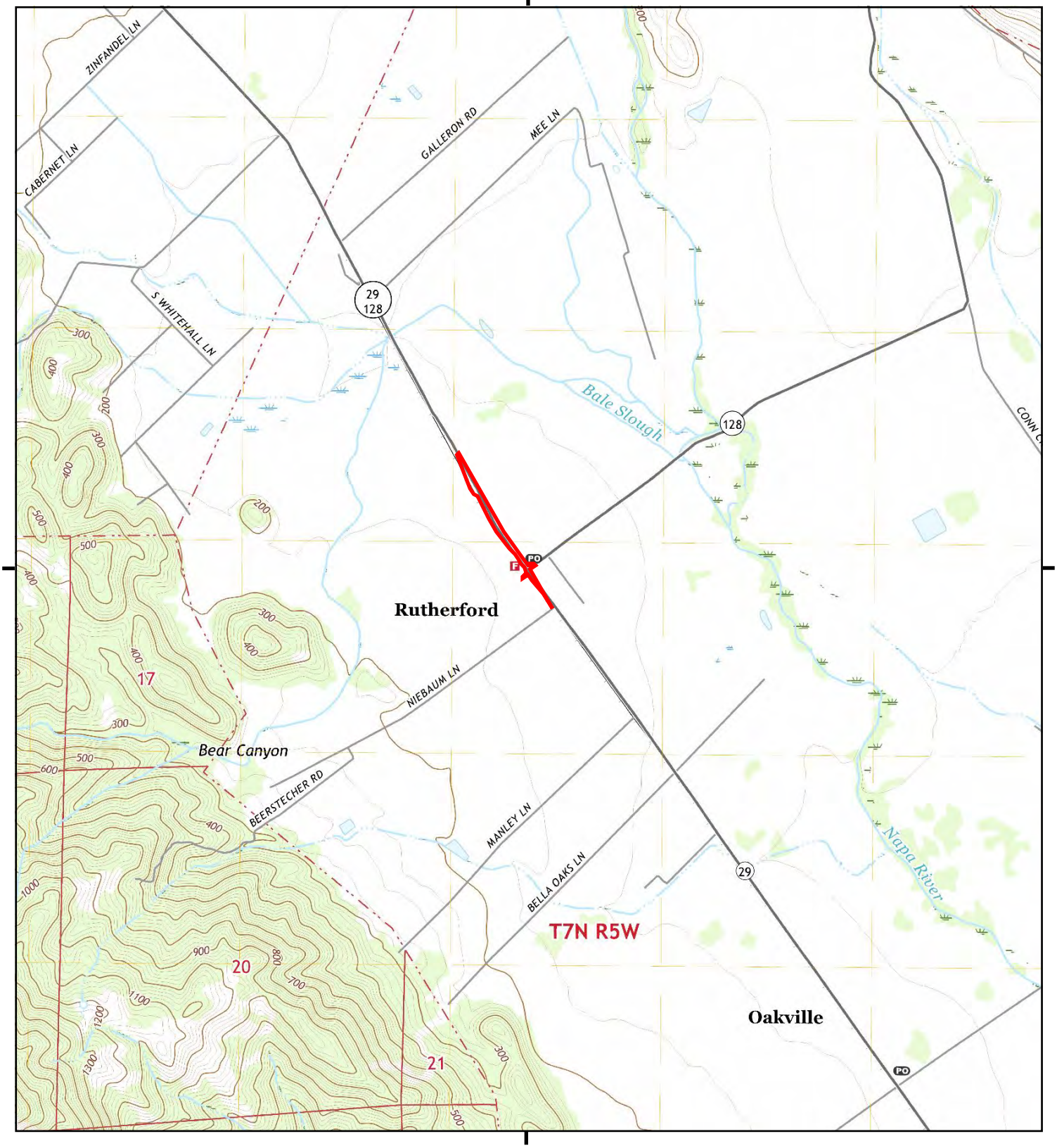
SONOMA
1942
15-minute, 50000

1902 Source Sheets

Napa
1902
30-minute, 125000

Historical Topo Map

2018



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

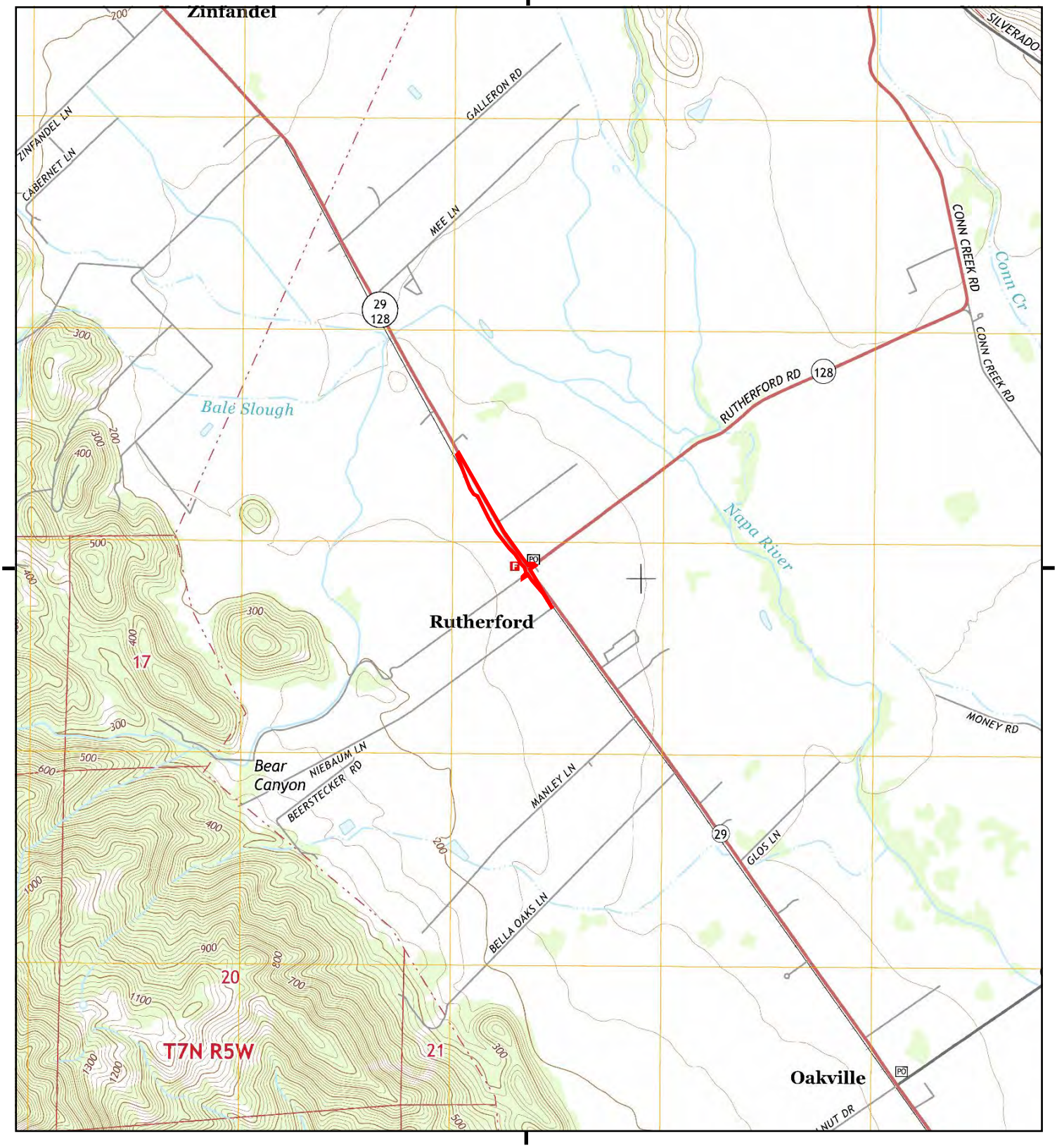
TP, Rutherford, 2018, 7.5-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

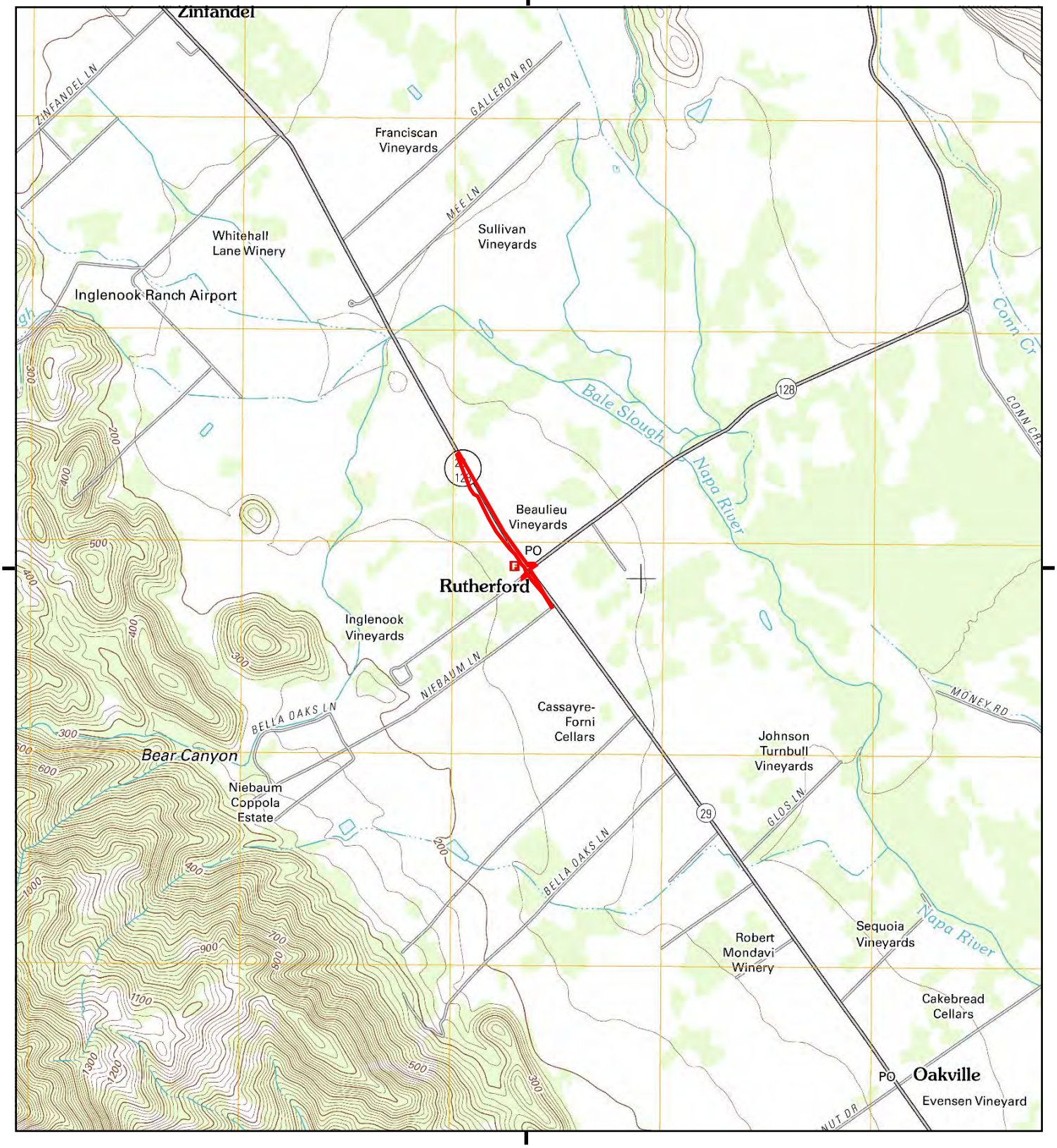
TP, Rutherford, 2015, 7.5-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N

Historical Topo Map

2012



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W E
SW S SE

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ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

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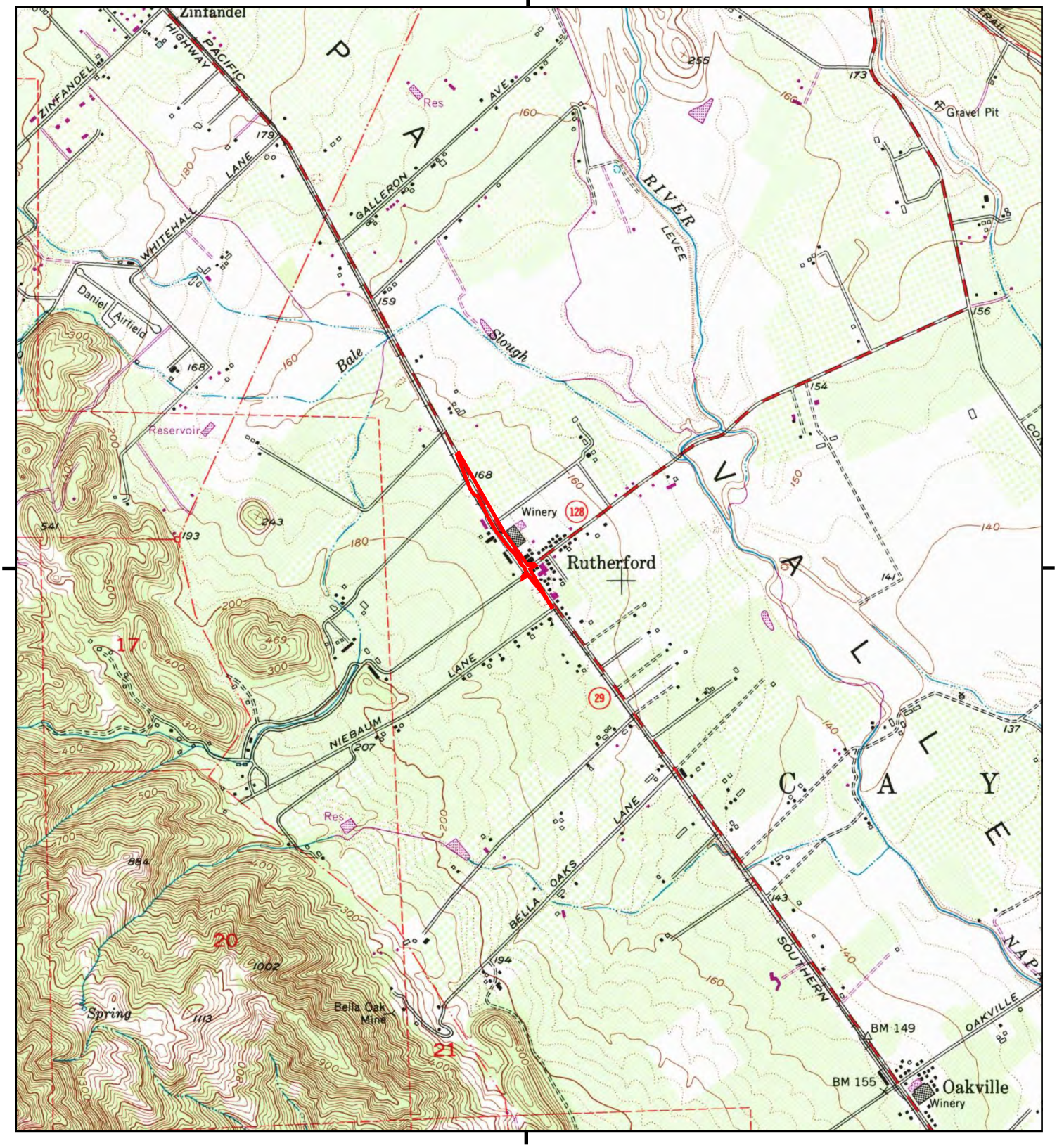

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NW N NE
W E
SW S SE

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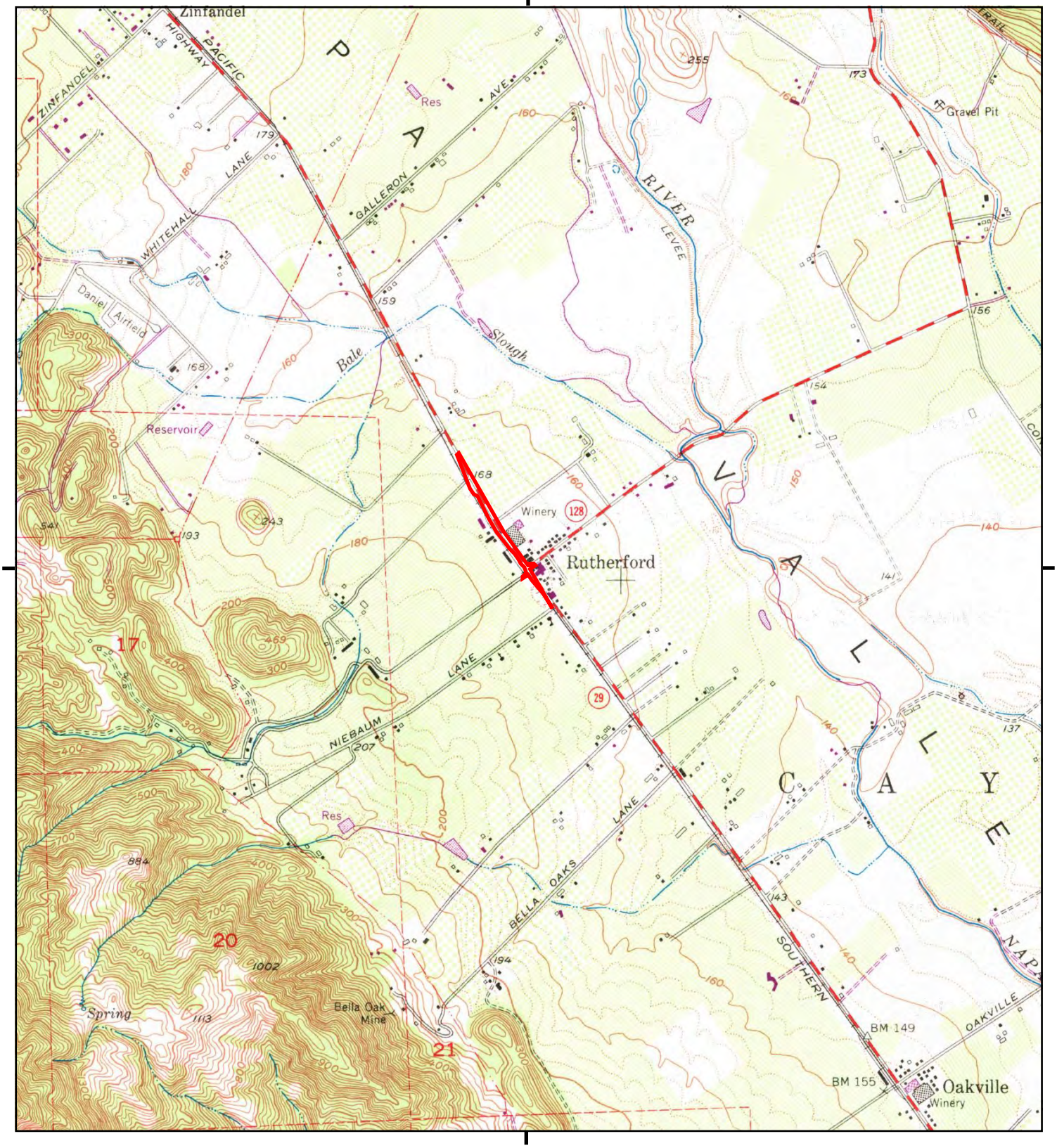
SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N



This report includes information from the following map sheet(s).

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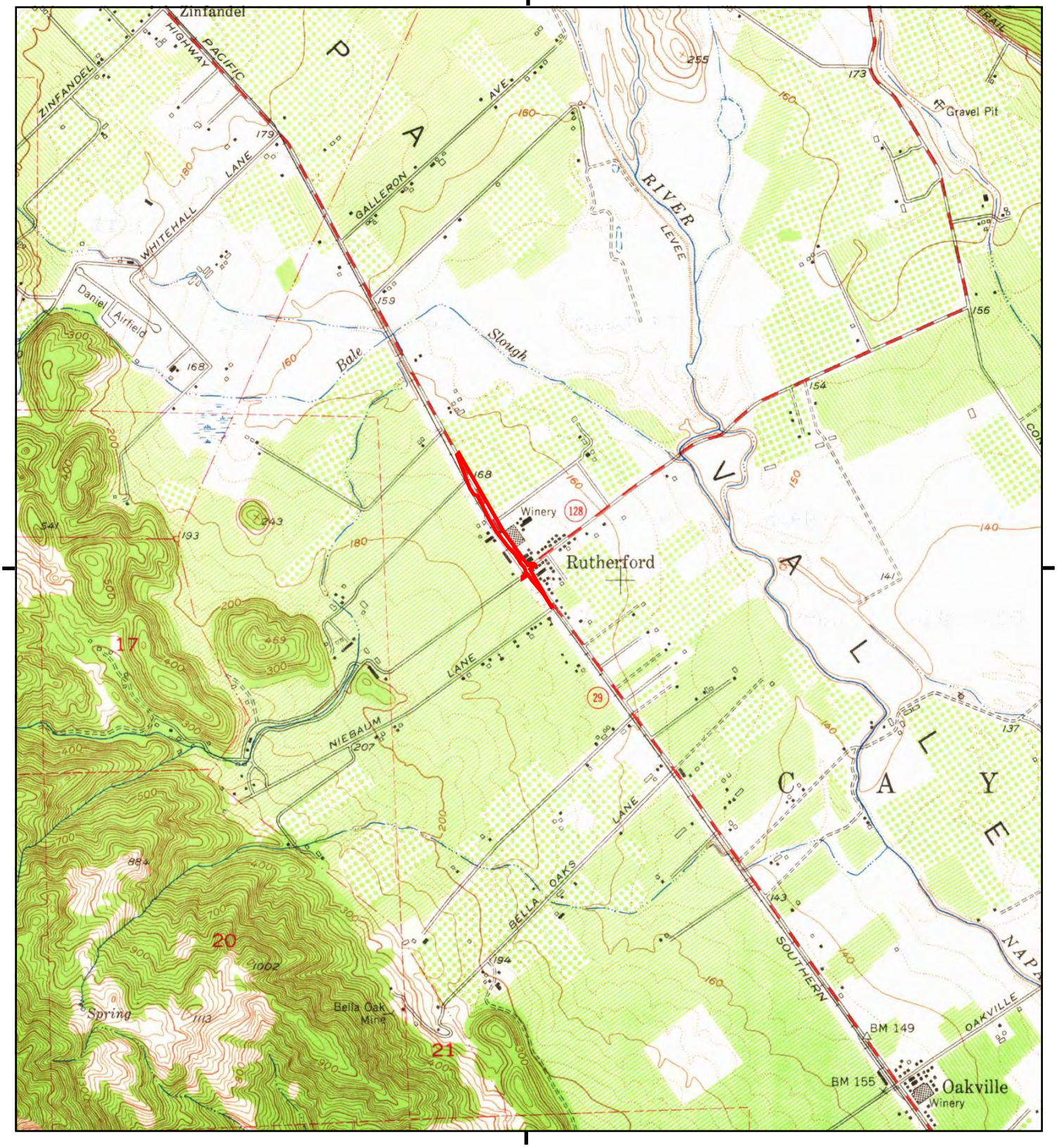
NW N NE
W E
SW S SE

TP, Rutherford, 1968, 7.5-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N



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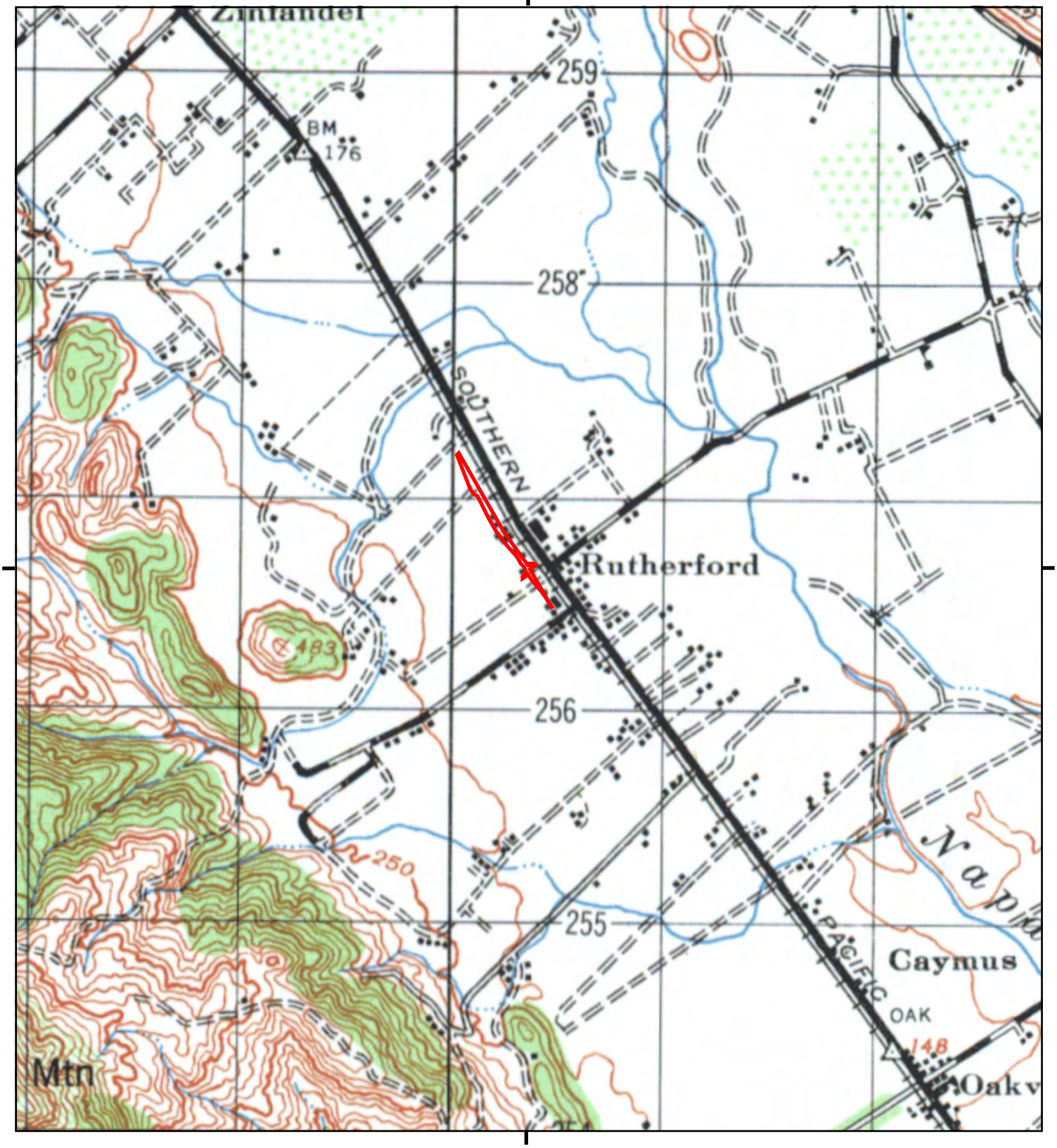
NW N NE
W E
SW S SE

TP, Rutherford, 1951, 7.5-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N



This report includes information from the following map sheet(s).

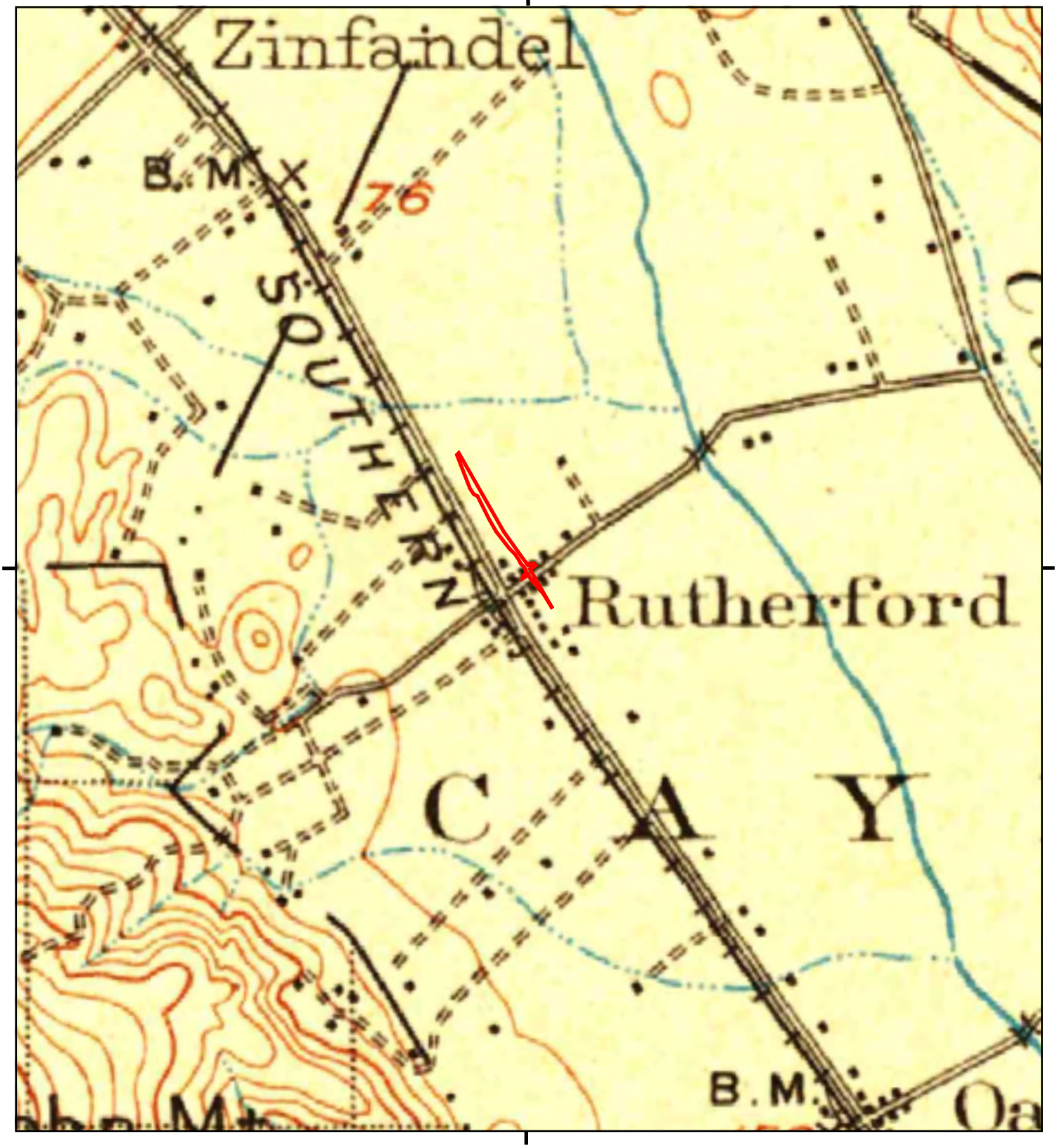
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, SONOMA, 1942, 15-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

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, Napa, 1902, 30-minute

SITE NAME: SR-29/Rutherford Road
ADDRESS: No Address
Napa, CA 94558
CLIENT: GeoCon Environmental Cons.

N

SR-29 Oakville Crossing

No Address

Napa, CA 94558

Inquiry Number: 7131548.3

September 27, 2022

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/27/22

Site Name:

SR-29 Oakville Crossing
No Address
Napa, CA 94558
EDR Inquiry # 7131548.3

Client Name:

GeoCon Environmental Cons.
6671 Brisa Street
Livermore, CA 94550
Contact: Luann Beadle

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Certification # D80D-4A18-85C2

PO # NA

Project E9333-02-01

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Sanborn® Library search results

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- ☑ Library of Congress
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SR-29/Rutherford Road

No Address

Napa, CA 94558

Inquiry Number: 7133544.3

September 29, 2022

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6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/29/22

Site Name:

SR-29/Rutherford Road
No Address
Napa, CA 94558
EDR Inquiry # 7133544.3

Client Name:

GeoCon Environmental Cons.
6671 Brisa Street
Livermore, CA 94550
Contact: Luann Beadle

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APPENDIX C

Harding Lawson Associates

A Report Prepared for

Inglenook Vineyards
An Affiliate of Heublein, Inc.
c/o Summit Engineering, Inc.
1400 North Dutton Avenue, Suite 22
Santa Rosa, California 95401

RECEIVED
AUG 21 1989
HAZARDOUS MATERIALS SECTION
DEPT. OF ENVIRONMENTAL MANAGEMENT

SERVICES DURING REMOVAL OF UNDERGROUND TANKS
OAKVILLE FACILITIES MODIFICATIONS
HIGHWAY 29 AND OAKVILLE CROSS ROAD
OAKVILLE, CALIFORNIA

HLA Job No. 1876,005.18

New Case

by

David C. Montague
Project Engineer

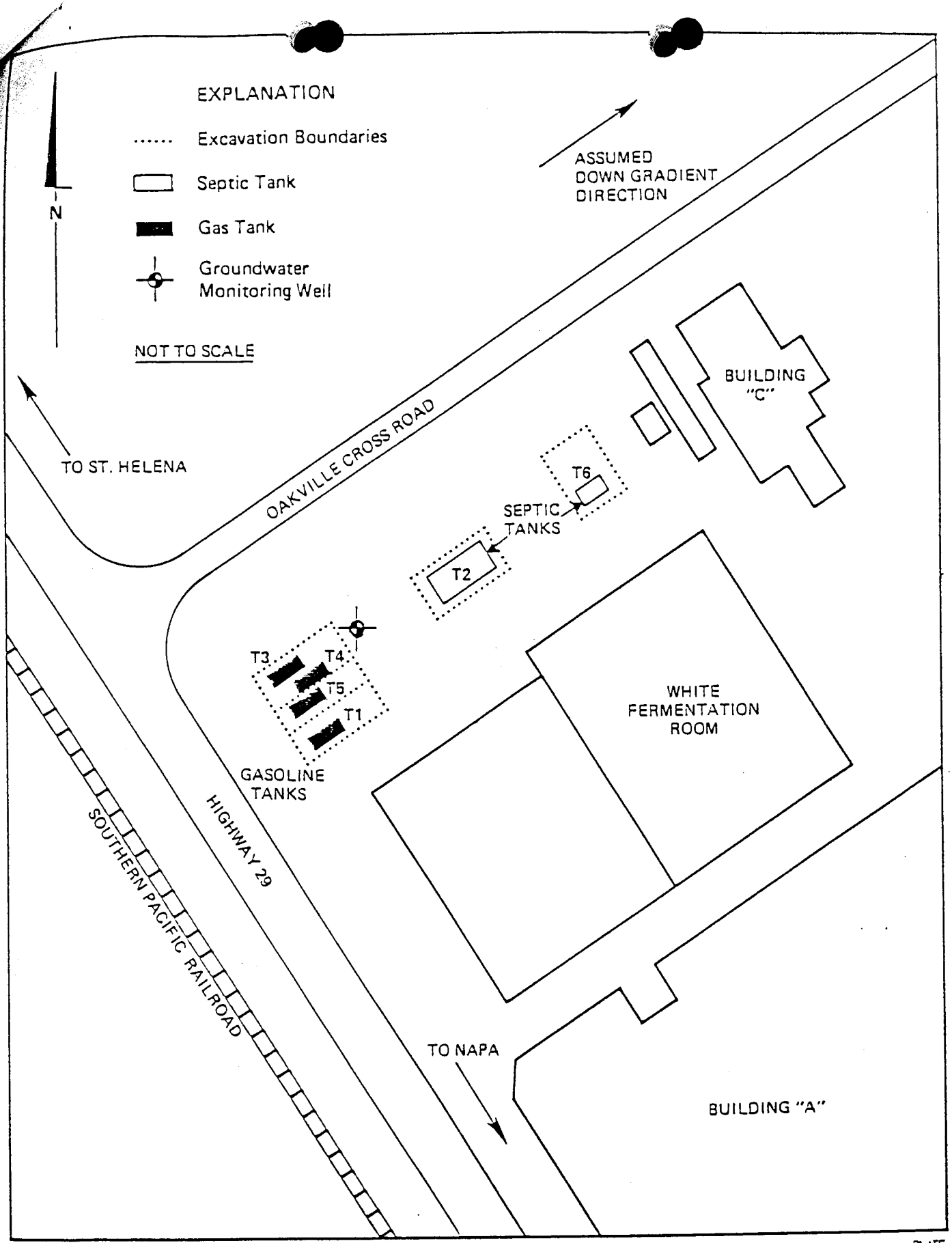
Dennis H. Furby
Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
DENNIS H. FURBY
No. 24460 Exp. 12/31/89
CIVIL
STATE OF CALIFORNIA

Harding Lawson Associates
355A Tesconi Circle
Santa Rosa, California 95401
707/~~545-3291~~ 526-2864 11/29/90

Hugo Hanson or Joe Furby

December 17, 1986



Harding Lawson Associates
Engineers, Geologists & Geophysicists

Site Location Plan
Street/Parking Lot Improvements
Oakville Facilities Modifications
Oakville, California

PLATE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	1876,005.18	GCM	10/86		

TABLE 1. SUMMARY OF TANK DATA AND RESULTS OF CHEMICAL ANALYSIS

TANK	CAPACITY IN GALLONS	SAMPLE NO.	DEPTH OF SAMPLE BELOW GRADE (FEET)	DATE OF SAMPLE COLLECTION	TOTAL PETROLEUM HYDROCARBONS (PPM)
T1	400	T1-S	7.0	6/25/86	None Detected
T2	Septic	T2-S	7.5	6/25/86	None Detected
T3	450	T3-S2	8.0	6/27/86	700
T4	400	T4-S	8.0	6/27/86	80
T5	450	T5-S	8.0	7/02/86	None Detected
T6	Septic	T6-1	4.5	7/14/86	None Detected
STOCKPILE TO BE AERATED		SPS-10 SPS-12 SPS-2 SPS-3	COMPOSITED AT LAB	7/02/86	19
TANK FILLER SAND		T1-SAND T3-SAND T4-SAND T5-SAND		7/09/86	800 750 12 50
GROUNDWATER		GW-1	19.5	9/25/86	None Detected

VISTA ENVIRONMENTAL CONSULTING

10 YEARS A STELLAR PAST • A BRIGHTER FUTURE

March 15, 2017

Mr. Kevin Brown
California Regional Water Quality Control Board
1515 Clay St, Suite 1400
Oakland, CA 94577

Subject: Phase II Environmental Site Assessment and
Low Threat Case Closure Request
Napa Wine Company
1187 Oakville Cross Road
Oakville, California 94558

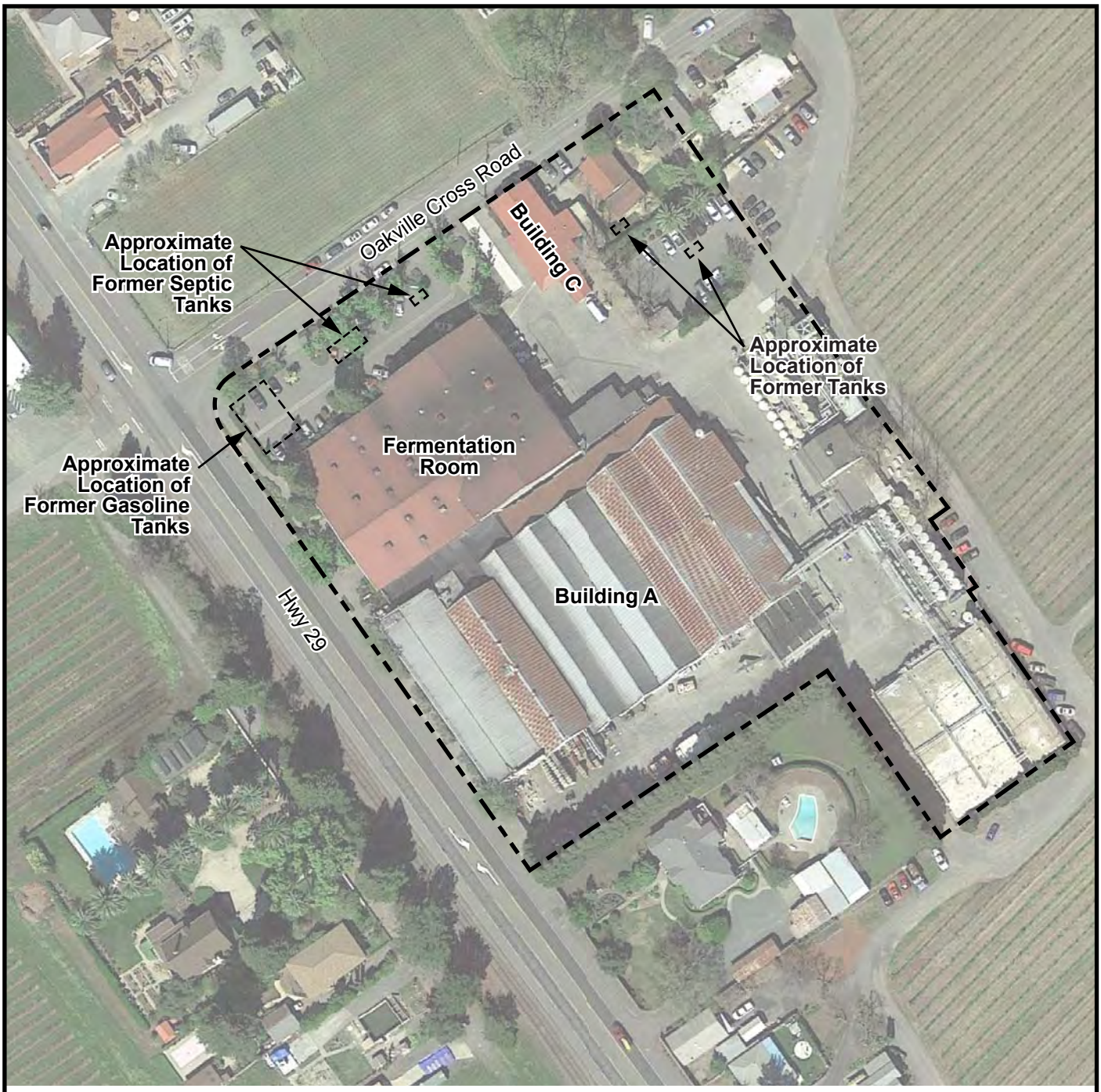
Dear Mr. Brown:

Vista Environmental (Vista) has prepared this Phase II Environmental Site Assessment Report and Low Threat Closure Request (Phase II ESA) to describe work conducted at the Napa Wine Company property located in Oakville, California (the Site, Figure 1). The work described herein was conducted in accordance with the *Work Plan for Soil and Groundwater Investigation* (work plan, Attachment 1), dated September 15, 2016, that was submitted to the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) in response to the RWQCB's August 2, 2016 directive pursuant to California Water Code section 13267. The work plan was approved, with conditions, by the RWQCB in a letter to the Napa Wine Company and Diageo North America dated November 30 2016 (Attachment 1), also issued pursuant to the RWQCB's authority under Water Code section 13267. Presented below is a summary of the work conducted, analytical results and a comparison of the analytical results to applicable regulatory criteria. Also presented is a low threat case closure request for the Site, prepared in accordance with the State Water Resources Control Board Low Threat Undergound Storage Tank Case Closure Policy and Implementation Plan, State Water Resources Control Board (SWRCB) Resolution Nos. 2012-0016 and 2012-0062 (Low Threat Closure Policy).

BACKGROUND

1986 Tank Removals and Well Installation

Four underground storage tanks (USTs) associated with a former gasoline station were removed from the Site in June and July 1986 by a former operator of the Site. The USTs were formerly used for storage of gasoline and diesel and reportedly ranged in size from 400 to 450 gallons. Two nearby septic tanks were also removed at that time (Figure 2). The former gasoline station was located at the corner of Highway 29 and Oakville Cross Road. The USTs had previously been abandoned in place (backfilled with sand) and all associated piping had already been removed at the time of UST removal. It is unknown when the USTs were previously



Legend

Site boundary

N

0 120 Feet

(Approximate)

VISTA ENVIRONMENTAL CONSULTING

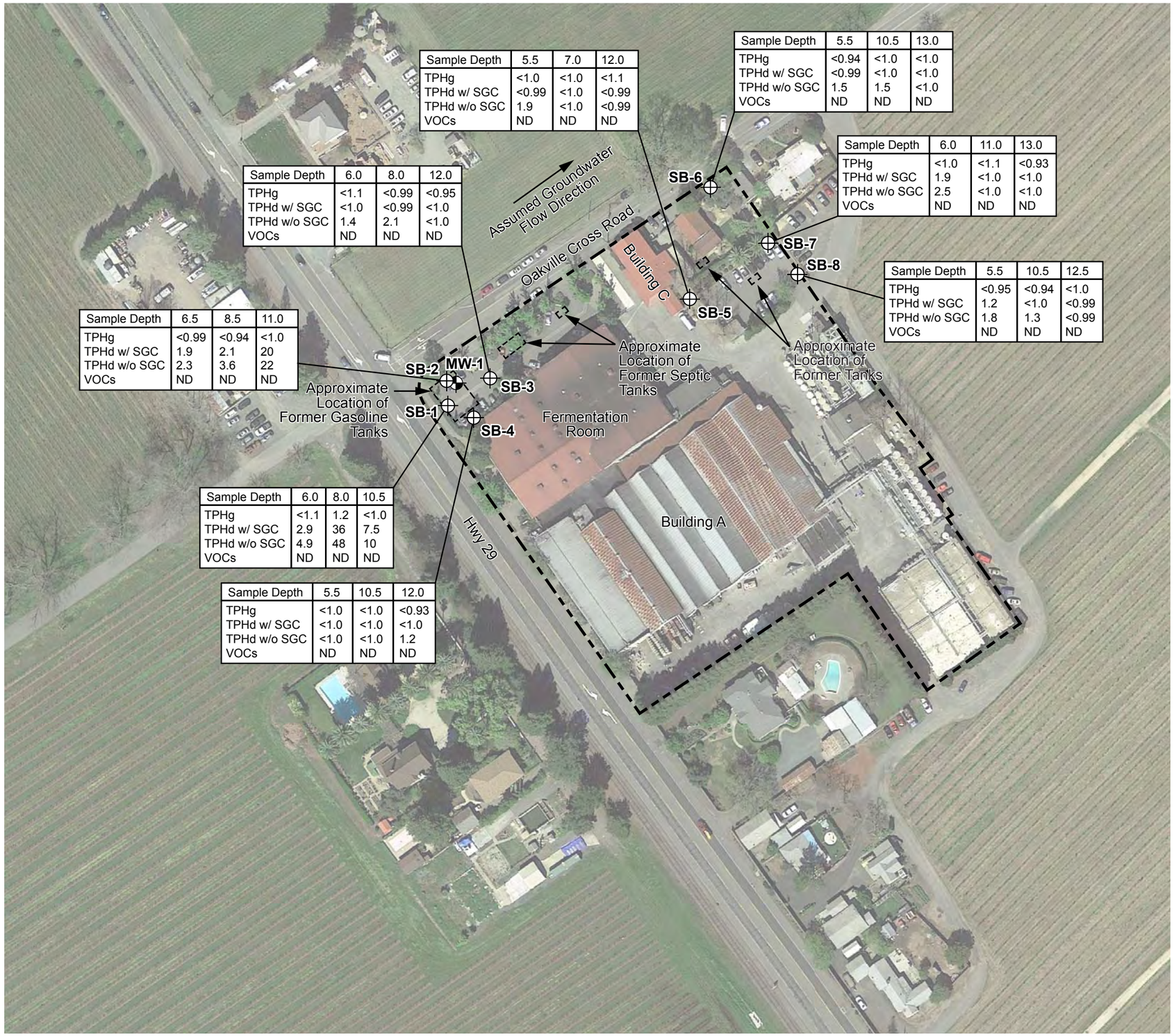
2984 Teagarden Street
San Leandro, CA 94577

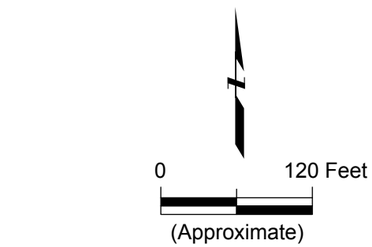
Figure 2

Site Plan

Napa Wine Company
1187 Oakville Cross Road
Oakville, California

Albion Partners\Napa Wine Co\data rpt_fig_02(02).ai





Legend

- Site boundary
- Boring location
- Monitoring well location

Notes:

1. Analytical results in milligrams per kilogram (mg/kg).
2. TPHg - total petroleum hydrocarbons as gasoline; analyzed using USEPA Method 8260B.
3. TPHd - total petroleum hydrocarbons as diesel; analyzed. using USEPA Method 8015B with and without silica gel cleanup.
4. VOCs - benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), naphthalene, 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) analyzed using USEPA Method 8260.
5. ND - not detected.
6. Sample Depth in feet below ground surface.
7. <X - not detected at a concentration equal to or greater than the method detection limit of X shown.

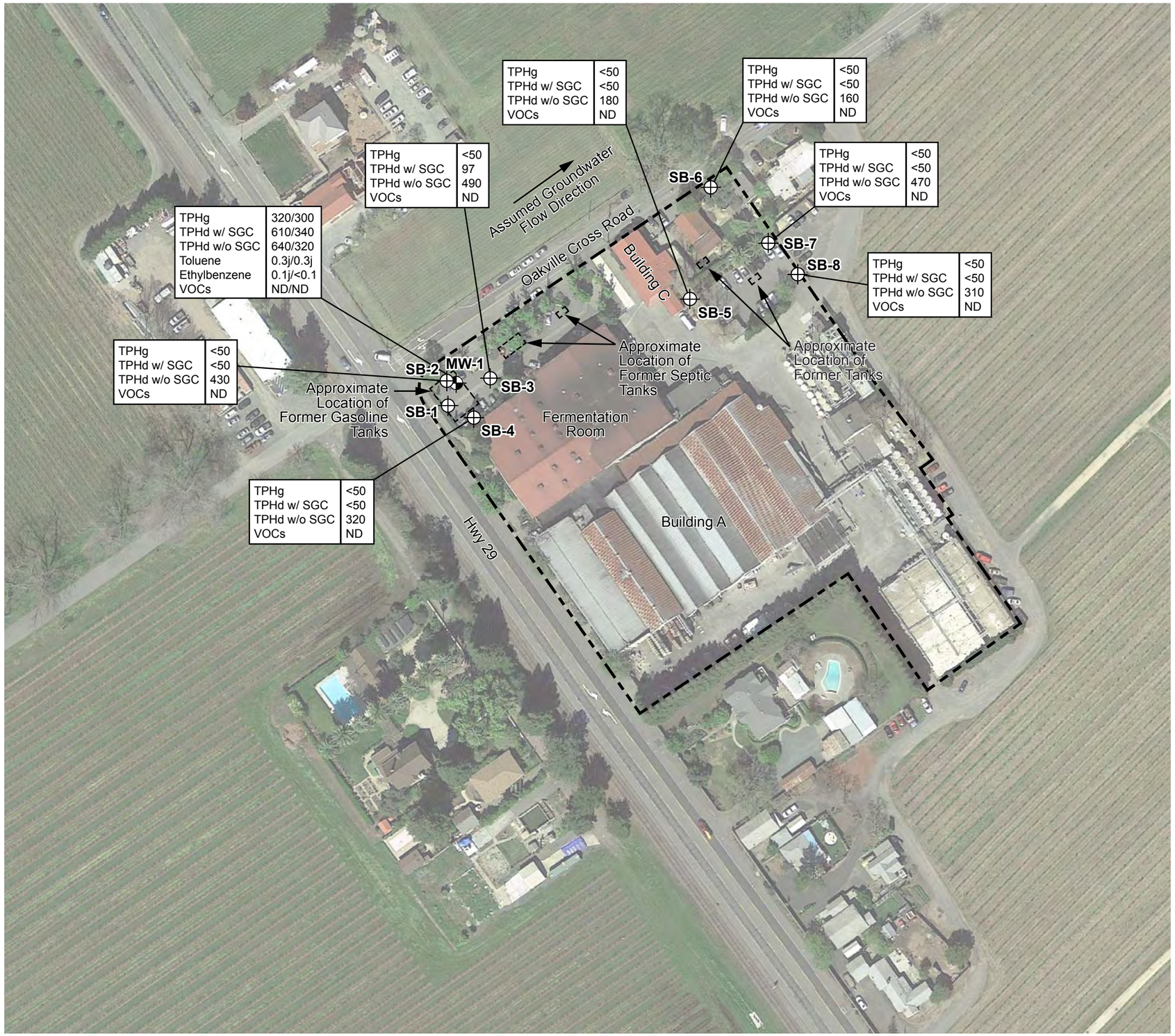
VISTA ENVIRONMENTAL CONSULTING
2984 Teagarden Street
San Leandro, CA 94577

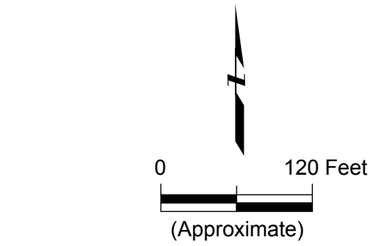
Figure 3

SOIL ANALYTICAL RESULTS

Napa Wine Company
1187 Oakville Cross Road
Oakville, California

Albion Partners\Napa Wine Co\data rpt_fig_03(02).ai





Legend

- Site boundary
- Boring location
- Monitoring well location

Notes:

1. Analytical results in micrograms per liter (µg/l).
2. TPHg - total petroleum hydrocarbons as gasoline; analyzed using USEPA Method 8260B.
3. TPHd - total petroleum hydrocarbons as diesel; analyzed. using USEPA Method 8015B with and without silica gel cleanup.
4. VOCs - benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), naphthalene, 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) analyzed using USEPA Method 8260.
5. 320/300 - Primary/Duplicate result.
6. ND - not detected.
7. Sample Depth in feet below ground surface.
8. <X - not detected at a concentration equal to or greater than the method detection limit of X shown.

VISTA ENVIRONMENTAL CONSULTING
2984 Teagarden Street
San Leandro, CA 94577

Figure 4

GROUNDWATER ANALYTICAL RESULTS

Napa Wine Company
1187 Oakville Cross Road
Oakville, California

Albion Partners\Napa Wine Co\data rpt_fig_04(02).ai

TABLE 1
SOIL ANALYTICAL RESULTS
Napa Wine Company
1187 Oakville Cross Road
Oakville, California

Sample Name	Sample Depth (ft bgs)	Sample Date	TPHg	TPHd		Benzene	Toluene	Ethyl-benzene	Total Xylenes	MtBE	1,2-DCA	EDB	Naphthalene
				w/ SGC	w/o SGC								
			analytical results in milligrams per kilogram (mg/kg)										
SB1-6	6.0	1/23/17	<1.1[1]	2.9	4.9	<0.00041	<0.00033	<0.00032	<0.00078	<0.00057	<0.00047	<0.00046	<0.00051
SB1-8	8.0	1/23/17	1.2	36	48	<0.0057	<0.041	<0.020	<0.040	<0.011	<0.011	<0.0057	<0.011
SB1-10.5	10.5	1/23/17	<1.0	7.5	10	<0.00075	<0.00053	<0.00051	<0.00093	<0.00075	<0.00069	<0.00048	<0.00075
SB2-6.5	6.5	1/23/17	<0.99	1.9	2.3	<0.00065	<0.00053	<0.00051	<0.0013	<0.00091	<0.00076	<0.00074	<0.00082
SB2-8.5	8.5	1/23/17	<0.94	2.1	3.6	<0.00071	<0.00059	<0.00056	<0.0014	<0.0010	<0.00083	<0.00082	<0.00090
SB2-11	11.0	1/23/17	<1.0	20	22	<0.00041	<0.00034	<0.00032	<0.00079	<0.00057	<0.00048	<0.00047	<0.00052
SB3-6	6.0	1/23/17	<1.1	<1.0	1.4	<0.00038	<0.00032	<0.00030	<0.00074	<0.00054	<0.00045	<0.00044	<0.00048
SB3-8	8.0	1/23/17	<0.99	<0.99	2.1	<0.00047	<0.00039	<0.00037	<0.00091	<0.00066	<0.00055	<0.00054	<0.00059
SB3-12	12.0	1/23/17	<0.95	<1.0	<1.0	<0.00034	<0.00028	<0.00027	<0.00066	<0.00048	<0.00040	<0.00039	<0.00043
SB4-5.5	5.5	1/23/17	<1.0	<1.0	<1.0	<0.00069	<0.00054	<0.00052	<0.00095	<0.00076	<0.00070	<0.00049	<0.00076
SB4-10.5	10.5	1/23/17	<1.0	<1.0	<1.0	<0.00042	<0.00035	<0.00033	<0.00081	<0.00059	<0.00049	<0.00048	<0.00053
SB4-12	12.0	1/23/17	<0.93	<1.0	1.2	<0.00035	<0.00029	<0.00028	<0.00068	<0.00050	<0.00041	<0.00041	<0.00045
SB5-5.5	5.5	1/24/17	<1.0	<0.99	1.9	<0.00036	<0.00039	<0.00035	<0.00048	<0.00022	<0.00017	<0.00019	<0.00040
SB5-7	7.0	1/24/17	<1.0	<1.0	<1.0	<0.00052	<0.00057	<0.00053	<0.001	<0.00036	<0.00046	<0.00038	<0.00073
SB5-12	12.0	1/24/17	<1.1	<0.99	<0.99	<0.00051	<0.00056	<0.00052	<0.001	<0.00035	<0.00046	<0.00037	<0.00072
SB6-5.5	5.5	1/24/17	<0.94	<0.99	1.5	<0.00052	<0.00057	<0.00053	<0.001	<0.00036	<0.00046	<0.00038	<0.00073
SB6-10.5	10.5	1/24/17	<1.0	<1.0	1.5	<0.00057	<0.00063	<0.00059	<0.0011	<0.00040	<0.00051	<0.00042	<0.00081
SB6-13	13.0	1/24/17	<1.0	<1.0	<1.0	<0.00050	<0.00054	<0.00051	<0.00098	<0.00034	<0.00044	<0.00037	<0.00070
SB7-6	6.0	1/24/17	<1.0	1.9	2.5	<0.00046	<0.00050	<0.00045	<0.00061	<0.00028	<0.00022	<0.00024	<0.00052
SB7-11	11.0	1/24/17	<1.1	<1.0	<1.0	<0.00038	<0.00032	<0.00030	<0.00074	<0.00054	<0.00045	<0.00044	<0.00048
SB7-13	13.0	1/24/17	<0.93	<1.0	<1.0	<0.00035	<0.00029	<0.00028	<0.00068	<0.00050	<0.00041	<0.00040	<0.00045
SB8-5.5	5.5	1/24/17	<0.95	1.2	1.8	<0.0005	<0.00055	<0.00051	<0.001	<0.00036	<0.00045	<0.00037	<0.00071
SB8-10.5	10.5	1/24/17	<0.94	<1.0	1.3	<0.00051	<0.00056	<0.00052	<0.001	<0.00035	<0.00046	<0.00037	<0.00072
SB8-12.5	12.5	1/24/17	<1.0	<0.99	<0.99	<0.00057	<0.00062	<0.00058	<0.0011	<0.00039	<0.00051	<0.00042	<0.0008
Screening Criteria													
ESL, Table S-2, non-drinking water resource[2]			3400	3600		0.049	9.3	1.4	11	0.84	0.054	0.0057	3.9
ESL, Table S-1 (commercial)[3]			3,900	1,100		1.0	4600	22	2400	180	1.6	0.16	14.0
ESL, Table S-1 (residential)[4]			740	230		0.23	970	5.1	560	42	0.37	0.036	3.3

Abbreviations:

1,2-DCA - 1,2-dichloroethane

EDB - ethylene dibromide

ft bgs - feet below ground surface

MTBE - methyl tert-butyl ether

TPHg - total petroleum hydrocarbons quantified as gasoline analyzed using USEPA Method 8260B

TPHd - total petroleum hydrocarbons quantified as diesel analyzed using USEPA Method 8015B M with and without silica gel cleanup, as noted

Footnotes:

1. <X - not detected at a concentration equal to or greater than the method detection limit of X shown

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
Napa Wine Company
1187 Oakville Cross Road
Oakville, California

Sample Name	Sample Date	TPHg	TPHd		Benzene	Toluene	Ethyl-benzene	Total Xylenes	MtBE	1,2-DCA	EDB	Naphthalene
			w/ SGC	w/out SGC								
		Analytical results in micrograms per liter (µg/L)										
MW-1	1/23/17	**320**	**610**	**640**	<0.1[1]	0.3[j2]	0.1[j]	<0.2	<0.1	<0.1	<0.1	<0.3
MW-1 Dup	1/23/17	**300**	**340**	**320**	<0.1	0.3[j]	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
SB-2	1/23/17	<50	<50	**430**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
SB-3	1/23/17	<50	**97**	**490**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
SB-4	1/23/17	<50	<50	**320**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0
SB-5	1/24/17	<50	<50	**180**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0
SB-6	1/24/17	<50	<50	**160**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0
SB-7	1/24/17	<50	<50	**470**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0
SB-8	1/24/17	<50	<50	**310**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<2.0
Screening Criteria												
Fresh Water Ecotox[3]		440	640	640	46	130	290	NA	66,000	10,000	1,400	24
Vapor Intrusion[4]		NE	NE	NE	1.1	3,600	13	1,300	1,200	6.1	0.85	20
Non Drinking Water ESL (µg/L)[5]		5,000	5,000	5,000	20,000	400	300	5,300	180	200,000	NE	210

Abbreviations:
1,2-DCA - 1,2-dichloroethane
EDB - ethylene dibromide
MCLs - Maximum Contaminant Levels
MTBE - methyl tert-butyl ether
NE indicates a screening criteria has not been established
TPHg - total petroleum hydrocarbons quantified as gasoline analyzed using USEPA Method 8260B
TPHd - total petroleum hydrocarbons quantified as diesel analyzed using USEPA Method 8015B M with and without silica gel cleanup
Footnotes:
1. <X - not detected at a concentration equal to or greater than the method detection limit of X shown
2. j - the detected concentration is less than the reporting limit but greater than the method detection limit and is considered an estimate
3. RWQCB ESL, Table GW-2, freshwater aquatic habitat goals, February 2016 (rev. 3)

October 26, 2018
File No. 28-0126 (KEB)

Napa Wine Company
Attn.: Mr. Andrew Hoxsey
P.O. Box 434
Oakville, CA 94562
Sent via email: AHoxsey@napawineco.com

Diageo North America
Attn.: Mr. Gabriel Bisio, Senior Counsel
Sent via email: Gabriel.Bisio@Diageo.com

SUBJECT: Transmittal of Closure Letter and Case Closure Summary - Oakville Facilities Inglenook/Napa Wine Company, 1187 Oakville Cross Road, Oakville, Napa County

Dear Mr. Hoxsey and Mr. Bisio:

Attached, please find the uniform underground storage tank Closure Letter and Case Closure Summary for the subject Site. The current record fee title owners were notified of the proposed closure in accordance with Section 25296.20 of Chapter 6.7 of the Health and Safety Code. We sent a public notification[1] of the proposed case closure to all interested parties, which included a 60-day public comment period. No comments were received.

Based on Site-specific information and data available in GeoTracker and the Regional Water Board's case file, this Site meets all the criteria in the State Water Board's August 2012 *Low-Threat Underground Storage Tank Case Closure Policy.*[2] Therefore, a No Further Action determination is appropriate.

There may be residual petroleum-contaminated soil and groundwater at this Site that could pose an unacceptable risk during future construction/redevelopment activities, such as excavation activities, the installation of water wells at or near the site, or a change to a more sensitive land use. Contractors undertaking subsurface activities at the Site may encounter soil and groundwater impacted with petroleum hydrocarbons, and any encountered pollution should be managed properly to avoid threats to human health or the environment. Proper management may include sampling, risk assessment, additional cleanup work, mitigation measures, or some combination of these tasks.

[1] See GeoTracker webpage: https://geotracker.waterboards.ca.gov/regulators/deliverable_documents/3952227532/28-0126%20Intent%20to%20Issue%20NFA%20092917%20kb.pdf

[2] See State Water Resources Control Board webpage: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

If you have any questions, please contact Mr. Kevin Brown of my staff at (510) 622-2358 or via email at Kevin.Brown@waterboards.ca.gov.

Sincerely,

for

Digitally signed by Stephen Hill
Date: 2018.10.26 10:06:57 -07'00'

Bruce H. Wolfe
Executive Officer

Attachments: Closure Letter
Case Closure Summary
Figures

Sent via email with Attachments:
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Email: Jeff@vista-env.com

Downey Brand LLP
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Email: DSobelman@downeybrand.com

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Attn.: Mr. Thomas S. Adams
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Napa County Department of Public Works
Attn.: Mr. Steve Lederer
Email: Steven.Lederer@countyofnapa.org

State Water Resources Control Board
Department of Water Quality
Attn.: Mr. Matt Cohen
Email: Matt.Cohen@waterboards.ca.gov

Appendix F Water Quality Assessment Report

Water Quality Assessment Report

Napa Forward – State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections Project – Phase 1

SR-29 at Rutherford Road and Oakville Cross Road

04-NAP-29-22.72/24.59

04-2W430

Napa County, California
September 20, 2023

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Public Affairs, District 4, 111 Grand Avenue, Oakland CA 94612; (510) 286-5576 Voice, or use the California Relay Service TTY number, (800) 735-2929

Napa Forward – State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections Project – Phase 1

SR-29 at Rutherford Road and Oakville Cross Road
Napa County, California
04-NAP-29-22.72/24.59
04-2W430

September 2023

STATE OF CALIFORNIA
Department of Transportation

Prepared By: _____ Date: 9/20/2023
Garrett Low, PE
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Metropolitan Transportation Commission

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Executive Summary

The Metropolitan Transportation Commission (MTC), in cooperation with the Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes the Napa Forward – State Route (SR-) 29 Improvements at Rutherford and Oakville Intersections Project – Phase 1 (Project) to improve the operation and safety of SR-29 at the intersections of Oakville Cross Road (Post Mile [PM] 22.72) and Rutherford Road (PM 24.59). A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the Project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR-29 and Rutherford Road. The purpose of the Project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road.

The purpose of the *Water Quality Assessment Report* (WQAR) is to fulfill the requirements of the National Environmental Policy Act and the California Environmental Quality Act, and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed Project, the general environmental setting of the Project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the Project area and the water quality of these waters, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the proposed Project, and recommends Project features for the potential impacts.

The Project is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), Region 2. The Project would include work within Caltrans' right-of-way, Napa County, and Napa Valley Wine Train's right-of-way, as well as a private property. Project improvements located within Caltrans' right-of-way would comply with the Caltrans Municipal Separate Storm Sewer System (MS4) Permit (NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ). Project improvements located in Napa County's and Napa Valley Wine Train's right-of-way would comply with the Phase II Small MS4 Permit (NPDES No. CAS000004, SWRCB Order No. 2013-0001-DWQ, as amended by Order No. 2015-0133-EXEC, Order No. 2016-0069-EXEC, Order No. 2017-XXXX-DWQ, Order No. 2018-0001-EXEC, and Order No. 2018-0007-EXEC). The Project would also need to adhere to the requirements of the Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ, adopted on September 8, 2022, and will become effective on September 1, 2023) to address temporary impacts during construction.

The Project area is entirely contained within an undefined hydrologic sub-area (206.50) of the Napa River hydrologic area and San Pablo hydrologic unit. The Project's receiving water body is Napa River. The San Francisco Bay RWQCB lists Napa River as having beneficial uses and being pollutant impaired.

The Project is entirely located within the Napa Valley groundwater subbasin (2-002.01) of the Napa-Sonoma Valley groundwater basin. Project-specific groundwater studies are not yet available. Per the *Phase II Environmental Site Assessment Report and Low Threat Closure Request* developed for the Napa Wine Company (which is immediately

adjacent to the Oakville Cross Road intersection), depth to groundwater is approximately 17.5 feet below ground surface.

Permanent impacts to water quality may result from the addition of impervious area; additional impervious area would prevent runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. The Project would result in an increase of 0.34 acres of impervious area; therefore, the Project would have potential to cause stormwater impacts. Permanent stormwater treatment best management practices (BMP) such as bioretention areas, biofiltration areas, media filters, and infiltration devices would be considered to address Project impacts by promoting infiltration, reducing erosion, and collecting, retaining, and treating roadway runoff. Permanent erosion control measures such as hydroseeding, erosion control blankets, and slope paving will be applied to all Disturbed Soil Areas (DSA) to minimize post-construction erosion. Long-term dewatering operations are not anticipated; therefore, no permanent impacts to groundwater are expected.

The Project would have a total DSA of 1.64 acres. Temporary impacts can result from sediment discharge from DSAs and construction near water resources or drainage facilities that discharge to water bodies.

The risk level determination performed for this Project concluded that there is a high receiving water risk and a medium sediment risk, so the Project must follow Risk Level 2 requirements for the CGP. Risk Level 2 projects include the implementation of standard construction site BMPs, quarterly non-stormwater discharge visual inspections, and stormwater inspections pre-storm, daily during a storm event, and post-storm events. Risk Level 2 projects are also required to comply with Numeric Action Level effluent limitations for pH and turbidity. This risk level determination is based on current available information and may be updated, and potentially reduced, in later phases as more refined Project information becomes available.

Temporary construction site BMPs would be needed to limit sediment-laden flows from leaving the construction site, such as temporary fiber rolls, temporary drainage inlet protection, and street sweeping. BMPs such as spill prevention and control, materials management, and liquid waste management can be used to prevent accidental spills of toxic materials associated with construction operations.

The Project is not expected to require dewatering activities. The Project's water quality design goal would be to reduce impacts to water resources to the maximum extent practicable and preserve natural and sensitive habitats using temporary and permanent BMPs. By meeting these goals and incorporating applicable NPDES requirements, water quality impacts would be avoided.

Contents

1 Introduction 1
1.1 Approach to Water Quality Assessment 1
1.2 Project Description 1
2 Regulatory Section 6
2.1 Federal Laws and Requirements 6
2.1.1 Clean Water Act 6
2.2 State Laws and Requirements 7
2.2.1 Porter-Cologne Water Quality Control Act 7
2.2.2 State Water Resources Control Board and Regional Water Quality Control Boards 8
2.2.3 National Pollutant Discharge Elimination System Program 8
2.3 Regional and Local Requirements 10
2.3.1 RWQCB Basin Plan 10
2.3.2 MS4 10
2.3.3 Stormwater Management Plan 10
3 Affected Environment/Existing Conditions 11
3.1 General Setting 11
3.1.1 Population and Land Use 11
3.1.2 Topography 11
3.1.3 Hydrology 11
3.1.4 Geology/Soils 16
3.1.5 Biological Communities 16
4 Environmental Consequences 18
4.1 Introduction 18
4.2 Potential Impacts to Water Quality 20
4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment 20
4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment 25
4.2.3 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment 25
4.2.4 Temporary Impacts to Water Quality 26
4.2.5 Construction Site BMPs 27
4.2.6 Long-term Impacts during Operation and Maintenance 29
4.3 Cumulative Impacts 30
5 Avoidance and Minimization Measures 31
5.1 Avoidance and Minimization Measures for Water Resources 31
6 References 32

Tables

Table 1. Beneficial Uses for Project Receiving Waters 14
Table 2. 303(d) Listed Pollutants 14
Table 3. FEMA FIRM Number 15
Table 4. Project DSA and Impervious Areas 19
Table 5. Permanent Project Features and LID Measures (BMPs) 21
Table 6. Risk Factors 27
Table 7. Construction Site Project Features (BMPs) 28

Figures

Figure 1. Project Location Map 2
Figure 2. Project Vicinity Map 3
Figure 3. CalWater Hydrologic Area 12
Figure 4. Caltrans District 4 December 2022 Trash Generation Ratings 23

Appendices

Appendix A. Risk Level Calculations

Acronyms

Basin Plan	*Water Quality Control Plan for the San Francisco Bay Basin*
BMP	best management practice
Caltrans	California Department of Transportation
CGP	Construction General Permit
CWA	Clean Water Act
DSA	Disturbed Soil Area
EPA	Environmental Protection Act
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
K	erosion factor
LID	low-impact development
LS	length-slope
MS4	Municipal Separate Storm Sewer System
MTC	Metropolitan Transportation Commission
NIS	new impervious surface areas
NNI	net new impervious surface areas
NPDES	National Pollutant Discharge Elimination System
PM	Post Mile
Project	State Route 29 Improvements at Rutherford and Oakville Intersections Project – Phase 1
R	rainfall erosivity
RIS	replaced impervious surface
RWQCB	Regional Water Quality Control Board
SR-29	State Route
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
U.S.	United States
USACE	United States Army Corps of Engineers
WDR	Waste Discharge Requirement

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1 Introduction

1.1 Approach to Water Quality Assessment

The purpose of the *Water Quality Assessment Report* is to fulfill the requirements of the National Environmental Policy Act and the California Environmental Quality Act, and to provide information for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed project, the general environmental setting of the project area, and the regulatory framework with respect to water quality. It also provides data on surface water and groundwater resources within the project area and the water quality of these waters, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the proposed project, and recommends project features for the potential impacts.

1.2 Project Description

Project Location

The proposed State Route (SR-) 29 Improvements at Rutherford and Oakville Intersections Project – Phase 1 (Project) is located along a 2.2-mile segment of SR-29 in an unincorporated area of Napa County. The Project proposes the improvement of two intersections at: SR-29 and Rutherford Road (SR-128) in the community of Rutherford and SR-29 and Oakville Cross Road in the community of Oakville. The Project location is shown in Figure 1 and Figure 2.

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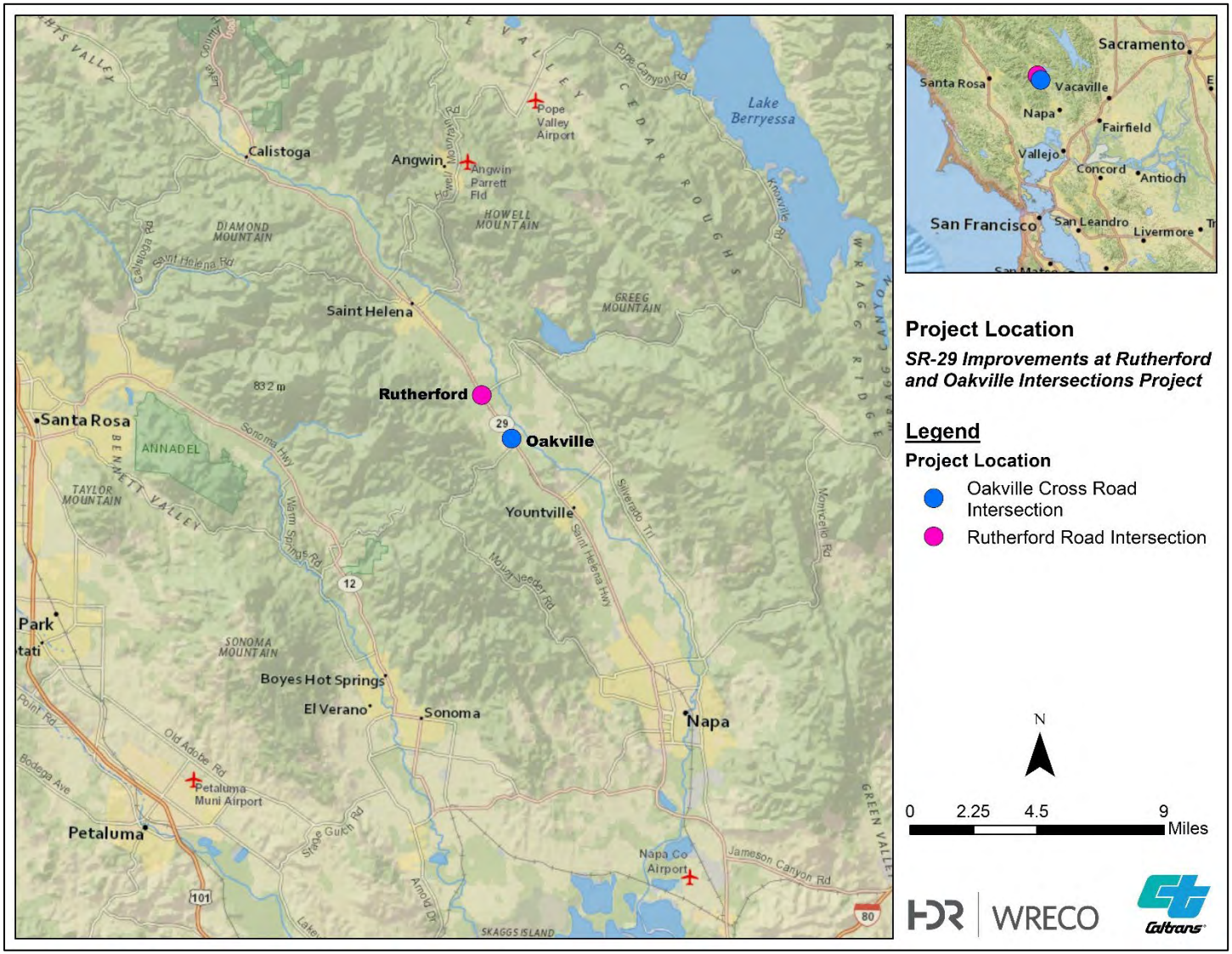
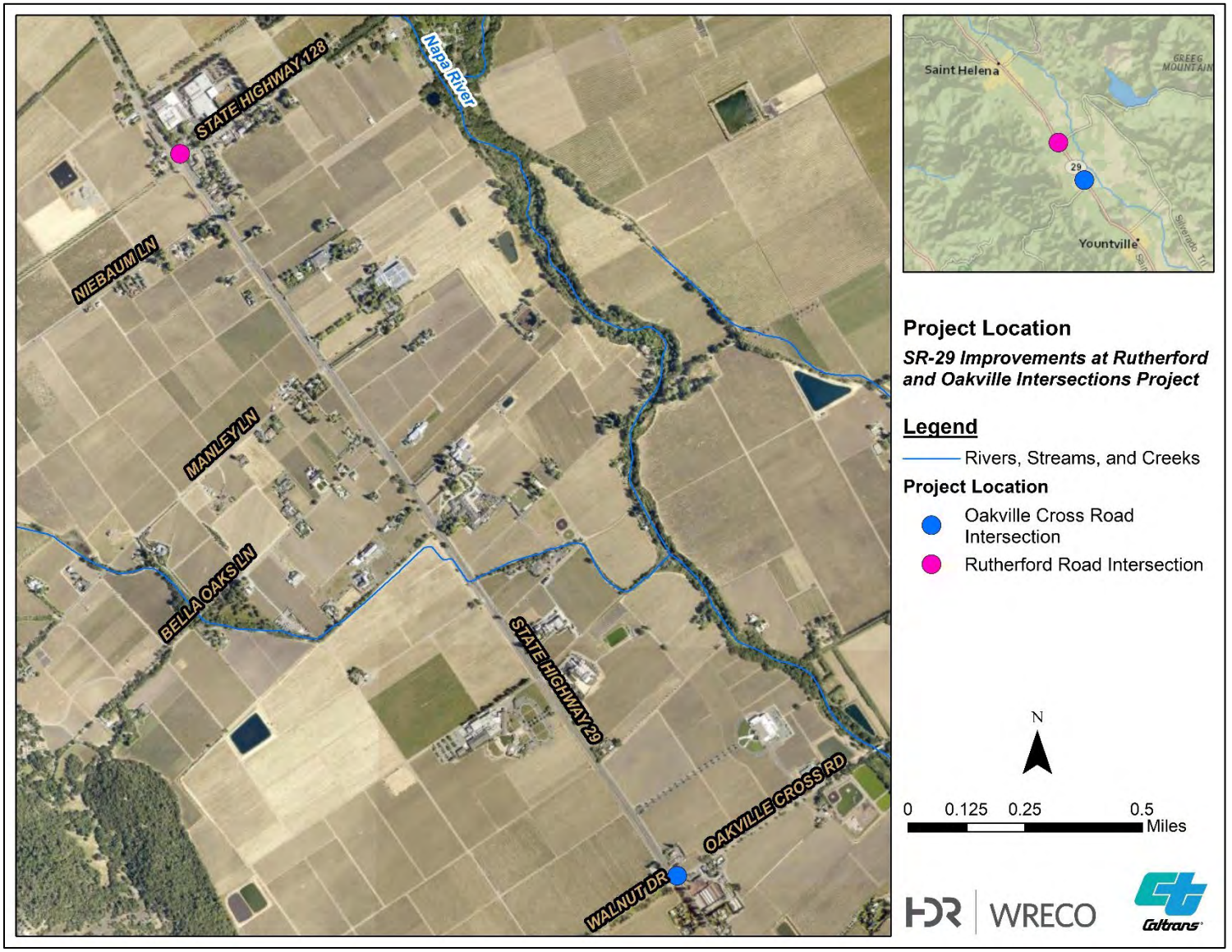
Figure 1. Project Location Map



Source: Environmental Systems Research Institute (ESRI), 2018

Figure 2. Project Vicinity Map



Source: ESRI, 2009

Project Background

In January 2020, the Metropolitan Transportation Commission (MTC) completed a preliminary traffic study to identify the causes of and potential solutions to congestion in the greater Project vicinity. The results indicated that enhanced intersection control at the two intersections would improve multimodal traffic operations performance along SR-29. Preliminary crash data analysis provided by the California Department of Transportation (Caltrans) indicates that the total rate of fatal and injury crashes at these two intersections are above the average crash rate for similar facilities statewide. Based on the results of traffic and safety analyses and feedback received from Project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

Federal Highway Administration studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor.

Existing Conditions

SR-29 is one of the two major north-south corridors that provides connectivity through the cities of Calistoga, St. Helena, Yountville, Napa, and American Canyon within Napa County. It is a primary freight, agricultural, and commute corridor accessing the San Francisco Bay Area and Sacramento as well as nearby Solano and Lake counties. As the gateway to the Napa Valley Wine Country, SR-29 is a main route that brings tens of thousands of tourists to the region each year. Within the Project limits, SR-29 between Whitehall Lane and Oakville Cross Road experiences heavy congestion during peak periods. The existing SR-29 corridor is uncontrolled within the Project study area. Traffic on SR-29 is not required to stop, creating a continuous traffic flow and leaving no gap for side streets to make turns. Therefore, vehicles at many of the side-street stop-controlled intersection approaches along the corridor experience difficulty turning onto SR-29.

Project Description

MTC, in cooperation with the Napa Valley Transportation Authority and Caltrans, proposes to improve the operation and safety of SR-29 at the intersections of Oakville Cross Road (Post Mile [PM] 22.72) and Rutherford Road (PM 24.59). A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the Project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR-29 and Rutherford Road.

Oakville Cross Road Intersection

Limits of construction on SR-29 extend approximately 0.5 mile northerly and southerly from the center of the Oakville Cross Road intersection, approximately 500 feet in the easterly direction along Oakville Cross Road, and approximately 200 feet in the westerly direction at the existing driveway crossing railroad tracks.

The Oakville roundabout would maintain existing traffic patterns, however, ingress to the Oakville grocery would be modified to right-in and right-out only. The Project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather traffic would be routed through the roundabout to access the grocery. Construction of the roundabout also would include the installation of new landscaping, intersection lighting, a pedestrian and bicyclist shared-use path with bike ramps, and splitter islands with curb ramps. In addition, the existing drainage would be modified to accommodate the proposed roundabout, and the existing signage within the right-of-way would be replaced or upgraded.

The existing channelization at the intersection of SR-29 and Oakville Grade Road may be restriped as part of the mainline improvement required for the construction of a roundabout at the intersection of SR-29 and Oakville Cross Road.

Rutherford Road Intersection

At the Rutherford Road intersection, the Project proposes improvements such as a traffic signal, active transportation (improvements include bicyclist and pedestrian facilities that make it safer for pedestrian and bicyclist movements at the intersection), and traffic calming measures along the mainline at the intersection. Limits of improvements on SR-29 would extend approximately 0.5 mile northerly and southerly from the center of the Rutherford Road intersection, and approximately 500 feet easterly along Rutherford Road. Driveway to the Inglenook Winery would be shifted slightly north to align with the intersection. This driveway is currently located south of the intersection.

Due to the proximity to the Napa Valley Wine Train tracks, railroad crossings improvements will also be needed at both intersections.

Purpose and Need

PURPOSE

The purpose of the Project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road.

- Improve travel time and reduce delay for side streets accessing SR-29
- Enhance traffic safety
- Improve turning movements

NEED

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed statewide average for similar type of facility
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming

2 Regulatory Section

2.1 Federal Laws and Requirements

2.1.1 Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The U.S. Environmental Protection Agency (EPA) delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCB). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S, including wetlands. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Individual permits: Standard Individual permit and Letter of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Individual permits. For Standard Individual permit, the USACE decision to approve is based on compliance with the U.S. EPA Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230) (Guidelines), and whether permit approval

is in the public interest. The Guidelines were developed by the U.S. EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have less effects on waters of the U.S. and not have any other significant adverse environmental consequences. Per the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. (See 33 CFR 320.4.)

2.2 State Laws and Requirements

2.2.1 Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S. For example, groundwater and surface waters are not considered waters of the U.S., but they are included in waters of the State. Additionally, it prohibits discharges of "waste" as defined in the Act, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDR), and WDR may be required even when the discharge is already permitted or exempt under the CWA.

The SWRCB and RWQCBs are responsible for establishing the water quality standards as required by the CWA, and for regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions, and then set standards necessary to protect these uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a RWQCB determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDL). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed. The SWRCB implemented the requirements of CWA Section 303(d) through Attachment IV of the Caltrans Statewide MS4, as it includes specific TMDLs for which Caltrans is the named stakeholder.

2.2.2 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and it oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

2.2.3 National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that are designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ (adopted on June 22, 2022; effective January 1, 2023) contains four basic requirements:

1. Caltrans must comply with the requirements of the CGP (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges;
3. Caltrans' stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices (BMP) to the Maximum Extent Practicable, and other measures deemed necessary by the SWRCB and/or other agency having authority reviewing the stormwater component of the project; and
4. Caltrans must implement trash control measures to meet trash regulation compliance. This requirement is per the California Water Code Section 13383 Order issued to the SWRCB to Caltrans, applicable to all Caltrans projects (SWRCB, 2017). However, per the *Caltrans Trash Control Implementation Workplan CTSW-RT-21-379.08.4 (2021)*, full trash capture BMPs are only considered for Significant Trash Generating Areas.

To comply with the permit, Caltrans developed the Statewide Stormwater Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP

describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

The Construction General Permit (CGP) (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ, became effective on September 1, 2023. The CGP regulates stormwater discharges from construction sites which result in a Disturbed Soil Area (DSA) of 1.0 acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's on-line Stormwater Multiple Application and Report Tracking System at least 30 days prior to construction.

Waivers from CGP Coverage

Projects that disturb over 1.0 acre but less than 5 acres of soil, may qualify for waiver of CGP coverage. This occurs whenever the R factor of the Watershed Erosion Estimate (=RxKxLS) in tons per acre is less than 5. Within this CGP formula, there is a factor related to when and where the construction will take place. This factor, the 'R' factor, may be low, medium, or high. When the R factor is below the numeric value of 5, projects can be waived from coverage under the CGP, and are instead covered by the Caltrans Statewide MS4.

In accordance with SWMP, a Water Pollution Control Plan is necessary for construction of a Caltrans project not covered by the CGP.

Construction activity that results in soil disturbances of less than 1.0 acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP, to implement soil erosion and pollution prevention control measures, and to obtain coverage under the CGP.

The CGP contains a risk-based permitting approach by establishing three levels of risk possible for a construction site. Risk levels are determined during the planning, design, and construction phases, and are based on project risk of generating sediments and receiving water risk of becoming impaired. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued

by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may prescribe a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act). WDRs may specify the inclusion of additional project features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.3 Regional and Local Requirements

2.3.1 RWQCB Basin Plan

The Project is within the jurisdiction of the San Francisco Bay RWQCB, Region 2. The *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) (San Francisco Bay RWQCB, 2019) states the goals, policies, beneficial uses, and water quality objectives that apply to water bodies throughout the San Francisco Bay region, which includes the Project area. The Basin Plan has been adopted by the SWRCB, U.S. EPA, and Office of Administrative Law.

2.3.2 MS4

Project improvements are located within Caltrans' right-of-way, Napa County's right-of way, and the Napa Valley Wine Train's right-of-way. Project improvements located within Caltrans' right-of-way would comply with the Caltrans MS4 Permit (NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ). Project improvements located in Napa County's and the Napa Valley Wine Train's right-of-way would comply with the Phase II Small MS4 Permit (NPDES No. CAS000004, SWRCB Order No. 2013-0001-DWQ, as amended by Order No. 2015-0133-EXEC, Order No. 2016-0069-EXEC, Order No. 2017-XXXX-DWQ, Order No. 2018-0001-EXEC, and Order No. 2018-0007-EXEC).

2.3.3 Stormwater Management Plan

The Bay Area Stormwater Management Agencies Association (BASMAA) Phase II Committee has developed the *BASMAA Post-Construction Manual* (2019), which provides design guidance for stormwater treatment and control projects in Marin, Sonoma, Napa, and Solano counties. Project improvements within Napa County's right-of-way would adhere to the treatment and hydromodification requirements specified within the *BASMAA Post-Construction Manual* (2019).

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3 Affected Environment/Existing Conditions

The Project area is located along SR-29 in southern Napa County and is bordered by agricultural areas to the north, Vaca and Mayacamas Mountains to the east and west, respectively, and San Pablo Bay to the south. The Rutherford Road and Oakville Cross Road intersections are approximately 2 miles apart from each other.

3.1 General Setting

3.1.1 Population and Land Use

The U.S. Census Bureau (2021) has determined that the population of Napa County, California, is approximately 136,207. Land uses surrounding the Rutherford Road intersection are classified as Agricultural Preserve, Commercial Limited, and Residential Single Building Sites. Land uses surrounding the Oakville Cross Road intersection are classified as Agricultural Preserve and Commercial Limited (Napa County, 2015).

3.1.2 Topography

The Project area is generally flat with elevations ranging from 140 feet to 160 feet along SR-29 within the Oakville Cross Road intersection and 160 feet to 180 feet within the Rutherford Road intersection (Caltrans, 2023).

3.1.3 Hydrology

Regional Hydrology

Per the watershed delineation shown in shapefiles downloaded from the California Interagency Watershed Mapping Committee (2018), the Project area is entirely contained within an undefined hydrologic sub-area (206.50) of the Napa River hydrologic area and San Pablo hydrologic unit; see Figure 3.

Local Hydrology

Napa River drains approximately 426 square miles between Mountain Saint Helena to the San Pablo Bay. Napa River and its 47 tributaries serve as a linear wilderness running north to south through farmed and partially urbanized valley areas (Friends of the Napa River, 2023).

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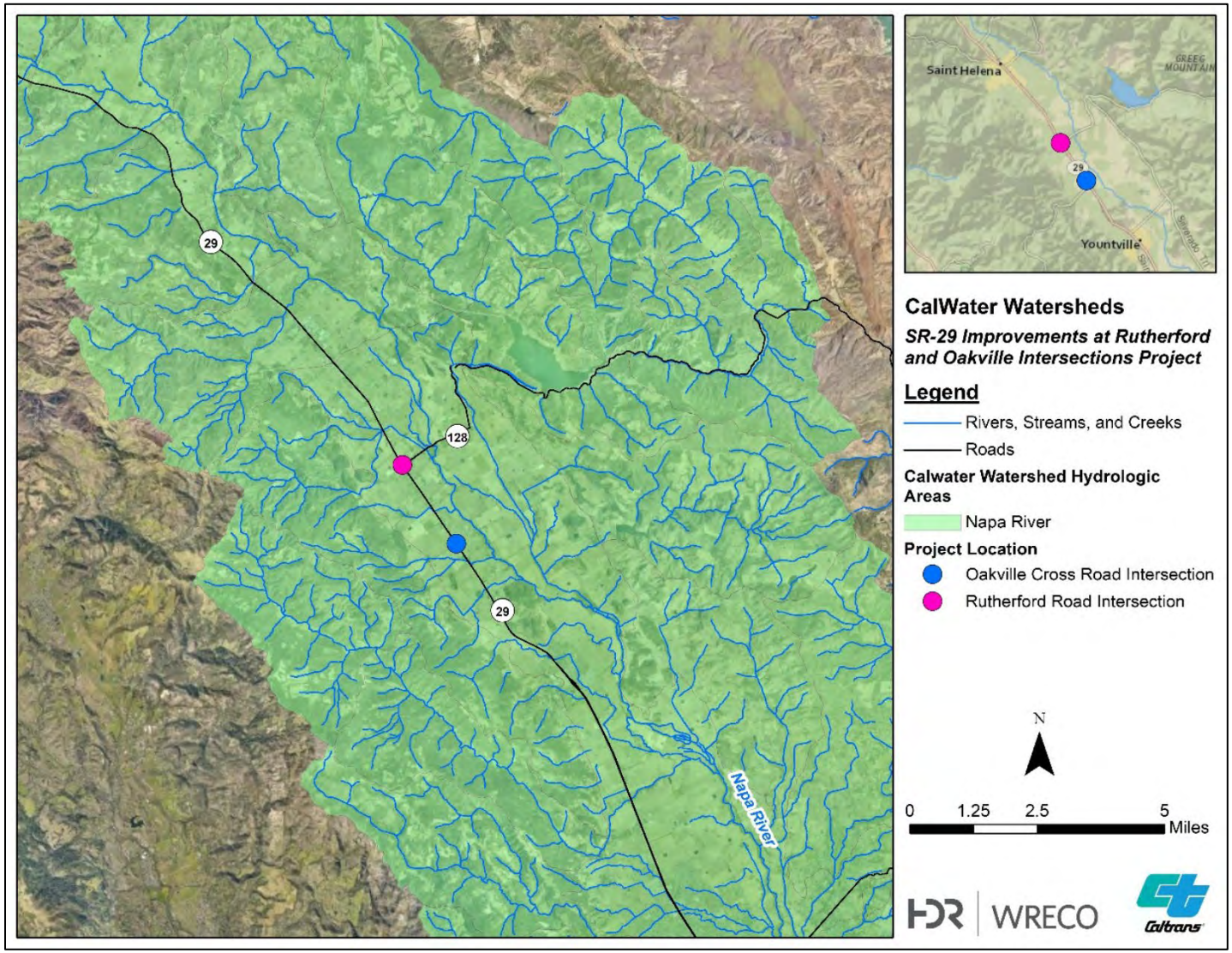
Figure 3. CalWater Hydrologic Area



Source: California Interagency Watershed Mapping Committee, 2018

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Precipitation and Climate

According to the Köppen climate classification system, the Project has a Mediterranean climate, characterized by mild, moist winters and hot, dry summers (University of California, Agriculture and Natural Resources, 2020). According to the Western Regional Climate Center (WRCC), the nearest climate station in the Project area is Oakville 1 W, California (046351). A monthly climate summary from the WRCC for the period of record of April 1, 1906, through June 30, 1981, reported the average precipitation for a calendar year as 32.49 inches. The majority of rainfall occurs between the months of November and March. The warmest month is July with an average high of 85.1 degrees Fahrenheit (°F) and an average low of 51.9 °F. The coolest month is December with an average high of 47.6 °F and an average low of 34.1 °F (WRCC, 2023).

Surface Waters

OAKVILLE CROSS ROAD

Stormwater at the Oakville Cross Road intersection flows away from the roadway's centerline towards the eastern and western edges of the roadway and then through several conveyance systems. South of the intersection, gutter systems run parallel to the roadway, conveying stormwater south. An existing stormwater system composed of several inlets captures the runoff and discharges to a grassy ditch running parallel to the SR-29 northbound lane and adjacent to the right-of-way line. Stormwater runoff northwest of the intersection along the southbound lane is collected by an existing ditch and conveyed northwest away from the Project limits. Runoff within the stretch of roadway along the northbound lane, northeast of the intersection, sheet flows to the adjacent properties onto the vineyards (Caltrans, 2022b). Stormwater ultimately drains to the Napa River, which is located about 0.5 mile east of the Oakville Cross Road intersection.

RUTHERFORD ROAD

The drainage pattern for the Rutherford Road intersection is similar to that of the Oakville Cross Road intersection. Stormwater sheet flows away from the SR-29 centerline and concentrates along the roadway outer edges to be conveyed away from the Project limits (Caltrans, 2022b). Stormwater also drains to the Napa River, which is located approximately 0.5 mile east of the Rutherford Road intersection.

SURFACE WATER QUALITY OBJECTIVES/STANDARDS AND BENEFICIAL USES

According to the Basin Plan, the overall goals of the water quality regulation are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to the society, and to accomplish these in an economically and socially sound manner. The RWQCB establishes and enforces WDRs or point and non-point source pollutants at levels necessary to meet numerical and narrative water quality objectives (San Francisco Bay RWQCB, 2019).

In general, the objectives are intended to govern the concentration of pollutant constituents in the main water mass. The Basin Plan lists water quality objectives for surface water for the following: bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community

ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and un-ionized ammonia (San Francisco Bay RWQCB, 2019).

The Basin Plan states the "the beneficial uses of any specifically Identified water body generally apply to all its tributaries." The Basin Plan lists the following existing beneficial uses for the Project's receiving waters (Table 1) (San Francisco Bay RWQCB, 2019).

Table 1. Beneficial Uses for Project Receiving Waters

Water Body	Beneficial Uses												
	AGR	*MUN*	*GWR*	*COMM*	*COLD*	*MIGR*	*RARE*	*SPWN*	*WARM*	*WILD*	*REC-1*	*REC-2*	*NAV*
Napa River–-nontidal	E	E	E	E	E	E	E	E	E	E	E	E	E

Source: San Francisco Bay RWQCB, 2019
Notes:
AGR – agricultural supply
MUN – municipal and domestic supply
GWR – groundwater recharge
COMM – commercial and sports fishing
COLD – cold freshwater habitat
MIGR – fish migration
RARE – preservation of rare and endangered species
SPWN – fish spawning
WARM – warm freshwater habitat
WILD – wildlife habitat
REC-1 – water contact recreation
REC-2 – non-water-contact recreation
NAV – navigation
E – existing beneficial use

WATER QUALITY IMPAIRMENTS AND TOTAL MAXIMUM DAILY LOADS

Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with the CWA Section 303(d). If a RWQCB determines that waters are impaired for one or more constituents, the CWA requires the establishment of TMDLs to specify allowable pollutant loads from all sources for a given watershed. The *2020-2022 California Integrated Report* (Clean Water Act Section 303(d) List and 305(b) Report) lists Napa River as having the following water quality impairments (Table 2).

Table 2. 303(d) Listed Pollutants

Water Body	Water Quality Impairment	Potential Source	TMDL Completion Date
Napa River	Pathogens	Onsite Wastewater Systems (Septic Tanks)	December 2007
	Sediment	Agriculture Road Construction	September 2009

Source: SWRCB, 2022

Floodplains

Per the Project's *Drainage Report* (2022b), the Project crosses the Federal Emergency Management Agency (FEMA) floodplains and Flood Insurance Rate Maps (FIRM) listed in Table 3. The Project is located within the FEMA Zone X outside of the 100-year floodplain zone. Zone X areas are classified as being outside of the 0.2 percent-annual-chance flood (Caltrans, 2022b).

Table 3. FEMA FIRM Number

RWQCB	FIRM Number
San Francisco Bay RWQCB	06055C0385E
San Francisco Bay RWQCB	06055C0395E

Source: Caltrans, 2022b

Municipal Supply

The *Caltrans District 4 Work Plan* (2022a) identifies two drinking water reservoirs/recharge facility areas within Napa County. One of these drinking water reservoirs/recharge facility areas, Lake Hennessey, is located approximately 3 miles northeast of the proposed Rutherford Road intersection improvement. Lake Hennessey potentially receives runoff from SR-128 (Rutherford Road); however, it is not expected to receive any runoff from the Project due to the distance between the Project and Lake Hennessey. The other drinking water reservoir/recharge facility area, Rector Reservoir, is located approximately 3 miles east of the proposed Oakville Cross Road intersection improvement. The Rector Reservoir does not receive runoff from the Oakville Cross Road intersection.

Groundwater Hydrology

The Project is entirely located within the Napa Valley groundwater subbasin (2-002.01) of the Napa-Sonoma Valley groundwater basin. The Napa Valley subbasin covers approximately 45,895 acres of Napa County and is bounded to the north, east, and west by portions of the Coast Ranges and on the south by San Pablo Bay. The primary water-bearing formations include Recent and Pleistocene Alluvium, the Pleistocene Huichica Formation, and the Pliocene Sonoma Volcanics (Department of Water Resources, 2003).

Groundwater studies are not yet available. Per the *Phase II Environmental Site Assessment Report and Low Threat Closure Request* (Vista Environmental Consulting, 2017) developed for the Napa Wine Company (which is immediately adjacent to the Oakville Cross Road intersection), depth to groundwater is approximately 17.5 feet below ground surface. This section will be updated once site-specific groundwater levels are confirmed.

Groundwater Quality Objectives/Standards and Beneficial Uses

The Basin Plan has water quality objectives listed for all groundwaters of the Napa Valley groundwater subbasin (2-002.01). Groundwater objectives consist primarily of narrative objectives combined with limited number of numerical objectives. In addition, the SWRCB establishes basin- and/or site-specific numerical groundwater objectives as necessary. Per the Basin Plan, at a minimum, groundwater shall not contain

concentrations of bacteria, chemical constituents, radioactivity, or substances producing tastes and odors (San Francisco Bay RWQCB, 2019).

The Basin Plan lists the Napa Valley groundwater subbasin (2-002.01) as having the following existing beneficial uses: Municipal and Domestic Water Supply (MUN), Industrial Process Supply (PRO), Industrial Service Supply (IND), and Agricultural Water Supply (AGR).

3.1.4 Geology/Soils

Based on available information from Caltrans Water Quality Planning Tool (2023), the Project is underlain by alluvium and terrace of Pliocene to Holocene age.

Soil characteristics for the Project area were obtained from the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service's *Web Soil Survey* (2023). Soils near the Rutherford Road intersection are classified as Bale clay loam with 0 to 2 percent slopes. Soils near the Oakville Cross Road intersection are classified as Bale loam with 0 to 2 percent slopes. Soils at both intersections are classified as Hydrologic Soil Group B (USDA, 2023). Soils classified as Hydrologic Soil Group B have moderately low runoff potential and moderately high infiltration (USDA, 2007).

Per the Project's *Initial Site Assessment Overview Study* (Geocon Consultants, Incorporated, 2022), soil in the Project areas may contain elevated levels of hydrocarbons and aerially deposited lead from roadway use, pesticides from agricultural use, herbicides, metals, and polycyclic aromatic hydrocarbons near the Wine Train's right-of-way.

Soil Erosion Potential

The erosion factor (K) indicates the erodibility of the fine-earth fraction of the soil. The factor is given as a percentage or fraction ranging from 0.02 to 0.69; the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The Caltrans Water Quality Planning Tool (2023) identifies the K factor within the Project area to be 0.28 (Appendix A), which suggests the soils have moderate potential for erosion. The *Caltrans District 4 Work Plan* (2022a) does not identify any slopes prone to erosion near or within the Project area.

3.1.5 Biological Communities

The following sections summarize the information from the Project's *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021), which provides detailed information regarding the biological resources within the Project area.

Riparian Habitat and Wetlands

Per the *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021), there are no streams, wetlands, or other bodies of water within the Project footprint.

Special-Status Species

Per the *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021), there is potential for California red-legged frog (*Rana draytonii*), foothill yellow-legged frog

(*Rana boylii*), Delta smelt (*Hypomesus transpacificus*), and California freshwater shrimp (*Syncaris pacifica*) to exist within the Project area; however, it is unlikely for California red-legged frog and highly unlikely for foothill yellow-legged frog, Delta smelt, and California freshwater shrimp to exist within the Project area, as there is no suitable habitat for these species.

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4 Environmental Consequences

4.1 Introduction

The following sections present the potential temporary and permanent water quality impacts from the Project activities. Potential temporary and permanent water quality impacts, as well as project features, were evaluated for the Project as a whole because it is anticipated that the Rutherford Road and Oakville Cross Road intersection improvements will result in similar impacts and project features.

Temporary water quality impacts can result from the sediment discharge from DSAs and construction near water resources or drainage facilities that discharge to water bodies. Permanent impacts to water quality can result from the addition of impervious area; this additional impervious area could prevent runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. The estimates for DSA, and existing, post-Project, and replaced impervious surface (RIS) for the Project are listed in Table 4. The DSA includes the proposed impervious area work, planned grading, and other unpaved areas that may be disturbed due to construction. The new impervious surface areas (NIS) consist of areas of net new impervious surface areas (NNI) and RIS. NNI considers impervious surface that would be replaced down to subgrade or native soil. The post-construction treatment area (PCTA) is equal to the NIS because the NNI is less than 50 percent of the total post-Project impervious area. The DSA and impervious area values will be further refined during the design phase once the limits of grading, construction staging locations, and other areas of improvement have been further developed.

Implementation of water quality project features required for all construction projects in compliance with federal, state, and local requirements would minimize the potential for water quality impacts to nearby drainage facilities and water bodies.

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Table 4. Project DSA and Impervious Areas

Jurisdiction	Disturbed Soil Areas (acre)	Impervious Areas						
		Existing (acre)	***Post-Project (acre)***	***Permanently Removed (square feet)***	***NNI (square feet)***	***RIS (square feet)***	***NIS (square feet)***	***PCTA (square feet)***
Caltrans	0.97	2.12	2.10	6,098.40	-871.20	30,927.60	30,056.40	30,056.40
Napa County	0.32	0.40	0.49	1,742.40	3,920.40	6,534.00	10,454.40	10,454.40
Napa Valley Wine Train	0.35	0.20	0.47	1,742.40	11,761.20	0.00	11,761.20	11,761.20
Total	1.64	2.72	3.06	9,583.20	14,810.40	37,461.60	52,272.00	52,272.00

Source: GHD, 2023

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4.2 Potential Impacts to Water Quality

4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

The following sections describe the specific physical and chemical characteristics of stormwater that can potentially be impacted by the Project.

Currents, Circulation, or Drainage Patterns

The Project would result in an increase in impervious area of 0.34 acre that would not allow water to be infiltrated or dispersed over unpaved surfaces. It is the goal of the Project to maintain the watershed's drainage patterns. The Project would convey flows to the existing drainage systems and incorporate water quality treatment elements to reduce the impacts of added impervious area.

Suspended Particulates (Turbidity)

The Project would result in the creation of additional impervious area, which would increase the amount of runoff not infiltrated or dispersed over unpaved surfaces. While the added impervious area could result in an increase of sediment-laden flow directly discharging into receiving waters, stormwater impacts would be minimized through proper implementation of permanent stormwater treatment measures and design pollution prevention (DPP) BMPs.

Permanent erosion control measures would be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization. These measures may include hydraulically applying a combination of hydroseed with native seed mix, hydromulch, straw, tackifier, and compost to promote vegetation establishment, and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. The Project area is mostly flat; however, for steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving could be considered to provide stabilization.

The Caltrans MS4 permit contains provisions to reduce pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures to control pollutant discharges must be considered and implemented for all new or reconstructed highway facilities that have an increase in NNI of 10,000 square feet.

The Phase II Small MS4 permit also contains provisions to reduce pollutant loadings from the facility once construction is complete. The Phase II Small MS4 permit specifies that permanent measures to control pollutant discharges must be considered and implemented for all projects that create and/or replace 5,000 square feet or more of impervious surface.

The Project would create approximately 14,810 square feet of impervious area so the Project would be required to implement stormwater treatment controls under both the Caltrans MS4 and Phase II Small MS4 permits. The treatment BMP strategy for areas within Caltrans' right-of-way would comply with the Caltrans MS4 permit and would follow Caltrans' *Project Planning and Design Guide* (2019b). The treatment BMP strategy for

areas within Napa County's right-of-way would comply with the Phase II Small MS4 permit and would follow the BASMAA Phase II Committee's *BASMAA Post-Construction Manual* (2019).

Potential treatment BMPs and low-impact development (LID) measures that could be considered for the Project are listed in Table 5. The final drainage design, selection of treatment BMPs, types, and locations, and determination of impervious area treated would be refined during the Plans, Specifications, and Estimate Phase when detailed design information is developed.

Table 5. Permanent Project Features and LID Measures (BMPs)

Project Feature (BMP)	Purpose
Permanent Erosion Control	
Hydroseed	Water-based mixture of wood/paper fiber (straw), stabilizing emulsion (tackifier), fertilizer, compost, and native seed mix to be applied to unvegetated slopes.
Permanent Fiber Rolls	Degradable fibers rolled tightly and placed on the toe and face of slopes to intercept runoff.
Erosion Control Netting/Blankets	Netting/blankets placed on steep slopes to reduce soil erosion.
Drainage Facilities	
Energy Dissipation Devices • Flared end sections • Tee dissipaters	Devices placed at pipe inlets and/or outlets to reduce scour and velocity of stormwater flows prior to discharge to receiving waters.
Rock Slope Protection	Angular rocks placed on streambanks, outfalls, and/or slopes to reduce soil erosion at locations where vegetation cannot be maintained.
Source Control Measures	
Drain Inlet Markers	Markers that inform people to not add pollutants into storm drains.
Protection of Existing Vegetation	Protection of existing trees and/or landscaped areas that would not be disturbed from Project activities.
Plant Selection	Selection of diverse species based on pest- and/or disease-resistance, drought-tolerance, and/or attraction to beneficial insects.
Irrigation Practices for Landscaping	Implementation of an effective irrigation system for landscaped areas and practices to conserve water.
Pesticide Management for Landscaping	Reduction of insect pests, plant diseases, and weeds without the use of pesticides and quick-release synthetic fertilizers.
Treatment Measures	
Bioretention Areas	Areas that intercept stormwater runoff and remove sediment and pollutants through infiltration in vegetation and biologically active soils.
Biofiltration Areas	Areas that intercept stormwater runoff and remove sediment and pollutants through filtration through the vegetation, update by plant biomass, sedimentation, adsorption to soil particles, and infiltration through the soil.
Media Filters	Sand filters that remove sediment and total suspended solids (metals, trash, nutrients).
Infiltration Devices	Devices designed to infiltrate stormwater into the surface.

Source: Caltrans, 2019b; BASMAA, 2019

Oil, Grease, and Chemical Pollutants

Trash and heavy metals associated with vehicle tire and break wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, roadway stormwater runoff has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The pollutants are dispersed from combustion products produced by fossil fuels and the wearing of brake pads and tires. In addition, pollutants are dispersed from tree leaves that have been exposed through aerial particulates from exhaust and heavy metals from breaking. As discussed in Section 3.1.4, soils in the Project area may contain elevated levels of hydrocarbons, aerially deposited lead, pesticides, herbicides, metals, and polycyclic aromatic hydrocarbons.

As discussed in Section 4.1, the Project would implement treatment BMPs to remove pollutants from the stormwater runoff before discharging into receiving waters. If treatment BMPs are implemented, the goal of the Project would be to fully treat the PCTA of 1.2 acres. The implementation of treatment BMPs and source control measures would further reduce impacts to water quality.

According to the Caltrans District 4 December 2022 Trash Generation Ratings mapping application (Michael Baker International, Incorporated, 2022) (Figure 4), the Project is designated has having low Significant Trash Generating Areas, and therefore, is not required to implement trash capture devices.

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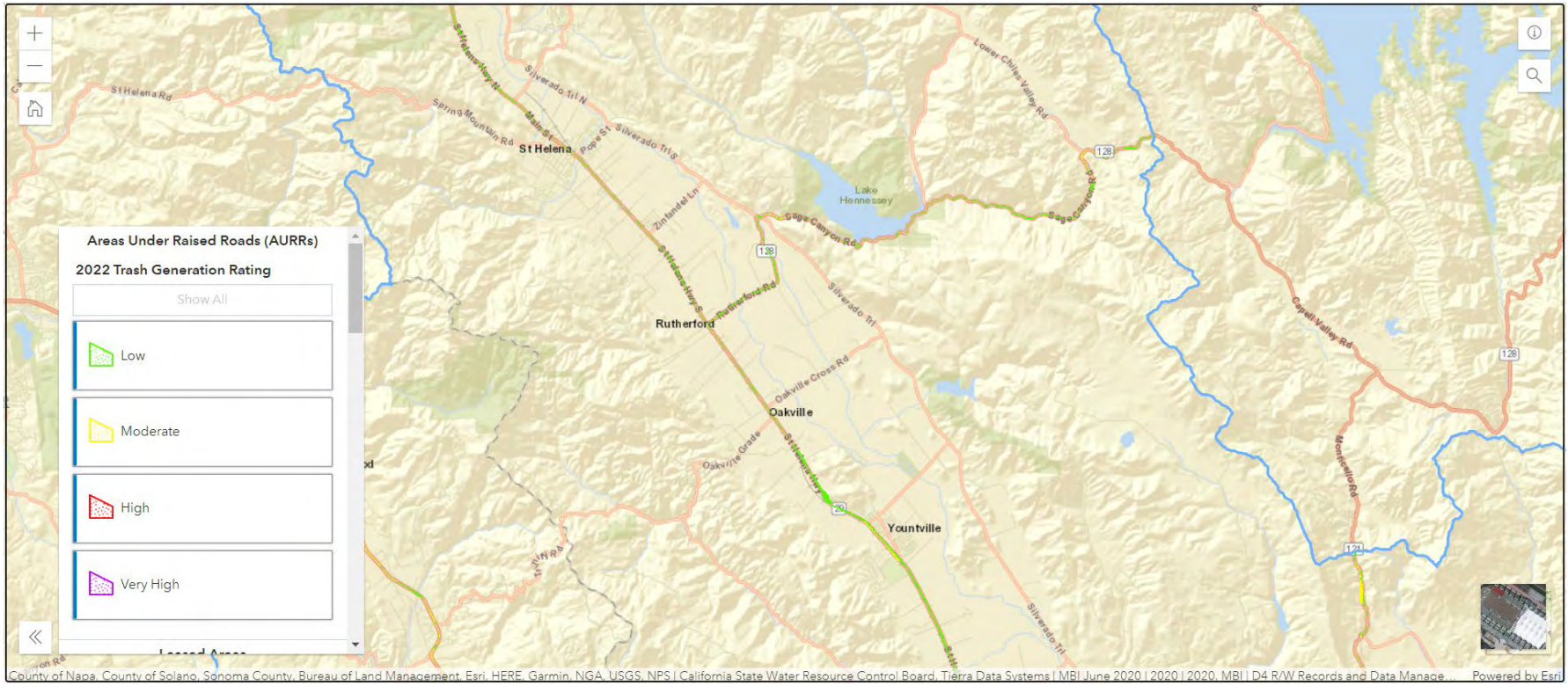
Figure 4. Caltrans District 4 December 2022 Trash Generation Ratings



Source: Michael Baker International Incorporated, 2022

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Flood Control Functions

The Project would not change the overall land use. Per the Project's *Drainage Report*, Project improvements would not adversely impact the FEMA floodplains. The goal of the Project is to avoid and minimize any impacts to the existing floodplains and their beneficial uses. (Caltrans, 2022b)

Erosion and Accretion Patterns

Increases in impervious areas can result in the modification of runoff hydrographs to existing receiving water bodies by increasing the flow volumes and rates and peak durations from the loss of unpaved overland flow routes and infiltration capacity. These hydromodification impacts can cause increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding potential.

Per the Caltrans MS4 permit, projects that add 10,000 square feet or more of new impervious surface with any impervious portion of the project located within a Threshold Drainage Area must conduct a rapid assessment of stream stability at each stream crossing within that Threshold Drainage Area. A Threshold Drainage Area is defined as an area draining to a location at least 20 channel widths downstream of a stream crossing (pipe, swale, culvert, or bridge) within project limits. This Project does not cross any streams; therefore, it is not required to conduct a rapid assessment of stream stability or implement hydromodification management measures within Caltrans' right-of-way.

Per the Phase II Small MS4 permit, projects that create or replace 1 acre or more of impervious surface area (with a net increase in impervious area) must implement hydromodification management measures. This Project proposes to create or replace less than 1 acre of impervious surface within Napa County's right-of-way and Napa Valley Wine Train's right-of-way; therefore, it is not required to implement hydromodification management measures within either right-of-way.

Aquifer Recharge/Groundwater

The Project would result in the addition of impervious surface and reduction of available unpaved area that previously allowed runoff to infiltrate into native soils. Increases in impervious surface have the potential to reduce runoff infiltrating through native soil, which could result in loss in volume or amount of water that previously recharged localized aquifers and reduce regional groundwater volumes. The reduction in groundwater recharge also has potential to impact beneficial uses of groundwater basins. These impacts are anticipated to be negligible because the increase in impervious surface created by the Project is minimal compared to the overall watershed, and as discussed earlier in this section, stormwater treatment BMPs would allow for stormwater infiltration to minimize impacts to groundwater. In addition, long-term dewatering operations are not anticipated for this Project. Therefore, permanent impacts to groundwater are not expected.

4.2.2 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

The following sections summarize the permanent Project-related impacts based on information from the Project's *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021), which provides detailed information regarding the biological resources within the Project area.

Special Aquatic Sites

Per the *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021) there are no streams, wetlands, or other bodies of water within the Project footprint; therefore, there would be no impacts to special aquatic sites.

Habitat for Fish and Other Aquatic Organisms

Per the *Site Reconnaissance for Biological Resources Memorandum* (WSP, 2021), it is unlikely for the Project to affect habitat for fish or other aquatic organisms which have potential to be within the Project area as there is no suitable habitat for these species.

4.2.3 Anticipated Changes to the Human Use Characteristics of the Aquatic Environment

Existing and Potential Water Supplies; Water Conservation

No Project runoff would discharge to Lake Hennessey or Rector Reservoir; therefore, impacts to existing or potential water supplies are not anticipated.

Recreational or Commercial Fisheries

Napa River has the beneficial use of commercial and sport fishing. The Project would not change or impact these beneficial uses; however, the added impervious area could increase sediment and other pollutants within the Napa River watershed and impact the water quality features of these beneficial uses. To minimize impacts, the Project would implement stormwater treatment BMPs to remove these pollutants from stormwater runoff before discharging into Napa River. Therefore, the Project is not expected to have permanent impacts on recreational or commercial fisheries.

Other Water-Related Recreation

Napa River has the beneficial uses of water contact recreation and noncontact water recreation. Napa River's recreation beneficial uses would not be impacted by the Project, and Napa River would maintain the water quality features associated with these beneficial uses. The Project would construct stormwater treatment BMPs to filter sediment and other pollutants from stormwater runoff before discharging into Napa River. Therefore, there are no anticipated permanent impacts on water-related recreation.

Parks, National and Historic Monuments, National Seashores, Wild and Scenic Rivers, Wilderness Areas, etc.

There are no historic monuments, national seashores, or wild and scenic rivers within the Project vicinity; therefore, no impacts on these are anticipated.

Traffic/Transportation Patterns

The overall goal of the Project is to enhance safety and traffic operations at the intersections of SR-29 and Oakville Cross Road and SR-29 and Rutherford Road. Project improvements will allow for safer vehicle, pedestrian, and bicycle access once construction is complete. Additionally, the intersection improvement at Oakville Cross Road/SR-29 would provide U-Turn movements for all vehicles.

4.2.4 Temporary Impacts to Water Quality

Project cut-and-fill, grading, and excavation activities have the potential to increase erosion and result in temporary water quality impacts. Sediment-laden flow can result from runoff over DSAs and enter storm drainage facilities. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, unstabilized slopes and construction staging areas, and construction equipment not properly maintained or cleaned. Earth moving and other construction activities can cause minor erosion and runoff of topsoil into the drainage systems within the Project during construction, which can temporarily affect water quality.

Impacts can occur during construction-related activities. Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in stormwater runoff generated within the Project limits. These conditions would persist until the completion of construction activities and implementation of long-term erosion control measures.

Fueling or maintenance of construction vehicles could occur within the Project site during construction, so there would be a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter the local receiving waters and storm drains. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

Per the Project's *Initial Site Assessment Overview Study* (Geocon Consultants, Incorporated, 2022), it is unlikely that groundwater will be encountered with the planned excavation depths. Therefore, dewatering operations are not anticipated.

Construction activities would implement construction site BMPs to minimize short-term impacts. The following outlines temporary measures that may be taken during Project construction.

Construction General Permit Risk Level Assessment

The Project would disturb 1.64 acres of soil and must comply with the CGP, which includes performing a risk level assessment to determine the required monitoring and sampling of stormwater during construction. The risk level assessment is determined from the combined receiving water risk and sediment risk.

The Project's receiving water body, Napa River, has the combined beneficial uses of cold freshwater habitat, fish migration, and fish spawning and is impaired for sediment. Therefore, the Project's receiving water risk is high.

The sediment risk factor is determined from the product of rainfall erosivity (R) factor, the K factor, and the length-slope (LS) factor. The R, K, and LS factor information is included in Appendix A of this report. Using the method described in the U.S. EPA's Rainfall Erosivity Factor Calculator for Small Construction Sites (2022), for a construction duration of approximately 18 months, the calculated R factor at the Project is 123.1. The Caltrans Water Quality Planning Tool (2023) identifies the K factor to be 0.28 and the LS factor to be 0.89. The product of these values is 30.68 tons per acre (123.10 x 0.28 x 0.89); because this value is between 15 and 75, the Project would be classified as having a medium sediment risk.

Table 6 summarizes the receiving water and sediment risks and presents the calculated Risk Level. The sediment risk would be updated during the design phase as detailed Project information becomes available. The factors used to determine the planning watershed sediment and receiving water risks are included in Appendix A.

Table 6. Risk Factors

R Factor	K Factor	LS Factor	Product (R*K*LS)	Sediment Risk	Receiving Water Risk	Risk Level
123.1	0.28	0.89	30.68	Medium	High	2

Source: Caltrans, 2023; San Francisco Bay RWQCB, 2019; U.S. EPA, 2022

The high receiving water and medium sediment risks result in the Project being classified as Risk Level 2. Therefore, in addition to implementation of standard construction site BMPs, the contractor would be required to perform quarterly non-stormwater discharge visual inspections, in addition to inspections pre-storm, daily during a storm event, and post-storm. Risk Level 2 projects are also required to comply with Numeric Action Level effluent limitations for pH and turbidity. This assessment may be updated during the design phase as detailed Project information becomes available.

4.2.5 Construction Site BMPs

Potential temporary impacts to water quality can be avoided or minimized by implementing standard BMPs recommended for a particular construction activity. The selected temporary BMPs should be consistent with the practices required under the Caltrans MS4 and Phase II Small MS4 permits. Compliance with the requirements of these permits and adherence to their conditions would reduce or avoid potential construction-related impacts.

Temporary erosion control measures can be applied to all areas during construction, including the trapping of sediment within the construction area through the placement of barriers, such as fiber rolls, to prevent sheet flow from concentrating and establishing gullies. Other methods of minimizing erosion impacts include the implementation of hydromulching and/or limiting the amount and length of exposure of graded soil. In addition to these erosion control measures, the use of compost is strongly encouraged by Caltrans. Compost not only improves erosion resistance and vegetation

establishment, but it also helps immobilize heavy metals that are common along highways. Compost can be considered during the design phase of the Project.

The suggested minimum temporary control BMPs that the Project may consider are included in Table 7. Further evaluation of the BMPs necessary for this Project to comply with the Caltrans MS4 permit and Phase II MS4 permit would be detailed during the design phase.

Table 7. Construction Site Project Features (BMPs)

Project Feature (BMP)	Purpose
Vehicle Tracking and Dust Control	
Stabilized Construction Access	Reduce dirt and mud tracking onto roads and public rights-of-way through rock pads or construction mud mats.
Street Cleaning/Sweeping	Prevent tracked soils, sand, and other debris from entering streets and paved areas by removing it from roadways.
Dust/Wind Erosion	Reduce dust generation from DSAs through water or commercial stabilizers to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or dust palliatives.
Erosion and Sediment Control	
Rolled Erosion Control Products	Stabilize soils by placing geotextiles, plastic covers, and erosion control blankets and mats on disturbed areas.
Temporary Hydraulic Mulch	Temporarily protect soil surfaces from wind and water erosion by spraying a wood mulch and water mixture.
Temporary Hydroseeding	Temporarily protect soils from wind and water erosion by spraying a fiber, seed, fertilizer, and stabilizing liquid mixture.
Drainage Inlet Protection	Prevent sediment from entering storm drain systems through excavation around the inlet perimeter or reusable barrier around the drain entrances.
Temporary Fiber Roll	Intercept stormwater runoff, reduce velocity, release runoff as sheet flow, and provide some sediment removal along slopes using straw, flax, or synthetic fiber roll.
Temporary Silt Fence	Detain sediment-laden water through the use of a geotectile fence at the bottom of slopes.
Temporary Check Dam	Small barrier constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary products placed across constructed swale or drainage ditch to reduce the effective slope of channel.
Scheduling	Plan that details sequence of construction activities and BMP implementation, taking local climate into consideration to reduce amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practice in accordance with the schedule.
BMP Inspection and Maintenance	Inspection and maintenance of BMPs before, during, and after rain events, to ensure that BMPs are implemented and operating properly.
Preservation of Existing Vegetation	Protection of existing trees, vines, shrubs, and grasses that protect soil from erosion.

Project Feature (BMP)	Purpose
Non-Stormwater and Waste/Material Management	
Water Conservation	Implement procedures for reducing amount of water needed for construction activities.
Concrete Management	Implement procedures for reducing/eliminating stormwater runoff contamination from concrete curing, cutting, drilling, and coring activities through containment structures.
Temporary Concrete Washout Facilities	Prevention, reduction, or elimination of pollutant discharges from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.
Paving and Grinding Operations	Implement procedures for handling and removing materials during pavement preparation, paving, surfacing, resurfacing, paint striping, and thermoplastic striping and placement during construction.
Material Delivery and Storage	Implement procedures for delivery and storage of materials during construction.
Stockpile Management	Implement procedures for stockpiling of construction materials during construction.
Sanitary Waste	Implement procedures for preventing waste from portable sanitary facilities from entering storm drain systems, natural waterways, and channels.
Solid Waste	Implement procedures for collecting and disposing solid waste materials.
Liquid Waste	Implement procedures for preventing non-hazardous liquid waste from entering storm drain systems.
Spill Prevention and Control	Implement procedures for preventing and responding to pollutant discharges into drainage systems.
Contaminated Soil	Implement procedures for identification and handling of contaminated soils on a construction site.
Illicit Connection/Discharge Waste	Recognize and report illicit connections/illegally discharged material on a construction site.
Vehicle and Equipment Cleaning	Procedures and practices designed to eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations.
Vehicle and Equipment Fueling	Procedures and practices are designed to prevent fuel spills and leaks and reduce or eliminate contamination of stormwater.
Vehicle and Equipment Maintenance	Prevention or reduction of the contamination of stormwater resulting from vehicle and equipment maintenance by running a “dry and clean site.”

Source: Caltrans, 2019a; California Association of Stormwater Quality Agencies, 2019

4.2.6 Long-term Impacts during Operation and Maintenance

The added impervious area would have a minimal increase to stormwater pollution effects because runoff from Project activities would be treated with stormwater treatment facilities and diverted into existing drainage systems. Pollution and runoff sources are not

expected to change. These impacts would be reduced through the implementation of stormwater treatment BMPs and DPP BMPs. These BMPs are discussed in Section 4.2.1.

4.3 Cumulative Impacts

There may be cumulative impacts from other projects that are underway or planned for the area. As this Project and other concurrent or planned projects would be subject to NPDES permit requirements and have their own BMPs, the cumulative impacts are expected to be minimal.

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5 Avoidance and Minimization Measures

5.1 Avoidance and Minimization Measures for Water Resources

There are currently no identified Project impacts to jurisdictional features. The Project would incorporate project features and standardized measures that are listed in Section 4 for permanent and temporary impacts. With the implementation of these project features, any adverse impacts to water quality would be minimal. Biological permits for the Project are also not anticipated at this time. Therefore, no avoidance, minimization, and/or mitigation measures for water quality are required.

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6 References

BASMAA Phase II Committee

2019 *BASMAA Post-Construction Manual*

California Association of Stormwater Quality Agencies

2019 *Stormwater Best Management Practice Online Handbook: Construction*

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2019a *Construction Site Best Management Practice Manual*

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2022 National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State of California Department of Transportation. Order No. 2022-0033-DWQ, NPDES No. CAS000003, effective January 1, 2023.

2013 National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s). Order No. 2013-0001-DWQ, as amended by Order No. 2015-0133-EXEC, Order No. 2016-0069-EXEC, Order No. 2017-XXXX-DWQ, Order No. 2018-0001-EXEC, and Order No. 2018-0007-EXEC, NPDES No. CAS000004, effective July 1, 2013.

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Appendix A Risk Level Calculations

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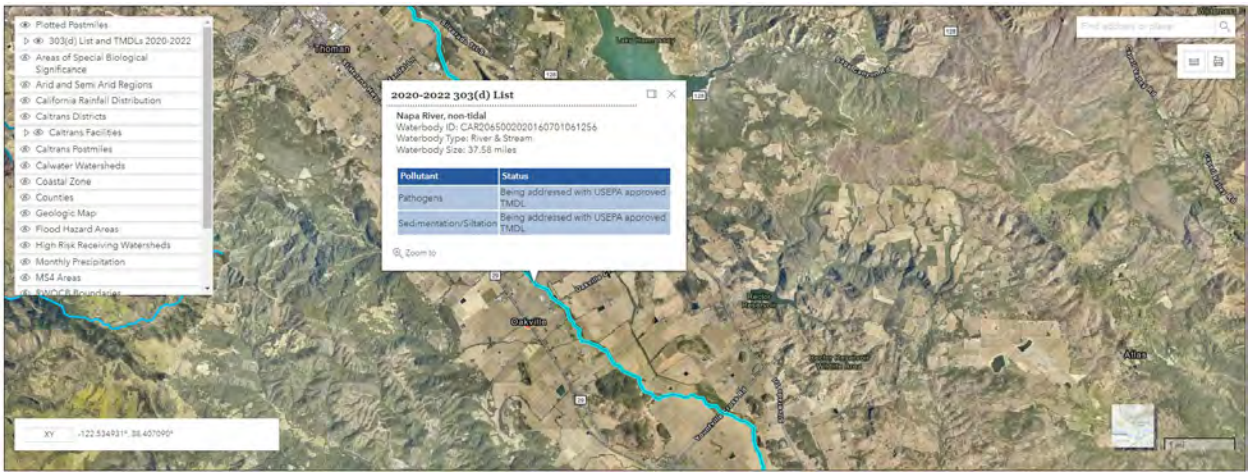
Receiving Water Body Risk Level: High

303(d) Listing for Sediment:



Source: Caltrans, 2023

Napa River has all three COLD, SPWN, and MIGR beneficial uses:

Water Body	Beneficial Uses												
	AGR	***MUN***	***GWR***	***COMM***	***COLD***	***MIGR***	***RARE***	***SPWN***	***WARM***	***WILD***	***REC-1***	***REC-2***	***NAV***
Napa River–-nontidal	E	E	E	E	E	E	E	E	E	E	E	E	E

Source: San Francisco Bay RWQCB, 2019

Sediment Risk Level: Medium

R Factor: 123.1

Coordinates:

Latitude 38.449470

Longitude -122.414043

Construction Duration:

April 29, 2024 – December 16, 2025

Facility Information

Start Date: 04/29/2024	**Latitude:** 38.4495
End Date: 04/28/2025	**Longitude:** -122.4140

Calculation Results

Rainfall erosivity factor (R Factor) = **91.58**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority (pdf), you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

Facility Information

Start Date: 04/29/2025	**Latitude:** 38.4495
End Date: 12/15/2025	**Longitude:** -122.4140

Calculation Results

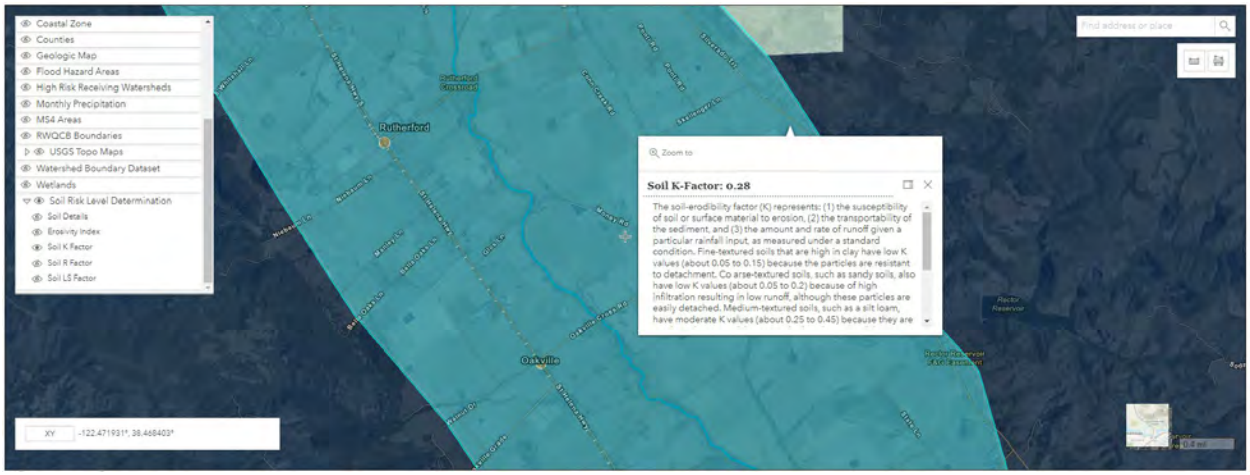
Rainfall erosivity factor (R Factor) = **31.52**

A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority (pdf), you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

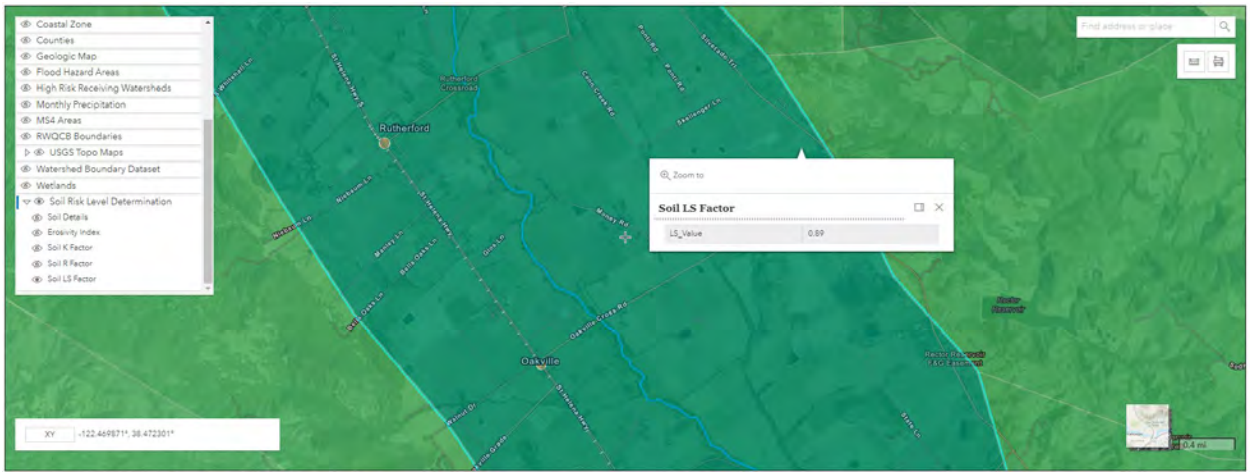
Source: U.S. EPA, 2023

K Factor: 0.28



Source: Caltrans, 2023

LS Factor: 0.89



Source: Caltrans, 2023

Combined Risk Level – 2

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5		**R Factor Value**	123.1
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9		**K Factor Value**	0.28
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13		**LS Factor Value**	0.89
14			
15		**Watershed Erosion Estimate (=RxKxLS) in tons/acre**	30.67652
16		**Site Sediment Risk Factor**	**Medium**
17		Low Sediment Risk: < 15 tons/acre	
18		Medium Sediment Risk: >=15 and <75 tons/acre	
19		High Sediment Risk: >= 75 tons/acre	
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	**Yes**	**High**
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml		

Combined Risk Level Matrix

Receiving Water Risk \ Sediment Risk	Low	Medium	High
Low	Level 1	Level 2	
High	Level 2		Level 3

Project Sediment Risk: Medium
Project RW Risk: High
Project Combined Risk: Level 2

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Appendix G Noise Study Report

The Proposed Napa Forward Intersection Improvement Project at Postmiles 22.72 to 24.59 on State Route 29

Noise Study Report

Intersection Improvements along State Route 29 at Rutherford Road and Oakville Cross Road

Communities of Rutherford and Oakville, CA

04-NAP-SR 29-22.72/24.59

EA 2W430

Project ID 421000200

May 2023

Caltrans

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Noise Study Report

Intersection Improvements along State Route 29 at Rutherford Road and Oakville Cross Road

Communities of Rutherford and Oakville, CA

04-NAP-SR 29-22.72/24.59

EA 2W430

Project ID 421000200

May 2023

Prepared By: Michael Lieu Date: 8/30/2023

Michael Lieu, Noise Specialist
WSP USA

Approved By: Shilpa Mareddy Date: 8/30/2023

Shilpa Mareddy, Air and Noise Branch Chief
Caltrans District 4, Office of Environmental Engineering

Summary

The purpose of this Noise Study Report (NSR) is to assess potential traffic noise impacts and identify feasible noise abatement measures for the proposed Intersection Improvements along State Route 29 (SR-29) at Rutherford Road and Oakville Cross Road Project (Project). The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed statewide average for similar type of facility
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming

The NSR was prepared following the requirements of Title 23, Part 772 of the Code of Federal Regulations "Procedures for Abatement of Highway Traffic Noise," and the California of Transportation (Caltrans) Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) (Caltrans 2020).

Land uses along the SR-29 include mainly open space vineyard (Activity Category F) with pockets of residential properties (Activity Category B) and winery/grocery store (Activity Category E). Terrain around the Project area is generally flat.

Traffic along the SR-29 is the dominant source of noise in the study area. For the purposes of this NSR, the study area is divided into 4 separate Noise Study Areas (NSAs).

WSP staff conducted short-term (15-minute) measurements at 4 locations during the morning (AM period) and afternoon (PM period) on September 27 and September 28, 2022. Meteorological conditions (i.e., temperature, wind speed and direction, and relative humidity) were logged for each measurement session using a hand-held weather station. A long-term noise measurement was conducted at one location on September 27, 2022, through September 28, 2022.

Existing Year (2022) and Design Year (2035) No-Build and Build condition forecasted truck percentages, along with AM/PM Peak hour traffic volumes, were used to predict future traffic noise levels. These forecasted traffic volumes were presented in the Traffic

Operations Analysis Report (March 2023). It is noted that the proposed Project Build Alternative would not add capacity, increase traffic volumes, or increase the amount of truck traffic in the study area. The purpose of the Project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds. Increases in traffic volumes would not be attributed to the Project and are a result of regional growth. These predicted future volumes were used to evaluate traffic noise. These modelled noise levels were then analyzed for potential noise impacts at receivers within the Project area. It was determined that future PM Peak Hour traffic would result in the higher predicted noise levels in both existing and design year conditions, and therefore, was used to determine conservative noise impacts in the analysis.

No modeling sites approached or exceeded the impact criteria for Activity Category B or E. No noise abatement is anticipated for this Project.

Construction noise control will conform to the provisions in Section 14-8.02, “Noise Control,” of the Standard Specifications and Special Provisions (SSP 14-8.02). The requirements state that all equipment will be fitted with adequate mufflers and operated according to the manufacturers’ specifications. Construction noise varies greatly depending on the construction process, type, and condition of equipment used, and layout of the construction site. Temporary construction noise impacts would be unavoidable at areas that are immediately adjacent to the Project alignment.

Table of Contents

Chapter 1. Introduction 1
1.1. Project Location 2
1.2. Project Purpose and Need 2
Chapter 2. Project Description 4
2.1. No-Build 4
2.2. Build Alternative 4
Chapter 3. Fundamentals of Traffic Noise 6
3.1. Sound, Noise, and Acoustics 6
3.1. Frequency 6
3.2. Sound Pressure Levels and Decibels 6
3.3. Addition of Decibels 7
3.4. A-Weighted Decibels 7
3.5. Human Response to Changes in Noise Levels 8
3.6. Noise Descriptors 9
3.7. Sound Propagation 9
3.7.1. Geometric Spreading 10
3.7.2. Ground Absorption 10
3.7.3. Atmospheric Effects 10
3.7.4. Shielding by Natural or Human-Made Features 10
Chapter 4. Federal Regulations and State Policies 12
4.1. Federal Regulations 12
4.1.1. 23 CFR 772 12
4.1.2. Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects 13
4.2. State Regulations and Policies 14
4.2.1. California Environmental Quality Act (CEQA) 14
4.2.2. Section 216 of the California Streets and Highways Code 15
Chapter 5. Study Methods and Procedures 16
5.1. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations 16
5.2. Field Measurement Procedures 16
5.2.1. Short-Term Measurements 16
5.2.2. Long -Term Measurements 17
5.3. Traffic Noise Levels Prediction Methods 17
5.4. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement 20
Chapter 6. Existing Noise Environment 22
6.1. Existing Land Uses 22
6.2. Noise Measurement Results 23
6.2.1. Short-Term Monitoring 23
6.2.2. Long-Term Monitoring 23
Chapter 7. Future Noise Environment, Impacts, and Considered Abatement 26
7.1. Future Noise Environment and Impacts 26
1.1.1 Area A 26
1.1.2 Area B 26
1.1.3 Area C 27
1.1.4 Area D 27
7.2. Preliminary Noise Abatement Analysis 27
Chapter 8. Construction Noise 28

Chapter 9. References 30
Appendix A Traffic Data 31
Appendix B Predicted Future Noise Levels and Noise Barrier Analysis 35
Appendix C Supplemental Data 38

List of Figures

Figure 5-1. Analysis Areas, Noise Monitoring Positions, and Location of Evaluated Noise Barrier 19
Figure 6-1. Long-Term Monitoring at Location LT-1, January 19–25, 2006 25

List of Tables

Page

Table 3-1. Typical A-Weighted Noise Levels 8
Table 6-1. Summary of Short-Term Measurements 23
Table 6-2. Summary of Long-Term Monitoring at Location LT-1 24
Table 6-3. Comparison of Measured to Predicted Sound Levels in the TNM Model 25
Table 8-1. Construction Equipment Noise 29
Table A-1. Traffic Data for Existing Conditions 32
Table A-2. Traffic Data for Design Year No-Project Conditions 33
Table A-3. Traffic Data for Design Year with Project Conditions 34
Table B-1. Predicted Future Noise and Barrier Analysis 36

List of Abbreviated Terms

CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dB	Decibels
FHWA	Federal Highway Administration
Hz	Hertz
kHz	Kilohertz
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
$L_{eq(h)}$	Equivalent Sound Level over one hour
L_{max}	Maximum Sound Level
LOS	Level of Service
L_{xx}	Percentile-Exceeded Sound Level
mPa	micro-Pascals
mph	miles per hour
NAC	noise abatement criteria
NADR	Noise Abatement Decision Report
NEPA	National Environmental Policy Act
NSR	Noise Study Report
Protocol	Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects
SPL	sound pressure level
TeNS	Caltrans' Technical Noise Supplement
TNM 2.5	FHWA Traffic Noise Model Version 2.5

Chapter 1. Introduction

The MTC, in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of SR-29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59). A single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the Project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR 29/Rutherford Road.

In March 2023, MTC completed a Traffic Operations Analysis Report (TOAR) to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that enhanced intersection control at the two intersections would improve multimodal traffic operations performance along SR-29. Preliminary crash data analysis provided by Caltrans indicates that the total rate of fatal and injury crash at these two intersections are above the average crash rate for similar facilities statewide. Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

Federal Highway Administration (FHWA) studies indicate that a properly designed roundabout would slow down traffic and, hence, reduce the probabilities of most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor.

The purpose of this NSR is to evaluate noise impacts and abatement under the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772) "Procedures for Abatement of Highway Traffic Noise," related to construction and operation of the Intersection Improvements along State Route 29 at Rutherford Road and Oakville Cross Road Project. Specifically, 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. According to 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with Federal Highway Administration (FHWA) noise standards. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of the National Environmental Policy Act (NEPA).

The Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol) (Caltrans, May 2011) provides Caltrans policy for implementing 23 CFR 772 in California. The Protocol outlines the requirements for preparing noise study reports (NSR). Noise impacts associated with this project under the California Environmental Quality Act (CEQA) are evaluated in the project's environmental document [State Route 29 Improvements at Rutherford and Oakville Intersections Project Initial Study/Mitigated Negative Declaration], and under NEPA in a Documented Categorical Exclusion (CatEx) (23 CFR 771.117(c)(27) Highway safety or traffic operations improvement projects).

1.1. Project Location

The SR-29 is one of the two major north-south corridors that provides connectivity through the cities of Calistoga, St. Helena, Yountville, Napa and American Canyon within Napa County. It is a primary freight, agricultural and commute corridor accessing the San Francisco Bay Area, and Sacramento as well as nearby Solano and Lake Counties. As the gateway to the Napa Valley Wine Country, SR-29 is a main route that brings tens of thousands of tourists to the region each year. Within the Project limits, SR-29 between Whitehall Lane and Oakville Cross Road experiences heavy congestion during peak periods. The existing SR-29 corridor is uncontrolled within the Project study area. Traffic on SR-29 is not required to stop, creating a continuous traffic flow and leaving no gap for side streets to make turns. Therefore, vehicles at many of the side-street stop-controlled intersection approaches along the corridor experience difficulty turning onto SR-29.

1.2. Project Purpose and Need

Purpose

The purpose of the Project is to enhance safety and traffic operations at the intersections of SR-29/Oakville Cross Road and SR-29/Rutherford Road.

- Improve travel time and reduce delay for side streets accessing SR-29
- Enhance traffic safety
- Improve turning movements

Need

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed statewide average for similar type of facility
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume
- Lack of protected turning movements to allow for access to and from SR-29 due to insufficient gaps in traffic streaming

Chapter 2. Project Description

2.1. No-Build

Under the No-Build Alternative, no changes would be made to the intersections of the SR-29 at Rutherford Road and Oakville Cross Road in the Project area.

2.2. Build Alternative

Under the Build Alternative, a single-lane roundabout is proposed at the intersection of SR-29 and Oakville Cross Road. Due to right-of-way limitations, a roundabout will not be feasible at the Rutherford Road intersection without substantial right-of-way impact. Hence, the Project proposes to install a traffic signal and/or other traffic calming measures at the intersection of SR 29/ Rutherford Road.

Oakville Cross Road Intersection

Limits of construction on SR-29 extend approximately 0.5 miles northerly and southerly from the center of the Oakville Cross Road intersection, approximately 500 feet in easterly direction along Oakville Cross Road, and approximately 200 feet in the westerly direction at the existing driveway crossing railroad tracks.

The Oakville Cross Road roundabout would maintain existing traffic patterns, however, ingress to the Oakville Grocery would be modified to right-in and right-out only. The Project would not preclude southbound access to the Oakville Grocery driveway (currently a left turn-in); rather traffic would be routed through the roundabout to access the grocery. Construction of the roundabout also would include the installation of intersection lighting, a pedestrian and bicyclist shared use path with bike ramps, and splitter islands with curb ramps. In addition, the existing drainage would be modified to accommodate the proposed roundabout, and the existing signage within the right-of-way would be replaced or upgraded.

The existing channelization at the intersection of SR-29 and Oakville Grade Road may be restriped as part of the mainline improvement required for the construction of a roundabout at the intersection of SR-29 and Oakville Cross Road.

Rutherford Road Intersection

At the Rutherford Road intersection, the Project proposes improvements such as a traffic signal, active transportation (improvements include bicyclist and pedestrian facilities that

make it safer for pedestrian and bicyclist movements at the intersection), median treatments, and traffic calming measures along the mainline at the intersection. Limits of improvements on SR-29 would extend approximately 0.5 miles northerly and southerly from the center of the Rutherford Road intersection, and approximately 500 feet easterly along Rutherford Road.

Due to the proximity to the Napa Wine Train tracks, railroad crossings improvements will also be needed at both intersections.

The Rutherford Road intersection does not meet the requirements of a Type I Project; therefore, noise analysis will not be performed for this intersection.

Chapter 3. Fundamentals of Traffic Noise

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, please refer to Caltrans' Technical Noise Supplement (Caltrans 2013, a technical supplement to the Protocol that is available on Caltrans Web site (http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf).

3.1. Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

3.1. Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

3.2. Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

3.3. Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

3.4. A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 3-1 describes typical A-weighted noise levels for various noise sources.

Table 3-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 2013.

3.5. Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

3.6. Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for noise abatement criteria (NAC) used by Caltrans and FHWA.

- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.

- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

3.7. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

3.7.1. Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

3.7.2. Ground Absorption

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

3.7.3. Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.7.4. Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often

constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receptor is rarely effective in reducing noise because it does not create a solid barrier.

Chapter 4. Federal Regulations and State Policies

This report focuses on the requirements of 23 CFR 772, as discussed below.

4.1. Federal Regulations

4.1.1. 23 CFR 772

23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and Federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects.

- FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment of the highway. The following projects are also considered to be Type I projects:

- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane,

- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane,

- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange,

- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane,

- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

If a project is determined to be a Type I project under this definition, the entire project area as defined in the environmental document is a Type I project.

A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the

classifications of a Type I or Type II project. Type III projects do not require a noise analysis.

Under 23 CFR 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor "consider" noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design-year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). 23 CFR 772 does not specifically define the terms "substantial increase" or "approach"; these criteria are defined in the Protocol, as described below.

Table 4-1 summarizes NAC corresponding to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual or permitted land use in a given area.

4.1.2. Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects

The Protocol specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or Federal-aid highway projects. The Protocol defines a noise increase as substantial when the predicted noise levels with project implementation exceed existing noise levels by 12 dBA or more. The Protocol also states that a sound level is considered to approach an NAC level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not).

The Technical Noise Supplement to the Protocol provides detailed technical guidance for the evaluation of highway traffic noise. This includes field measurement methods, noise modeling methods, and report preparation guidance.

Table 4-1. Activity Categories and Noise Abatement Criteria (23 CFR 772)

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The $L_{eq}(h)$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.

4.2. State Regulations and Policies

4.2.1. California Environmental Quality Act (CEQA)

Noise analysis under the California Environmental Quality Act (CEQA) may be required regardless of whether or not the project is a Type I project. The CEQA noise analysis is completely independent of the 23 CFR 772 analysis done for NEPA. Under CEQA, the baseline noise level is compared to the build noise level. The assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

The significance of noise impacts under CEQA are addressed in the environmental document rather than the NSR. Even though the NSR (or noise technical memorandum) does not specifically evaluate the significance of noise impacts under CEQA, it must contain the technical information that is needed to make that determination in the environmental document.

4.2.2. Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA-L_{eq}(h) in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. This requirement does not replace the "approach or exceed" NAC criterion for FHWA Activity Category E for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772.

If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA-L_{eq}(h). If the noise levels generated from freeway and roadway sources exceed 52 dBA-L_{eq}(h) prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

Chapter 5. Study Methods and Procedures

5.1. Methods for Identifying Land Uses and Selecting Noise Measurement and Modeling Receiver Locations

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the Project. Existing land uses in the project area were categorized by land use type and Activity Category as defined in Table 4-1, and the extent of frequent human use. As stated in the Protocol, noise abatement is only considered where frequent human use occurs and where a lowered noise level would be of benefit. Although all land uses were evaluated in this analysis, the focus is on locations of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The Project footprint was mapped relative to the existing land uses to determine potential measurement locations according to these criteria. Short-term measurement locations were selected throughout the length of the project area corridor to represent each major grouping of developments meeting the criteria identified above along the segment of SR-29. These short-term measurement locations were selected to serve as representative modeling locations. A single long term measurement site was selected to capture the diurnal traffic noise level patterns in the project area. Additional locations not measured in the field were added to the noise model as modelling locations.

5.2. Field Measurement Procedures

A field investigation was conducted in accordance with recommended procedures in TeNS to collect noise measurements. The following is a summary of the procedures used to collect short-term and long-term sound level data.

5.2.1. Short-Term Measurements

Short-term monitoring was conducted at four locations on Tuesday, September 27, 2022 and Wednesday, September 28, 2022, using a Larson Davis Model 820 Precision Type 1 sound level meter (serial number 1232). The calibration of the meter was checked before and after the measurement using a Larson Davis Model CA200 calibrator (serial number 3415). Measurements were taken over a 15-minute period at each site. Short-term monitoring was conducted at Activity Category B and F land uses. The short-term measurement locations are identified in Figure 5-1.

During the short-term measurements, field staff attended the meter. Minute-to-minute L_{eq} values collected during the measurement period (typically 15 minutes in duration) were logged manually, and dominant noise sources observed during each individual 1-minute period were also identified and logged. Using this approach, those minutes when traffic noise was observed to be a dominant contributor to noise levels at a given measurement location could be distinguished from one-minute noise levels where other non-traffic noise sources (such as aircraft and lawn equipment) contributed significantly to existing noise levels.

Temperature, wind speed, and humidity were recorded manually during the short-term monitoring session using a handheld Kestrel 3000 portable weather station. During the short-term measurements, wind speeds typically ranged from 1 to 4 miles per hour (mph). Temperatures ranged from 24–27°C (75–80°F), with relative humidity typically 35–45%.

Traffic on SR-29 was classified and counted during short-term noise measurements. Vehicles were classified as automobiles, medium-duty trucks, or heavy-duty trucks. An automobile was defined as a vehicle with two axles and four tires that are designed primarily to carry passengers. Small vans and light trucks were included in this category. Medium-duty trucks included all cargo vehicles with two axles and six tires. Heavy-duty trucks included all vehicles with three or more axles. The posted speed on SR-29 was 50 miles per hour (mph) and 25 mph on Oakville Cross Road.

5.2.2. Long -Term Measurements

Long-term monitoring was conducted at one location (LT-1) using a Larson Davis Model 712 Type 2 sound level meter (serial number 0218). The purpose of these measurements was to identify variations in sound levels throughout the day. The long-term sound level data was collected a 24-hour period, beginning Tuesday, September 27, 2022, and ending Wednesday, September 28, 2022.

Long-term monitoring location LT-1 selected was located at 7856 St Helena Hwy (Oakville Grocery Store) on the east side of SR 29, approximately 80 feet from the SR 29 edge-of-pavement (refer to Figure 5-1).

5.3. Traffic Noise Levels Prediction Methods

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, traffic mix and speed, shielding features (e.g.,

topography and buildings), noise barriers, ground type, and receptors. Three-dimensional representations of these inputs were developed using CAD drawings, aerials, and topographic contours obtained by USGS.

It is noted that the proposed project Build Alternative would not add capacity, increase traffic volumes, or increase the amount of truck traffic in the study area. The purpose of the project is to enhance safety and traffic operations at the affected intersections, which is anticipated to decrease congestion in the study area and may improve travel time, reduce delay, and increase free-flow speeds. Increases in traffic volumes would not be attributed to the Project and are a result of regional growth. These predicted future volumes were used to evaluate traffic noise.

Traffic noise was evaluated under existing conditions and under Build Alternative conditions with the Project alternative. Loudest-hour traffic volumes, vehicle classification percentages, and traffic speeds under existing and build conditions were sourced from the TOAR developed for the Project[1] for input into the traffic noise model. The highest average traffic volumes on SR-29 under the Build Alternative are predicted to occur during the PM peak hour; therefore, PM peak hour traffic volumes were used in the model. Tables A-1 to A-3 in Appendix A summarize the traffic volumes and assumptions used for modeling existing and build conditions.

To validate the accuracy of the model calculations, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. For each receptor, traffic volumes counted during the short-term measurement periods were normalized to 1-hour volumes. These normalized volumes were assigned to the corresponding project area roadways to simulate the noise source strength at the roadways during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model and if additional adjustment of the model was necessary. Observed traffic volumes are provided in Appendix A.

[1] GHD, Draft Traffic Operations Analysis Report (TOAR) Napa Forward – State Route 29 (SR-29) Improvements at Rutherford and Oakville Intersections Project (EA 04-2W430) March 2023

Figure 5-1. Analysis Areas and Noise Monitoring Positions

5.4. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement

Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels are 12 dB or more greater than existing noise levels, or where predicted design-year noise levels approach or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

According to the Protocol, abatement measures are considered acoustically feasible if a minimum noise reduction of 5 dB at impacted receptor locations is predicted with implementation of the abatement measures. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receptors, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations.

The overall reasonableness of noise abatement is determined by the following three factors:

- The noise reduction design goal.
- The cost of noise abatement.
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

The Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one benefited receptor. This design goal applies to any receptor and is not limited to impacted receptors.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. Based on 2022 construction costs an allowance of $107,000 is provided for each benefited receptor (i.e., receptors that receive at least 5 dB of noise reduction from a noise barrier) (Caltrans, 2022). The total allowance for each barrier is calculated by multiplying the number of benefited receptors by $107,000. The construction cost of noise abatement is evaluated in the Noise Abatement Decision Report (NADR) if abatement is found to be feasible at reducing noise levels. The viewpoints of benefits receptors are determined by a survey that is typically conducted after completion of the

noise study report. The process for conducting the survey is described in detail in the Protocol.

The noise study report identifies traffic noise impacts and evaluates noise abatement for acoustical feasibility. It also reports information that will be used in the reasonableness analysis including if the 7 dB design goal reduction in noise can be achieved and the abatement allowances. The noise study report does not make any conclusions regarding reasonableness. The feasibility and reasonableness of noise abatement is reported in the NADR.

Chapter 6. Existing Noise Environment

6.1. Existing Land Uses

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the Project. The following land uses were identified in the project area:

- Single-family residences: Activity Category B
- Commercial retail uses: Activity Category E
- Commercial retail uses: Activity Category F

Although all developed land uses are evaluated in this analysis, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

Land uses in the Project area have been grouped into a series of lettered analysis areas that are identified in Figure 5-1 and here forth referred to as Noise Study Areas (NSA). Each of these analysis areas is considered to be acoustically equivalent.

- **Area A (M1 and M2):** Area A is located on the east side of SR-29 north of Oakville Cross Road. A single residential unit (Activity Category B) and outdoor eating area of the Oakville Grocery Store (Activity Category E) are located in this area. This area is generally flat and provides no topographic shielding to the residential unit. (Refer to Figure 5-1.) Vineyards (Activity Category F) are located in the Project area but have no outdoor uses and therefore are not noise sensitive.

- **Area B (M24):** Area B is located on the west side of SR-29 north of Oakville Cross Road. This area is generally flat and the land use is primarily agriculture (Activity Category F) with no outdoor uses. A single commercial building (Activity Category E) is located in this area at the southwest quadrant of SR-29 and Oakville Cross Road.

- **Area C (M3 through M13):** Area C is located on the east side of SR-29 south of Oakville Cross Road. A commercial winery (Activity Category F) is located in this area. Outdoor areas immediately adjacent to the commercial land uses are parking

lots. Therefore, no outdoor areas associated with the commercial uses are considered to be areas of frequent human use. The ground is generally flat for the majority of this area but slopes away from the highway at the residential developments (Activity Category B). An existing six-foot height property wall is located between the highway and the residential area represented by modeling sites M6 to M11. There are no topographic shielding between the highway and sensitive land uses represented by sites MM3, M4, M5, M12 and M13. (Refer to Figure 5-1.)

- **Area D (M14 through M23):** Area D is located on the west side of SR-29 south of Oakville Cross Road. Residential (Activity Category B) and agricultural land uses (Activity Category F) are located in this area. An existing eight-foot tall property wall shields modeling sites M17 to M22 between the highway in this area. There are no topographic shielding between the highway and sensitive land uses represented by sites M14 to M16 and M23. (Refer to Figure 5-1.)

6.2. Noise Measurement Results

The existing noise environment in the project area is characterized below based on short- and long-term noise monitoring that was conducted.

6.2.1. Short-Term Monitoring

Table 6-1 summarizes the results of the short-term noise monitoring conducted in the project area. An AM and PM measurement was taken at each site.

Table 6-1. Summary of Short-Term Measurements

Measurement Site	NSA	Land Uses	Date	Start Time	Duration (minutes)	Measured Sound Level L_{eq} (dBA)
ST-1	C	Residential	9/27/2022	1:30 pm	15	61.1
	C	Residential	9/28/2022	9:11 am	15	63.3
ST-2	C	Residential	9/27/2022	2:00 pm	15	67.8
	C	Residential	9/28/2022	9:37 am	15	69.2
ST-3	D	Agricultural	9/27/2022	2:30 pm	15	62.4
	D	Agricultural	9/28/2022	10:05 am	15	64.6
ST-4	D	Residential	9/27/2022	2:55 pm	15	61
	D	Residential	9/28/2022	10:30 am	15	62.1

6.2.2. Long-Term Monitoring

The long-term sound level data was collected over a 24-hour period, beginning Tuesday, September 27, 2022, and ending Wednesday, September 28, 2022.

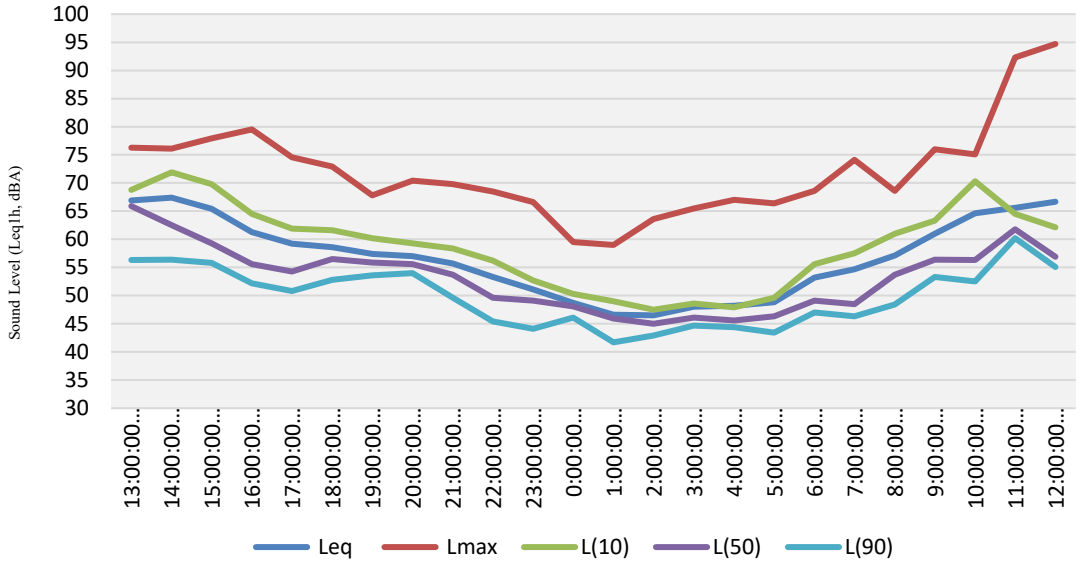
Long-term monitoring location LT-1 was located at 7856 St Helena Hwy (Oakville Grocery) on the east side of SR-29, approximately 80 feet from the SR-29 edge-of-pavement (refer to Figure 5-1). The average loudest-hour sound level measured was 67.4 dBA $L_{eq}(h)$ during the 2:00 p.m. hour. Table 6-2 and Figure 6-1 summarize the results of the long-term monitoring.

Table 6-2. Summary of Long-Term Monitoring at Location LT-1

Date	Time	Leq
September 27, 2022	13:00:00	66.9
September 27, 2022	**14:00:00**	**67.4**
September 27, 2022	15:00:00	65.4
September 27, 2022	16:00:00	61.3
September 27, 2022	17:00:00	59.2
September 27, 2022	18:00:00	58.6
September 27, 2022	19:00:00	57.4
September 27, 2022	20:00:00	57
September 27, 2022	21:00:00	55.7
September 27, 2022	22:00:00	53.3
September 27, 2022	23:00:00	51.1
September 28, 2022	0:00:00	48.7
September 28, 2022	1:00:00	46.6
September 28, 2022	2:00:00	46.5
September 28, 2022	3:00:00	48
September 28, 2022	4:00:00	48.2
September 28, 2022	5:00:00	48.8
September 28, 2022	6:00:00	53.2
September 28, 2022	7:00:00	54.7
September 28, 2022	8:00:00	57.1
September 28, 2022	9:00:00	61
September 28, 2022	10:00:00	64.6
September 28, 2022	11:00:00	65.6
September 28, 2022	12:00:00	66.7

Note: Worst noise hour noise level is bolded.

Figure 6-1. Long-Term Monitoring at Location LT-1, September 27-28, 2022



TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. Table 6-3 compares measured and modeled noise levels at each measurement location (see Figure 5-1). The predicted sound levels are within 2 dB of the measured sound levels and are, therefore, considered to be in reasonable agreement with the measured sound levels. Therefore, no further adjustment of the model was necessary.

Table 6-3. Comparison of Measured to Predicted Sound Levels in the TNM Model

Measurement Position	Measured Sound Level (dBA)	Predicted Sound Level (dBA)	Measured minus Predicted (dB)
ST-1 (PM)	61.1	59.3	+1.8
ST-1 (AM)	63.3	61.4	+1.9
ST-2 (PM)	67.8	67.8	0.0
ST-2 (AM)	69.2	68.5	+0.7
ST-3 (PM)	62.4	64.4	- 2.0
ST-3 (AM)	64.6	65.2	-0.6
ST-4 (PM)	61.0	61.6	-0.6
ST-4 (AM)	62.1	63.2	-1.1

Chapter 7. Future Noise Environment, Impacts, and Considered Abatement

7.1. Future Noise Environment and Impacts

Table B-1 in Appendix B summarizes the traffic noise modeling results for existing conditions and design-year conditions with and without the project. Predicted design-year traffic noise levels with the Project are compared to existing conditions and to design-year no-project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts as defined under 23 CFR 772. The comparison to no-project conditions indicates the direct effect of the Project.

As stated in the TeNS, modeling results are rounded to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between calculated sound levels of 64.4 and 64.5 dBA. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB.

Modeling results in Table B-1 indicate the following:

1.1.1 Area A (M1 and M2)

The traffic noise modeling results in Table B-1 indicate that traffic noise levels at residential and commercial uses in Area A are predicted to be in the range of 65 to 67 dBA $L_{eq}(h)$ in the design-year. The results also indicate that the increase in noise between existing conditions and the design-year is predicted to be 0 dB to 1dB increase. This increase is attributable to the vehicular increase from regional growth as well as the reconfiguration of the Oakville Cross Road intersection, which would marginally decrease the distance between sensitive land uses and vehicular traffic. Because the predicted noise levels in the design-year are not predicted to approach or exceed the noise abatement criterion (67 dBA $L_{eq}[h]$) at Activity Category B land use, traffic noise impacts are not predicted in Area A, and noise abatement is not considered for this area.

1.1.2 Area B (M24)

The traffic noise modeling results in Table B-1 indicate traffic noise levels at the commercial property is predicted to be 59 dBA $L_{eq}(h)$ in the design-year at Activity Category E land use. The results also indicate the noise level between existing conditions and the design-year is predicted to have a 3 dB decrease. The decrease is due to the

design change of the roadway being shifted away from this site. The area is mainly used for agricultural purposes Activity Category F. The predicted noise level at the Oakville Pump office (Activity Category E) in the design-year are not predicted to approach or exceed the noise abatement criterion (72 dBA L_{eq}[h]) at Activity Category E land use, traffic noise impacts are not predicted in Area B, and noise abatement is not considered for this area.

1.1.3 Area C (M3 through M12)

The traffic noise modeling results in Table B-1 indicate traffic noise levels at residences in Area C are predicted to be in the range of 57 to 65 dBA L_{eq}(h) in the design-year at Activity Category B land uses. The results also indicate that the increase in noise between existing conditions and the design-year is predicted to be 0 dB to 2dB increase. This increase is attributable to the vehicular increase from regional growth. Because the predicted noise levels in the design-year are not predicted to approach or exceed the noise abatement criterion (67 dBA L_{eq}[h]) at Activity Category B land use, traffic noise impacts are not predicted in Area C, and noise abatement is not considered for this area.

1.1.4 Area D (M14 through M23)

The traffic noise modeling results in Table B-1 indicate traffic noise levels at residences in Area D are predicted to be in the range of 56 to 65 dBA L_{eq}(h) in the design-year at Activity Category B land uses. The results also indicate that the increase in noise between existing conditions and the design-year is predicted to be 0 dB to 1dB increase. This increase is attributable to the vehicular increase from regional growth. Because the predicted noise levels in the design-year are not predicted to approach or exceed the noise abatement criterion (67 dBA L_{eq}[h]) at Activity Category B land use, traffic noise impacts are not predicted in Area D, and noise abatement is not considered for this area.

7.2. Preliminary Noise Abatement Analysis

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. According to 23 CFR 772(13)(c) and 772(15)(c), federal funding may be used for the following abatement measures:

- Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way.

- Traffic management measures including, but not limited to, traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations.

- Alteration of horizontal and vertical alignments.

- Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise.

- Noise insulation of Activity Category D land use facilities listed in Table 1. Post-installation maintenance and operational costs for noise insulation are not eligible for Federal-aid funding.

There are no modeling sites that approach or exceeds the noise abatement criterion (67 dBA L_{eq}[h]) at Activity Category B or C land use, and therefore, no abatement is considered at this time.

Chapter 8. Construction Noise

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by Caltrans Standard Specification Section 14-8.02, "Noise Control," which states the following:

> Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m.
>
> Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 8-1 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 80 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 8-1. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	85
Bulldozers	85
Heavy Trucks	84
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82
Grader	85
Roller	85
Concrete Saw	90
Excavator	85
Front End Loader	80

Source: Federal Transit Administration, 2006. See also: http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02 Noise Control, which states "Control and monitor noise resulting from work activities. Do not exceed 86 dBA Lmax at 50 feet from the job site from 9:00 p.m. to 6:00 a.m." Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Chapter 9. References

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Appendix A Traffic Data

This appendix contains tables presenting the traffic data for existing conditions, design-year conditions without the project, and design-year conditions with the project for each alternative.

Tables A-1 through A-3 show the traffic used for TNM modeling.

Table A-1. Traffic Data for Existing Conditions

	Segment	Number of Lanes	Total Volume PM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		Speed
				%	Volume	%	Volume	%	Volume	
Mainline										
SR 29 Northbound	South of Oakville Cross Road	1	656	96.7%	634	1.65%	11	1.65%	11	50/50/50
SR 29 Northbound	North of Oakville Cross Road	1	663	96.8%	642	1.6%	11	1.6%	11	50/50/50
SR 29 Southbound	North of Oakville Cross Road	1	1,057	96.7%	1022	1.65%	18	1.65%	17	50/50/50
SR 29 Southbound	South of Oakville Cross Road	1	1,103	96.8%	1,068	1.6%	18	1.6%	17	50/50/50
Surface Streets										
Oakville Cross Road Eastbound	East of SR 29	1	65	92.3%	99	4.6%	3	3.1%	2	25/25/25
Oakville Cross Road Westbound	East of SR 29	1	98	98.0%	96	1.0%	1	1.0%	1	25/25/25

Table A-2. Traffic Data for Design Year No-Project Conditions

	Segment	Number of Lanes	Total Volume PM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		Speed
				%	Volume	%	Volume	%	Volume	
Mainline										
SR 29 Northbound	South of Oakville Cross Road	1	805	96.5%	777	1.65%	14	1.65%	14	50/50/50
SR 29 Northbound	North of Oakville Cross Road	1	815	96.8%	789	1.6%	13	1.6%	13	50/50/50
SR 29 Southbound	North of Oakville Cross Road	1	1,290	96.7%	1,247	1.65%	22	1.65%	21	50/50/50
SR 29 Southbound	South of Oakville Cross Road	1	1,355	96.8%	1312	1.6%	22	1.6%	21	50/50/50
Surface Streets										
Oakville Cross Road Eastbound	East of SR 29	1	85	92.3%	77	3.85%	4	3.85%	4	25/25/25
Oakville Cross Road Westbound	East of SR 29	1	140	97.0%	90	1.5%	2	1.5%	2	25/25/25

Table A-3. Traffic Data for Design Year with Project Conditions

	Segment	Number of Lanes	Total Volume PM Peak Hour Volume	Auto		Medium Trucks		Heavy Trucks		Speed
				%	Volume	%	Volume	%	Volume	
Mainline										
SR 29 Northbound	South of Oakville Cross Road	1	1,160	91.5%	1,062	5.2%	61	3.0%	34	50/50/50
SR 29 Northbound	North of Oakville Cross Road	1	1,143	91.5%	1,046	5.2%	61	3.0%	34	50/50/50
SR 29 Southbound	North of Oakville Cross Road	1	1,145	91.6%	1,049	4.8%	55	3.1%	35	50/50/50
SR 29 Southbound	South of Oakville Cross Road	1	1,174	91.6%	1,075	4.8%	56	3.1%	37	50/50/50
Surface Streets										
Oakville Cross Road Eastbound	East of SR 29	1	108	91.2%	99	5.3%	6	3.5%	4	25/25/25
Oakville Cross Road Westbound	East of SR 29	1	98	91.8%	90	5.1%	5	3.1%	3	25/25/25

Appendix B Predicted Future Noise Levels and Noise Barrier Analysis

Table B-1. Predicted Future Noise and Barrier Analysis

Receptor I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level $L_{eq}(h)$, dBA	SR-29 Future Worst Hour Noise Levels – $L_{eq}(h)$, dBA																										
							Design Year Noise Level without Project $L_{eq}(h)$, dBA	Design Year Noise Level with Project $L_{eq}(h)$, dBA	Design Year Noise Level without Project minus Existing Conditions $L_{eq}(h)$, dBA	Design Year Noise Level with Project Minus No Project Conditions $L_{eq}(h)$, dBA	Activity Category (NAC)	Impact Type	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR	$L_{eq}(h)$	I.L.	NBR
M1	A	-	Residential	1	7962 St Helena Hwy	65	65	65	0	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M2	A	-	Commercial	None	7856 St Helena Hwy	66	67	67	1	0	E (72)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M24	B		Commercial	None	7855 St Helena Hwy	62	62	59	0	-3	E (72)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M3	C	-	Residential	1	1183 Oakville Cross Rd	55	57	57	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M4	C	-	Residential	1	1185 Oakville Cross Rd	55	57	57	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M5	C	-	Residential	1	1187 Oakville Cross Rd	55	57	57	2	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M6	C	-	Residential	1	7816 St Helena Hwy	57	58	58	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M7	C	-	Residential	1	7814 St Helena Hwy	61	61	61	0	0	B (67))	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M8	C	-	Residential	1	7812 St Helena Hwy	61	62	62	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M9	C	-	Residential	1	7798-A St Helena Hwy	63	64	64	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M10	C	-	Residential	1	7800 St Helena Hwy	63	64	64	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M11	C	-	Residential	1	7798-B St Helena Hwy	55	56	56	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Receptor I.D.	Area	Barrier I.D.	Land Use	Number of Dwelling Units	Address	Existing Noise Level L_{eq}(h), dBA	SR-29 Future Worst Hour Noise Levels – L_{eq}(h), dBA																								
							Design Year Noise Level without Project L_{eq}(h), dBA	Design Year Noise Level with Project L_{eq}(h), dBA	Design Year Noise Level without Project minus Existing Conditions L_{eq}(h), dBA	Design Year Noise Level with Project Minus No Project Conditions L_{eq}(h), dBA	Activity Category (NAC)	Impact Type	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																	
													6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
													L_{eq}(h)	I.L.	NBR	L_{eq}(h)	I.L.	NBR	L_{eq}(h)	I.L.	NBR	L_{eq}(h)	I.L.	NBR	L_{eq}(h)	I.L.	NBR	L_{eq}(h)	I.L.	NBR
M12	C	-	Residential	1	7744 St Helena Hwy	62	62	62	0	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M13	C	-	Residential	1	7738 St Helena Hwy	64	65	65	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M14	D	-	Residential	1	7837 St Helena Hwy	60	61	60	1	-1	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M15	D	-	Residential	1	7831 St Helena Hwy	60	60	60	0	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M16	D	-	Residential	1	7825 St Helena Hwy	62	63	63	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M17	D	-	Residential	1	7765 St Helena Hwy	61	62	62	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M18	D	-	Residential	1		56	57	57	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M19	D	-	Residential	1		55	56	56	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M20	D	-	Residential	1	7763 St Helena Hwy	59	60	60	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M21	D	-	Residential	1	7759 St Helena Hwy	60	60	60	0	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M22	D	-	Residential	1	7757 St Helena Hwy	59	60	60	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M23	D	-	Residential	1	7735 St Helena Hwy	64	65	65	1	0	B (67)	None	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Note: All NAC are exterior unless note. A/E= Future noise conditions approach or exceed the Noise Abatement Criteria; SI = Substantial Increase

[a] Minimum height needed to break the line of sight between 11.5-foot truck stack and first row receptors.

Appendix C Supplemental Data

FIELD MEASUREMENT DATA SHEET

Project Name: SR29-Oakville Cross Rd **Job #**

ID

SITE IDENTIFICATION: ST-1 **OBSERVER(s):** Michael Lieu / Adelicia Johnson
START DATE & TIME: 9/27/2022 **END DATE & TIME:** 9/28/2022
ADDRESS: 1118 Oakville Cross Road
GPS coordinates:
(1) 9/27 1:55 PM - 15 min
(2) 9/28 9:10 AM

Weather

TEMP: 80 °F HUMIDITY: 0 % R.H. WIND: (CALM) LIGHT MODERATE VARIABLE
WINDSPEED: 0-5 MPH DIR: N NE E SE S (SW) W NW STEADY GUSTY ____MPH
SKY: (CLEAR) SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: ____

Acoustic Measurements

INSTRUMENT: BK2238 **TYPE:** (1) 2 **SERIAL #:** 2160297
CALIBRATOR: LD CAL200 **SERIAL #:** 3415
CALIBRATION CHECK: **PRE-TEST** 93.9 dBA SPL **POST-TEST** 94.0 dBA SPL **WINDSCREEN** Y
SETTINGS: **A-WEIGHTED** (SLOW) **FAST FRONTAL RANDOM ANSI OTHER:** ____

	Rec #	Start Time / End Time								
PM	9/27	1:55 / 2:10	L_{eq} 61.6	L_{max} 87.2	L_{min} 37.8	L_{90} 39.5	L_{50} 43.5	L_{10} 62.5		
AM	9/28	9:10am 9:25	L_{eq} 63.3	L_{max} 84.2	L_{min} 39.3	L_{90} 44.5	L_{50} 53.0	L_{10} 66.5		
	___/___/___		L_{eq} ___	L_{max} ___	L_{min} ___	L_{90} ___	L_{50} ___	L_{10} ___		
	___/___/___		L_{eq} ___	L_{max} ___	L_{min} ___	L_{90} ___	L_{50} ___	L_{10} ___		

COMMENTS:

Source Info and Traffic Counts

PRIMARY NOISE(S): **TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER**
ROADWAY TYPE: 1 Lane each direction
COUNT DURATION: 15 -MINUTE

PM	NB / (EB)	SB / (WB)	SPEED (mph) NB EB / SB WB	#2 COUNT: AM NB / (EB)	SB / (WB)	SPEED (mph) NB EB / SB WB
AUTOS:	19	19	25 / 25	10	18	25 / 25
MED. TRUCKS:	3	1		2	4	
HVY TRUCKS:				2	1	
BUSES:						
MOTORCYCLES:						

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER:

Description / Sketch

TERRAIN: **HARD SOFT MIXED FLAT OTHER:**
PHOTOS:
OTHER COMMENTS / SKETCH:

Main line SR 29 Traffic

9/27 PM - 15 min

	NB	SB
C	148	190
MT	14	9
HT	6	11
B	1	0

9/28 AM

	NB	SB
C	192	143
MT	11	10
HT	12	6
B	1	1

HIGHGROUND.AD

Field Measurement Site 1

FIELD MEASUREMENT DATA SHEET

Project Name: SR 29 - Oakville Cross Rd **Job #**

ID

SITE IDENTIFICATION: ST-2 **OBSERVER(s):** Michael Lieu / Adelicia Johnson
START DATE & TIME: 9/27/2022 **END DATE & TIME:** 9/28/2022
ADDRESS: 7800 St Helena Hwy
Adjacent to property
GPS coordinates:
① PM - 2:15 - 2:30 PM 9/27
② AM - 9:40 - 9:55 Am 9/28

Weather

TEMP: 80 °F HUMIDITY: 0 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 0-5 MPH DIR: N NE E SE S SW W NW STEADY GUSTY ____MPH
SKY: CLEAR SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: _____

Acoustic Measurements

INSTRUMENT: BK 2238 **TYPE:** 1 2 **SERIAL #:** 2160297
CALIBRATOR: LD CAL 200 **SERIAL #:** 3415
CALIBRATION CHECK: **PRE-TEST** 94.0 dBA SPL **POST-TEST** 94.0 dBA SPL **WINDSCREEN** Y
SETTINGS: **A-WEIGHTED** SLOW **FAST** **FRONTAL** **RANDOM** **ANSI** **OTHER:**

	Rec #	Start Time / End Time							
9/27 PM	/	2:15 / 2:30	L_{eq} 67.8	L_{max} 84.0	L_{min} 43.1	L_{90} 53.5	L_{50} 63.5	L_{10} 69.5	
9/28 AM	/	9:40 / 9:55	L_{eq} 69.5	L_{max} 86.3	L_{min} 36.0	L_{90} 52.5	L_{50} 65.0	L_{10} 71.0	
	/	/	L_{eq} 69.2	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	/	/	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	

COMMENTS:

Source Info and Traffic Counts

PRIMARY NOISE(S): **TRAFFIC** **AIRCRAFT** **RAIL** **INDUSTRIAL** **AMBIENT** **OTHER**
ROADWAY TYPE: SR 29 - 45-55 mph
COUNT DURATION: 15 -MINUTE

	PM 9/27 NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: AM 9/28 NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	150	195	45-55 / 45-55	197	137	45-55 / 45-55
MED. TRUCKS:	10	6	/	109	10	/
HVY TRUCKS:	4	9	/	10	6	/
BUSES:	1	0	/	1	1	/
MOTORCYCLES:			/			/

SPEED ESTIMATED BY: **RADAR** / **DRIVING** / **OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER:

Description / Sketch

TERRAIN: **HARD** **SOFT** **MIXED** **FLAT** **OTHER:**
PHOTOS:
OTHER COMMENTS / SKETCH:

- Adjacent to Residential Homes;
- Homes below grade of Roadway
- ~6 ft wall along prop line/Row

Field Measurement Site 2

FIELD MEASUREMENT DATA SHEET

Project Name: SR29 Oakville Cross Rd **Job #**

SITE IDENTIFICATION: ST-3 **OBSERVER(s):** Michael Lieu / Adelicia Johnson

START DATE & TIME: 9/27/2022 **END DATE & TIME:** 9/28/2022

ADDRESS: Vineyard across from 7788 St Helena Hwy

GPS coordinates:

ID

PM 9/27 2:35-2:50 PM
AM 9/28 10:00-10:15 AM

Weather

TEMP: 80 ° F HUMIDITY: 0 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE

WINDSPEED: 0-5 MPH DIR: N NE E SE (S) (SW) W NW STEADY GUSTY ____ MPH

SKY: (CLEAR) SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: ____

Acoustic Measurements

INSTRUMENT: BK 2238 **TYPE:** (1) 2 **SERIAL #:** ~~2160297~~ ~~2160~~ 2160297

CALIBRATOR: LD CAL200 **SERIAL #:** 3415

CALIBRATION CHECK: **PRE-TEST** 94.0 **dBA SPL** **POST-TEST** 94.0 **dBA SPL** **WINDSCREEN** Y

SETTINGS: **A-WEIGHTED** (SLOW) **FAST** **FRONTAL** **RANDOM** **ANSI** **OTHER:** ____

	Rec #	Start Time / End Time								
9/27 PM	/	2:35 / 2:50	L_{eq} 62.4	L_{max} 81.6	L_{min} 44.2	L_{90} 53.0	L_{50} 58.5	L_{10} 63.0		
9/28 AM	/	10:00 / 10:15	L_{eq} 64.6	L_{max} 81.3	L_{min} 42.9	L_{90} 53.0	L_{50} 60.0	L_{10} 64.5		
____	/ ____ / ____		L_{eq} ____	L_{max} ____	L_{min} ____	L_{90} ____	L_{50} ____	L_{10} ____		
____	/ ____ / ____		L_{eq} ____	L_{max} ____	L_{min} ____	L_{90} ____	L_{50} ____	L_{10} ____		

COMMENTS:

Source Info and Traffic Counts

PRIMARY NOISE(S): (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER

ROADWAY TYPE: SR 29 - 45-50 mph

COUNT DURATION: 15 -MINUTE

	PM 9/27 (NB) / EB / (SB) / WB	SPEED (mph) NB EB / SB WB	AM 9/28 (NB) / EB / (SB) / WB	SPEED (mph) NB EB / SB WB
AUTOS:	151 / 187	45-50 /	197 / 110	/
MED. TRUCKS:	5 / 11	/	10 / 12	40-50 /
HVY TRUCKS:	4 / 5	/	7 / 6	/
BUSES:	0 / 1	/	1 / 0	/
MOTORCYCLES:	0 / 0	/	0 / 0	/

SPEED ESTIMATED BY: **RADAR** / **DRIVING** / **OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS** distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**

OTHER:

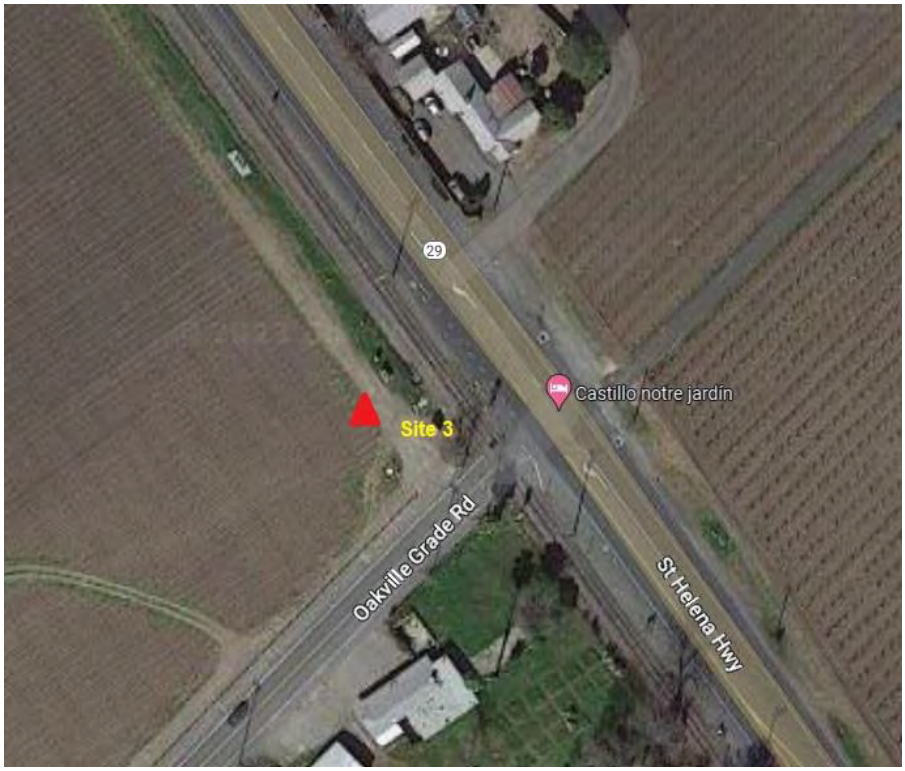
Description / Sketch

TERRAIN: (HARD) SOFT MIXED FLAT OTHER: ____

PHOTOS:

OTHER COMMENTS / SKETCH:

Field Measurement Site 3



FIELD MEASUREMENT DATA SHEET

Project Name: SR29 Oakville Cross Rd **Job #**

SITE IDENTIFICATION: ST-3 **OBSERVER(s):** Michael Lieu / Adelicia Johnson

START DATE & TIME: 9/27/2022 **END DATE & TIME:** 9/28/2022

ADDRESS: Vineyard across from 7788 St Helena Hwy

GPS coordinates:

ID

PM 9/27 2:35-2:50 PM
AM 9/28 10:00-10:15 AM

Weather

TEMP: 80 ° F HUMIDITY: 0 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE

WINDSPEED: 0-5 MPH DIR: N NE E SE (S) (SW) W NW STEADY GUSTY ____ MPH

SKY: (CLEAR) SUNNY DARK PARTLY CLOUDY OVRCST FOG DRIZZLE RAIN Other: ____

Acoustic Measurements

INSTRUMENT: BK 2238 **TYPE:** (1) 2 **SERIAL #:** ~~2160297~~ ~~2160~~ 2160297

CALIBRATOR: LD CAL200 **SERIAL #:** 3415

CALIBRATION CHECK: **PRE-TEST** 94.0 **dBA SPL** **POST-TEST** 94.0 **dBA SPL** **WINDSCREEN** Y

SETTINGS: **A-WEIGHTED** (SLOW) **FAST** **FRONTAL** **RANDOM** **ANSI** **OTHER:** ____

	Rec #	Start Time / End Time								
9/27 PM	/	2:35 / 2:50	L_{eq} 62.4	L_{max} 81.6	L_{min} 44.2	L_{90} 53.0	L_{50} 58.5	L_{10} 63.0		
9/28 AM	/	10:00 / 10:15	L_{eq} 64.6	L_{max} 81.3	L_{min} 42.9	L_{90} 53.0	L_{50} 60.0	L_{10} 64.5		
____	/ ____ / ____		L_{eq} ____	L_{max} ____	L_{min} ____	L_{90} ____	L_{50} ____	L_{10} ____		
____	/ ____ / ____		L_{eq} ____	L_{max} ____	L_{min} ____	L_{90} ____	L_{50} ____	L_{10} ____		

COMMENTS:

Source Info and Traffic Counts

PRIMARY NOISE(S): (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER

ROADWAY TYPE: SR 29 - 45-50 mph

COUNT DURATION: 15 -MINUTE

	PM 9/27 (NB) / EB / (SB) / WB	SPEED (mph) NB EB / SB WB	AM 9/28 (NB) / EB / (SB) / WB	SPEED (mph) NB EB / SB WB
AUTOS:	151 / 187	45-50 /	197 / 110	/
MED. TRUCKS:	5 / 11	/	10 / 12	40-50 /
HVY TRUCKS:	4 / 5	/	7 / 6	/
BUSES:	0 / 1	/	1 / 0	/
MOTORCYCLES:	0 / 0	/	0 / 0	/

SPEED ESTIMATED BY: **RADAR** / **DRIVING** / **OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS** distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**

OTHER:

Description / Sketch

TERRAIN: (HARD) SOFT MIXED FLAT OTHER: ____

PHOTOS:

OTHER COMMENTS / SKETCH:

Field Measurement Site 4

CERTIFICATE OF CALIBRATION
27607-1
FOR BRÜEL & KJÆR
SOUND LEVEL METER

Model **2238** Serial No. **2160297**
ID No. **N/A**
With Microphone Model **4188** Serial No. **2407350**

Customer: **WSP USA**
Orange, CA 92868 P.O. No. **19012023-BK2238**

was tested and met factory specifications at the points tested and as outlined in ANSI S1.4-1983 Type 1; IEC 651-1979 Type 1; IEC-61672-3:2006 Class 1

on **17 FEB 2022** **BY HAROLD LYNCH**
Service Manager

As received and as left condition: Within Specification.
Re-calibration due on: **17 FEB 2023**

Certified References*

Mfg.	Type	Serial No.	Cal Date	Due Date
B&K	1051	1777523	27 SEP 2022	27 SEP 2023
B&K	2636	1423390	02 JAN 2023	02 JAN 2024
B&K	4226	3274134	30 NOV 2022	30 NOV 2023
B&K	4231	1770857	07 SEP 2022	07 SEP 2023
HP	34401A	3146A74093	11 MAY 2022	11 MAY 2024
HP	3458A	2823A07179	23 AUG 2022	23 AUG 2023

Performed in Compliance with ANSI, NCSL Z-540-1, 1994
and ISO 17025, ISO 9001:2015 Certification NQA No. 11252
*References are traceable to NIST (National Institute of Standards and Technology).

Note: For calibration data see enclosed pages.
The data represent both "as found" and "as left" condition.

Reference Test Procedure: **ACCT Procedure 2238 Version 2.1.0.** (Rev. Aug 2013)
Brüel & Kjær Factory Service Instructions: **2238**

Temperature	Relative Humidity	Barometric Pressure
23°C	**34** %	**991.61** hPa

Note: This calibration report shall not be reproduced, except in full, without written consent by Odin Metrology, Inc.

Signed: Harold Lynch

ODIN METROLOGY, INC.
CALIBRATION OF BRÜEL & KJÆR INSTRUMENTS
3533 OLD CONEJO ROAD, SUITE 125 THOUSAND OAKS CA 91320
PHONE: (805) 375-0830 FAX: (805) 375-0405

Odin Metrology, Inc.
Calibration of Sound & Vibration Instruments

Certificate Number: **26916-1**

Certificate of Calibration for Larson Davis Calibrator

This calibration is performed by comparison with measurement reference standard instruments:

Type No.	4134
Serial No.	1315901
Calibrated by	HL
Cal Date	16 FEB 2022
Due Date	16 FEB 2023

a) Estimated uncertainty of comparison: ± **0.05** dB
b) Estimated uncertainty of calibration service for standard pistonphone: ± **0.06** dB
c) Total uncertainty: $\sqrt{a^2 + b^2}$ = ± **0.08** dB
d) Expanded uncertainty (coverage factor k = 2 for 95% confidence level): = ± **0.16** dB

This acoustic calibrator has been calibrated using standards with values traceable to the National Institute of Standards and Technology. This calibration is traceable to NIST Test Number **683/289533-17.**

CONDITION OF TEST		
Ambient Pressure	**997.74**	hPa
Temperature	**23**	°C
Relative Humidity	**27**	%
Date of Calibration	**17 FEB 2022**	
Re-calibration due on	**17 FEB 2023**	

The calibration of this acoustic calibrator was performed using a test system conforming to the requirements of ANSI/NCSLZ540-1, 1994, ISO 17025, and ISO 9001-2015, Certification NQA No. 11252.

Calibration procedure: **OM-P-1001-Acoustic_Calibrator, Rev. 1.0 20130522.**

Calibration performed by

Harold Lynch, Service Manager

Calibrator type **CAL150**
Serial no. **0337**
Submitted by **WSP USA**
Orange, CA 92868
Purchase order no. **Project# 7330**
Asset no. **N/A**

This calibrator has been found to perform **within** the specifications listed below at the normalized conditions stated.

SPL produced in coupler terminated by a loading volume of a ½" microphone	94.0 ± 0.3 dB 114 ± 0.3 dB
Frequency	1,000 Hz ± 1%
Distortion	< 2%
At 1,013 hPa, 23°C, and 65% relative humidity	

PERFORMANCE AS RECEIVED		
Frequency	**1000.0**	Hz
SPL (94 dB)	**94.08**	dB
SPL (114 dB)	**114.10**	dB
Distortion (at 114 dB)	**0.4**	%
Battery Voltage	**7.5**	V

Was adjustment performed? **No**
Were batteries replaced? **Yes**

FINAL PERFORMANCE		
Frequency	**1000.0**	Hz
SPL (94 dB)	**94.08**	dB
SPL (114 dB)	**114.10**	dB
Distortion (at 114 dB)	**0.4**	%

Note: This calibrator was **within** manufacturer's specifications as received.

ODIN METROLOGY, INC.
3533 OLD CONEJO ROAD, SUITE 125
THOUSAND OAKS, CA 91320
PHONE: (805) 375-0830; FAX: (805) 375-0405

Note: This calibration report shall not be reproduced, except in full, without written consent of Odin Metrology, Inc.

CERTIFICATE OF CALIBRATION
26916-3
FOR LARSON DAVIS PRECISION INTEGRATING SOUND LEVEL METER

Model **712** Serial No. **0218**
ID No. **N/A**

With Microphone Model **N/A** Serial No. **B10868**

Customer: **WSP USA**
Orange, CA 92868 P.O. No. **Project# 7330**

was tested to Larson Davis specifications at the points tested and as outlined in ANSI S1.4-1983 Type 2: IEC 651-1979 Type 2

on **18 FEB 2022** **BY** **HAROLD LYNCH**
Service Manager

As received and as left condition: Within Specifications.
Re-calibration due on: **18 FEB 2023**

Certified References*

Mfg.	Type	Serial No.	Cal Date	Due Date
B&K	4134	1315901	16 FEB 2022	16 FEB 2023
B&K	4226	3274134	30 NOV 2021	30 NOV 2022
HP	34401A	3146A48348	16 OCT 2021	16 OCT 2022

Calibration System operates in conformance to ANSI/ NCSL Z540-1, 1994 and ISO 17025, ISO 9001:2015 Certification NQA No. 11252
*References are traceable to NIST (National Institute of Standards and Technology).

Note: For calibration data see enclosed pages.
The data represent both "as found" and "as left" conditions.

Reference Test Procedure: **Odin Metrology Procedure for Larson Davis 712.**
Uncertainty of Reference 4226 in Pressure:
31.5 Hz-4k Hz: ± .20 dB 4k Hz-8k Hz: ± .25 dB
Uncertainty of ANSI Type 2 S.L.M.: 31.5 Hz-2k Hz: ± 2 dB
2k Hz-4k Hz: ± 2.5 dB 4k Hz-5k Hz: ± 3.0 dB 5k Hz-6.3k Hz: ± 3.5 dB 6.3k Hz-8k Hz: ± 4.5 dB
Uncertainty Ratio: > 4:1

Temperature	Relative Humidity	Barometric Pressure
23°C	**27** %	**997.33** hPa

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Signed: Harold Lynch

ODIN METROLOGY, INC.
CALIBRATION OF SOUND & VIBRATION INSTRUMENTATION
3533 OLD CONEJO ROAD, SUITE 125 THOUSAND OAKS CA 91320
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Appendix H Vibration Damage Risk Assessment

FINAL
Vibration Damage Risk Assessment to the Oakville Grocery During Intersection Construction and Roadway Reconstruction for the SR-29 Intersections Improvement Project
04-NAP-29-22.72/24.59
EA 04-2W430
(24-March-2023)

INTRODUCTION

Under the proposed project, the intersections of Oakville / SR-29 and Rutherford / SR-29 modification will require construction of additional pavement and reconstruction of existing pavement. The construction limits will extend beyond the intersection area and will impact a stretch of the local street as well as SR-29 and SR-128. The closest structure that would be affected by the construction activities is the Oakville Grocery. This building is a wood frame and masonry structure. It is expected that the nearest construction activities to the Oakville Grocery structure is 10 feet.

Anticipated construction activities include:

1. Earthwork
    - Demolition / Clear and Grubbing
    - Excavation, Grading and Compaction
    - Drainage
    - Subgrade finishing
2. Pavement
    - Application of Binder and Slurry Seal
    - Asphalt Pavement placement and Compaction
    - Placement of Final Finishing Pavement
3. Roadway Pavement Delineation and Signage
    - Application of Paint Stripes on the Finished surface
    - Installation of Signage
        - Deep Foundation for Larger Signs and Traffic Control Related Equipment

CONSTRUCTION ACTIVITIES & CONSTRUCTION EQUIPMENT

Roadway Excavation

Roadway construction projects utilize heavy-duty machinery. The general activities include demolition and removal of the excavated material, grading, spreading of material, and compacting. It is expected that the following construction vehicles typical to roadway excavation work would be used:

- Dump trucks
- Bulldozers
- Excavators
- Trucks
- Graders
- Rollers

- Loaders
- Scrappers
- Pavement Saw cutter
- Trenching Equipment

Base Preparation and Pavement Placement

Prior to placement of Asphalt Concrete, base materials will be placed in layers over compacted subgrade. Base material will be gravel and hauled to the project site, spread, and then compacted in layers to meet the Caltrans requirements. Typically, prior to placement of the Asphalt Concrete, pavement binders/slurry seal will be applied over base material. Asphalt Concrete is then placed in thin layers and compacted. Both base material and Asphalt Concrete will be delivered to the project site by trucks. The conform areas along the existing pavement will require to be ground / cold [planed and removed. Anticipated work vehicles to be used during construction include:

- Trucks
- Spreader
- Pavement Screed
- Roller
- Cold Planers (Pavement grinding)

Concrete work – Curb, Gutter, Sidewalk, and Hardscape

The project includes construction of curb, gutter, sidewalk, and hardscape. The concrete will be delivered to the project site by concrete trucks. Project site will also include concrete washout areas for proper disposal of excess concrete. The work to construct concrete features will typically include:

- Minor Excavation / Demolition
- Forming
- Placement of Concrete
- And finishing

The typical work equipment include:

- Mini Excavators
- Compactors
- Concrete Trucks

Vibration Model

The FTA analytical/empirical construction vibration prediction model was used to estimate vibration level propagation from construction equipment to vibration-sensitive locations. The vibration model is based on a combination of previous works, including measured equipment vibration emission data from several reference sources and projects, including the FTA's Guidance Manual, and the Central Artery/Tunnel Project in Boston. The fundamental equation used in the model is based on propagation relationships of vibration through average soil conditions and distance, as follows:

$$PPV_{receiver} = PPV_{ref} \times (25/Dist_{receiver})n$$

where:

$PPV_{receiver}$ = predicted PPV at the receiver

PPV_{ref} = reference PPV of equipment at 25 feet

$Dist_{receiver}$ = distance from the receiver to the equipment in feet

n = 1.5 (the vibration attenuation rate through the soil)

Where PPV = peak particle velocity.

Short-term annoyance from vibration during construction is not a NEPA-significant impact. In most cases, the primary concern regarding construction vibration relates to potential damage effects to structures. To satisfy NEPA requirements, the potential for damage to structures associated with construction vibration has been assessed using FTA vibration damage criteria as shown in Table 1.

The suggested value for "n" in the FTA Guidance Manual is 1.5. The value for "n" can lie between 1.0 and 2.0, and a value of 1.5 is commonly used in general vibration prediction models for distances less than 100 feet. Equipment vibration emission levels used for the predictions are shown in Table 2. As additional guidance for the contractor, the distance beyond which the damage risk criteria would not be exceeded is presented in Table 3 for building category III, damage risk criteria of 0.2 in/sec (PPV) which is protective of the most fragile buildings such as the Oakville Grocery.

Table 1. Construction Vibration Damage Risk Criteria

Building Category		PPV (inches / second)
I.	Reinforced-concrete, steel, or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Historic buildings that have average sensitivity to vibration damage and non-engineered timber and masonry buildings	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

Source: FTA, 2018
Note: PPV = peak particle velocity

Table 2. Equipment Vibration Emission Levels

Equipment	Vibration Level at 25 feet (in/sec PPV)
Large Bulldozer	0.089
Caisson Drilling	0.089
Jack Hammer	0.35
Loaded Truck	0.076
Vibratory Roller	0.210

Source: FTA, 2018

Table 3. Construction Vibration Levels at Distance to 0.20 in/sec PPV Impact Threshold

Equipment	Vibration Level at 25 feet	Distance to FTA Building Impact Category III of 0.20 in/sec PPV (feet)
Backhoe	0.028	7
Bulldozer	0.089	15
Concrete Mixer	0.076	13
Concrete Pump	0.076	13
Excavator	0.175	23
Front End Loader	0.0866	15
Grader	0.0867	15
Jackhammer	0.350	35
Paver	0.076	13
Vibratory Roller	0.21	26

Note: Damage risk criteria of 0.20 in/sec PPV for well-constructed historic buildings.

The limit of 0.12 in/sec for fragile historic structures is among the most restrictive limits used for vibration damage risk to buildings. A damage risk criterion of 0.2 in/sec (PPV) would be protective of most fragile buildings, such as the Oakville Grocery structure.

Construction activities within 10 feet of the Oakville Grocery structure would exceed the damage risk criteria of 0.20 PPV during the use of most of the equipment in Table 3, including the following: bulldozers, excavators, front end loaders, jack hammers, pavers, and vibratory rollers. The use of this equipment would need to be restricted to distances of more than 20 feet from the Oakville Grocery building.

To minimize potential impacts, the following Caltrans Standard Specifications would be implemented:

14-8.06 Photo and Video Documentation

A pre-construction photo survey/video survey of the Oakville Grocery structure would be completed to document exterior and interior conditions of the structure. In the event of

potential concerns regarding vibration induced damage to the structure by the property owner during construction, this photo documentation will serve as a point of comparison.
14-8.04 Crack Monitoring

Prior to construction the Contractor shall also prepare a Geotechnical Instrumentation and Monitoring Plan to protect the Oakville Grocery structure from excessive vibration. The purpose of the Plan is to:

- Document the pre-construction baseline data of building and slab cracks and ground movements with for comparison with construction and post-construction data;
- Furnish, install, and maintain crack monitoring gages.
- Provide reliable information for the Project Engineer to assess construction-induced adverse impacts imparted on Oakville Grocery structure;
- Permit timely implementation of appropriate remedial measures, when and as required, to mitigate construction-induced adverse impacts imparted to the Oakville Grocery structure;
- Accommodate timely warnings of conditions that may require modifications (i.e., changes) to the Contractor's construction "means and methods" or implementation of remedial or precautionary measures, during performance of the Work, to mitigate construction-induced adverse impacts; and

Document the extent and the magnitude of construction-induced adverse impacts.
14-8.03 Vibration Monitoring

Before construction begins the Contractor shall prepare a Vibration Control Plan (VCP) prior to construction starting. Vibration levels are calculated at the closest face of the Oakville Grocery building to the roadway and compared with the damage risk criteria 0.20 in/sec PPV. If the damage risk criteria are exceeded, vibration control measures will be identified and implemented as required.

The Contractor shall also prepare a Vibration Monitoring Plan specifying construction activities, monitoring locations, equipment, procedures, schedule of measurements and reporting methods to be used. Submit vibration monitoring data collected during the previous week to Residence Engineer on a weekly basis. Contractor's Acoustical Engineer shall review all data prior to submitting to Residence Engineer. Weekly reports shall indicate whether the vibration monitoring data exceeds the damage risk criteria of 0.20 in/sec PPV allowable limits. If exceeded the activity causing the exceedance and shall be immediately halted. Work on that activity shall be suspended until such time as an alternative construction method can be used and additional Abatement Measures can be implemented as specified in the Vibration Control Plans.

If the damage risk criteria are exceeded, the Contractor shall use all reasonable efforts to implement vibration reduction methods such as those listed below to minimize construction-induced vibration levels.

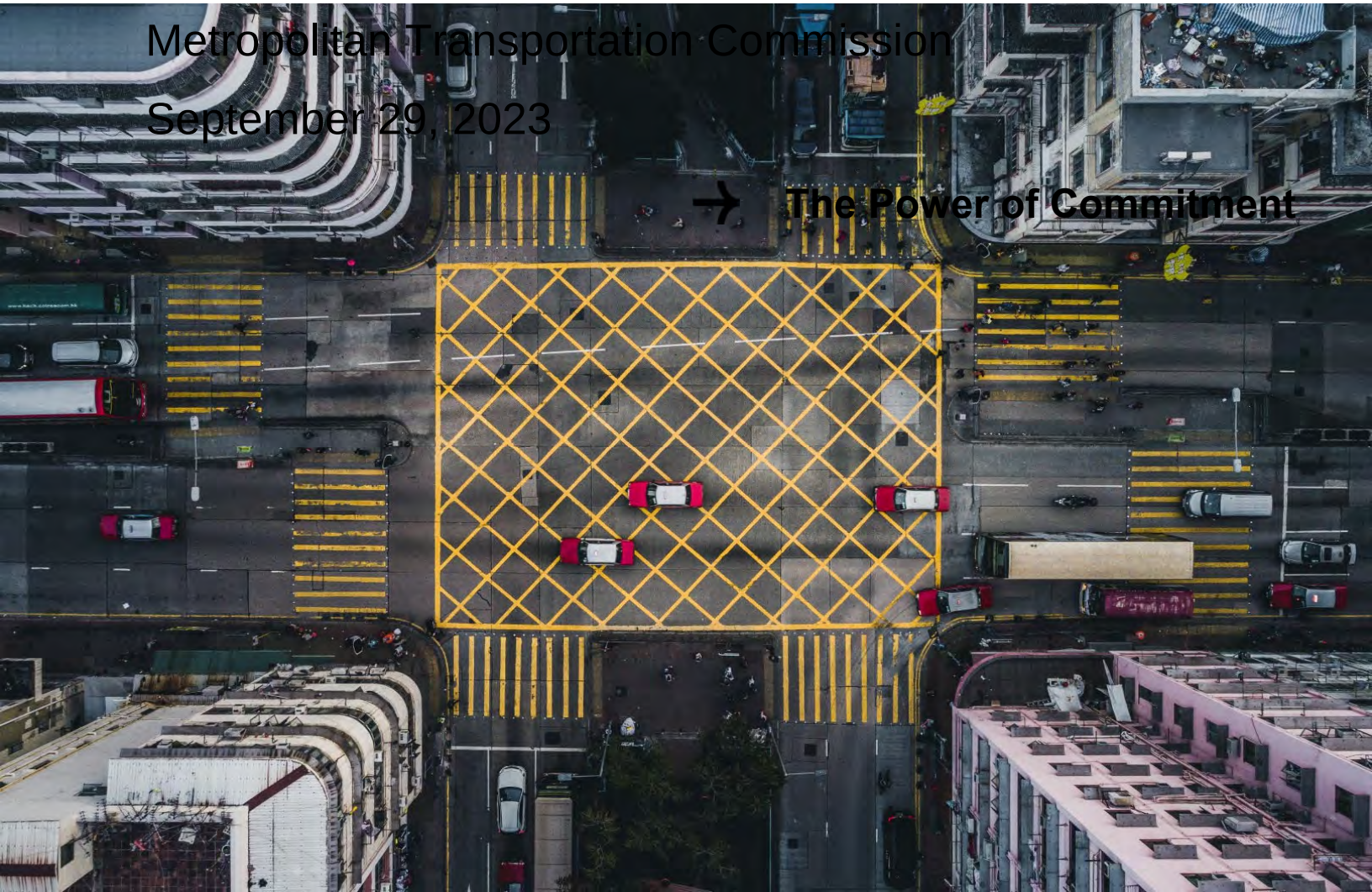
1. Use of alternative construction methods that produce less vibration.
2. Limiting the number and duration of equipment working on site.
3. Filling potholes and/or grinding paved roadway surfaces smooth in order to minimize truck passby-induced vibrations.

4. Scheduling of construction events and limiting usage times to minimize disruption from vibrations, especially near the Oakville Grocery building.

Appendix I Traffic Operations Analysis Report

Traffic Operations Analysis Report/Intersection Control Evaluation

NAPA FORWARD – STATE ROUTE 29 (ROUTE-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT
EA 04-2W430



Metropolitan Transportation Commission

September 29, 2023

→ The Power of Commitment

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Contents

1. Introduction **1**

1.1 Study Area Roadways 2

1.1.1 Route 29 2

1.1.2 Rutherford Road/Route 128 2

1.1.3 Oakville Cross Road 2

1.2 Need and Purpose 4

1.2.1 Need 4

1.2.2 Purpose 4

1.3 Previous Studies 4

2. Analysis Policies and Methodologies **5**

2.1 Level of Service Methodology 5

2.2 Study Facilities and Time Periods 5

2.2.1 Study Periods 5

2.2.2 Analysis Scenarios 5

2.3 Agency Guidelines and Policies 6

2.3.1 Level of Service 6

Napa County 6

Caltrans 6

2.4 Key Technical Parameters and Assumptions 8

3. Existing Conditions **9**

3.1 Traffic Volumes 9

3.1.1 Annual Average Daily Traffic 9

3.1.2 Existing (2022) Peak Hour Data 10

3.1.3 Heavy Vehicle Impact 14

3.2 Traffic Operations 14

3.2.1 Level of Service 14

3.3 Safety Analysis 15

3.3.1 Study Intersection Collision Types 15

3.3.2 Study Intersection Crash Rates 16

3.4 Traffic Signal Warrant Analysis 18

3.5 Multimodal Facilities 18

3.5.1 Bicycle Facilities 18

3.5.2 Pedestrian Facilities 18

Route 29 and Rutherford Road/Route 128 18

Route 29 and Oakville Cross Road 19

3.5.3 Existing Transit Service 19

3.5.4 Existing Rail Activity 19

4. Design Conditions **22**

4.1 Traffic Forecasts 22

5. No Build Conditions **27**

5.1 Year 2025 No Build Conditions 27

5.2 Year 2035 No Build Conditions 27

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6. Build Conditions **29**
6.1 Alternative 1 – Roundabout 29
6.1.1 Route 29/Rutherford Road – Roundabout 29
6.1.2 Route 29/Oakville Cross Road – Roundabout 29
6.2 Alternative 1 Operations 30
6.2.1 Year 2025 Roundabout Operational Analysis 30
6.2.2 Year 2035 Roundabout Operational Analysis 30
6.2.3 Roundabout Geometrics 31
6.3 Alternative 2 – Signal 31
6.3.1 Route 29/Rutherford Road – Signal 31
6.3.2 Route 29/Oakville Cross Road – Signal 31
6.4 Alternative 2 Operations 32
6.4.1 Year 2025 Signal Build Conditions Operational Analysis 32
6.4.2 Year 2035 Signal Build Conditions Operational Analysis 32
6.5 Impact of Railroad on Operations 33
7. Sensitivity Analysis **34**
7.1 National Cooperative Highway Research Program 1043 34
7.2 Traffic Operations 34
8. Intersection Control Evaluation – Life Cycle Benefit/Cost Analysis **35**
8.1 Methodology 35
8.1.1 Safety Benefit 35
8.1.2 Vehicular Delay Reduction Benefit 35
8.1.3 Fuel Benefit 35
8.1.4 Environmental Benefit 35
8.1.5 Construction Cost 36
8.1.6 Other Costs 36
8.2 Life Cycle Benefit/Cost Summary 36
8.2.1 Route 29 and Rutherford Road 36
8.2.2 Route 29 and Oakville Cross Road 37
9. Design Exhibits **38**
10. Conclusions **38**
10.1 Project Alternatives 38
10.1.1 Rutherford Road Intersection 38
10.1.2 Oakville Cross Road Intersection 38
Technical Appendices **39**

Table index

Table 2.1: Level of Service Criteria for Intersections 7
Table 2.2: Technical Parameters and Assumptions 8
Table 3.1: 2022 Roadway Segment Volume Summary 10
Table 3.2: 2022 Roadway Segment Truck Percent Summary 10
Table 3.3: Existing Level of Service, Delay and Queuing Characteristics 15

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Table 3.4: Collision Types (2018-2020) 16
Table 3.5: Collision Rates 16
Table 3.6 Signal Warrant Summary Table 18
Table 5.1: Year 2025 No Build Intersection Level of Service and Queuing Characteristics 27
Table 5.2: 2035 No Build Intersection Level of Service and Queuing Characteristics 28
Table 6.1: Alternative 1 – Roundabout – Year 2025 LOS and Queuing Characteristics 30
Table 6.2: Alternative 1 – Roundabout – Year 2035 LOS and Queuing Characteristics 30
Table 6.3: Alternative 2 – Signal – Year 2025 LOS and Queuing Characteristics 32
Table 6.4: Alternative 2 – Signal – Year 2035 LOS and Queuing Characteristics 33
Table 8.1: Route 29 & Rutherford Road Life Cycle Costs 36
Table 8.2: Route 29 & Rutherford Road Life Cycle Cost/Benefit Ratio 37
Table 8.3: Route 29 & Oakville Cross Road Life Cycle Costs - No Build Alternative 37
Table 8.4: Route 29 & Oakville Cross Road Life Cycle Cost/Benefit Ratio 37

Figure index

Figure 1.1: Study Area Vicinity 3
Figure 3.1: Existing Lane Geometries and Traffic Control 11
Figure 3.2: Existing Weekday Peak Hour Turning Movement Counts 12
Figure 3.3: Existing Weekend Peak Hour Turning Movement Counts 13
Figure 3.4: Collisions by Type (TASAS 2018-2020) 17
Figure 3.5: Existing Bicycle Facilities 20
Figure 3.6: Existing Transit Service 21
Figure 4.1: Year 2025 Weekday Peak Hour Turning Movement Counts 23
Figure 4.2: Year 2025 Weekend Peak Hour Turning Movement Counts 24
Figure 4.3: Year 2035 Weekday Peak Hour Turning Movement Counts 25
Figure 4.4: Year 2035 Weekend Peak Hour Turning Movement Counts 26
Appendix L: Kimley Horn Study 51

Appendices

Appendix A: Traffic Counts
Appendix B: Synchro Reports
Appendix C: SimTraffic Queue Reports
Appendix D: Sidra LOS Reports
Appendix E: Signal Warrant Worksheets
Appendix F: 2025 and 2035 Traffic Forecasts Memorandum
Appendix G: TASAS Data
Appendix H: Alternative Exhibits
Appendix I: Cost Estimates
Appendix J: Emissions Reports
Appendix K: ICE Calculations
Appendix L: Kimley Horn Study

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1. Introduction

This Traffic Operations Analysis Report (TOAR) and the Intersection Control Evaluation (ICE) were prepared in support of the Project Study Report-Project Report (PSR-PR) for a project that proposes improvements to two intersections along State Route (Route) 29 in Napa County – Route 29/Rutherford Road and Route 29/Oakville Cross Road. Metropolitan Transportation Commission (MTC), in cooperation with Napa Valley Transportation Authority (NVTA) and the California Department of Transportation (Caltrans), proposes to improve the operation and safety of Route 29 at the intersections of Oakville Cross Road (PM 22.72) and Rutherford Road (PM 24.59) within unincorporated Napa County. The proposed project would replace each of the existing two-way-stop-controlled (TWSC) intersections with either a roundabout or traffic signal.

Currently, both intersections are side-street-stop controlled, with a two-way-left-turn-lane along Route 29. Route 29 is one of the two major north-south corridors that provides connectivity through the cities of Calistoga, St. Helena, Yountville, Napa and American Canyon within Napa County. It is a primary freight, agricultural, and commute corridor with access to the San Francisco Bay Area and Sacramento as well as nearby Solano and Lake Counties. As the gateway to the Napa Valley Wine Country, Route 29 is a main route that brings tens of thousands of tourists to the region each year.

The section of the Route 29 corridor associated with the study intersections regularly experiences heavy traffic congestion during peak periods, resulting in delay and queueing issues at the side street approaches of Rutherford Road and Oakville Cross Road. Within the project limits, Route 29 between Whitehall Lane and Oakville Cross Road experiences heavy congestion during peak periods. The existing Route 29 corridor is uncontrolled within the project study area. Traffic on Route 29 is not required to stop, creating a continuous traffic flow and leaving no gaps for drivers on side streets to make turns. Therefore, vehicles at many of the side-street stop-controlled intersection approaches along the corridor have trouble turning onto Route 29. In response to the deficient traffic operations and safety concerns, the proposed projects (Build Alternatives) have been identified to improve traffic operations and enhance safety at the intersections and will include the following:

- Replacement of the existing TWSC intersection with a roundabout or a traffic signal.
- Provision of pedestrian and bicycle facilities within the project vicinity and to local businesses and destinations.
- Design features to accommodate projected traffic growth through Year 2035 conditions (Design Year).

This report has been prepared by GHD to assess the potential alternative improvements at the following intersections:

- Route 29/Rutherford Road
- Route 29/Oakville Cross Road

As agreed with the Project Development Team (PDT) and Caltrans Highway Operations Team, this report examines the traffic operations for Existing Conditions as well as three alternatives in the Opening Year (2025), and Design Year (2035):

- No Build Alternative – Utilize existing lane geometrics and intersection controls at the two study intersections.
- Roundabout Alternative – Construct a four-legged, single lane roundabout at the existing intersections.
- Traffic Signal Alternative – Upgrade the study intersections from two-way stop-control to a traffic signal.

The methodology used in evaluating the potential improvements at the intersections listed above is in compliance with the Caltrans Traffic Operations Policy Directive (TOPD) 13-02, Intersection Control Evaluation (ICE), for intersection improvements on the State Highway system. The ICE study has been prepared to present the results of the different build alternatives including No Build. The ICE analysis builds upon the analysis presented in this TOAR, as well as analyses completed in previous studies, and compares safety and operations associated with the proposed

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improvement alternatives, consistent with the Caltrans TOPD 13-02. The term “project,” as used in this report, will refer to potential improvements at the two study intersections.

1.1 Study Area Roadways

Roadways that provide primary access to the two study intersections are Route 29, Rutherford Road, the private driveway at Inglenook Winery, Oakville Cross Road, and Walnut Lane. Figure 1.1 shows the study intersections and the surrounding area. The following brief descriptions present characteristics unique to the major roadways providing access to the study intersections.

1.1.1 Route 29

Route 29, in the project vicinity, is a two-lane, north-south conventional highway with discontinuous two-way-left-turn lanes (TWLTL) between the two study intersections. The highway serves residential, commercial, and agricultural land uses within Napa County. North of Rutherford Road, Route 29 and Route 128 are contiguous. The posted speed limit along Route 29 within the study area ranges from 50 miles per hour (mph) south of the Route 29/Oakville Cross Road intersection to 40 mph north of Rutherford Road.

1.1.2 Rutherford Road/Route 128

Rutherford Road, contiguous with Route 128, is a two-lane, east-west highway located in the community of Rutherford that serves residential and commercial land uses. It connects to one of two Route 29 study intersections to the west, forming the east leg of the study intersection, and becomes Conn Creek Road/continues as Route 128 to the east. The posted speed limit on Rutherford Road near the study intersection is 30 mph.

1.1.3 Oakville Cross Road

Oakville Cross Road is a two-lane, east-west collector roadway located in the community of Oakville that serves commercial and agricultural uses. It connects Route 29 in the west to Silverado Trail in the east. There is no posted speed limit on Oakville Cross Road other than a 25-mph zone near the bridge over the Napa River, about 0.5 miles to the east of Route 29. There are 30 mph advisory signs along the eastern segment of the roadway.

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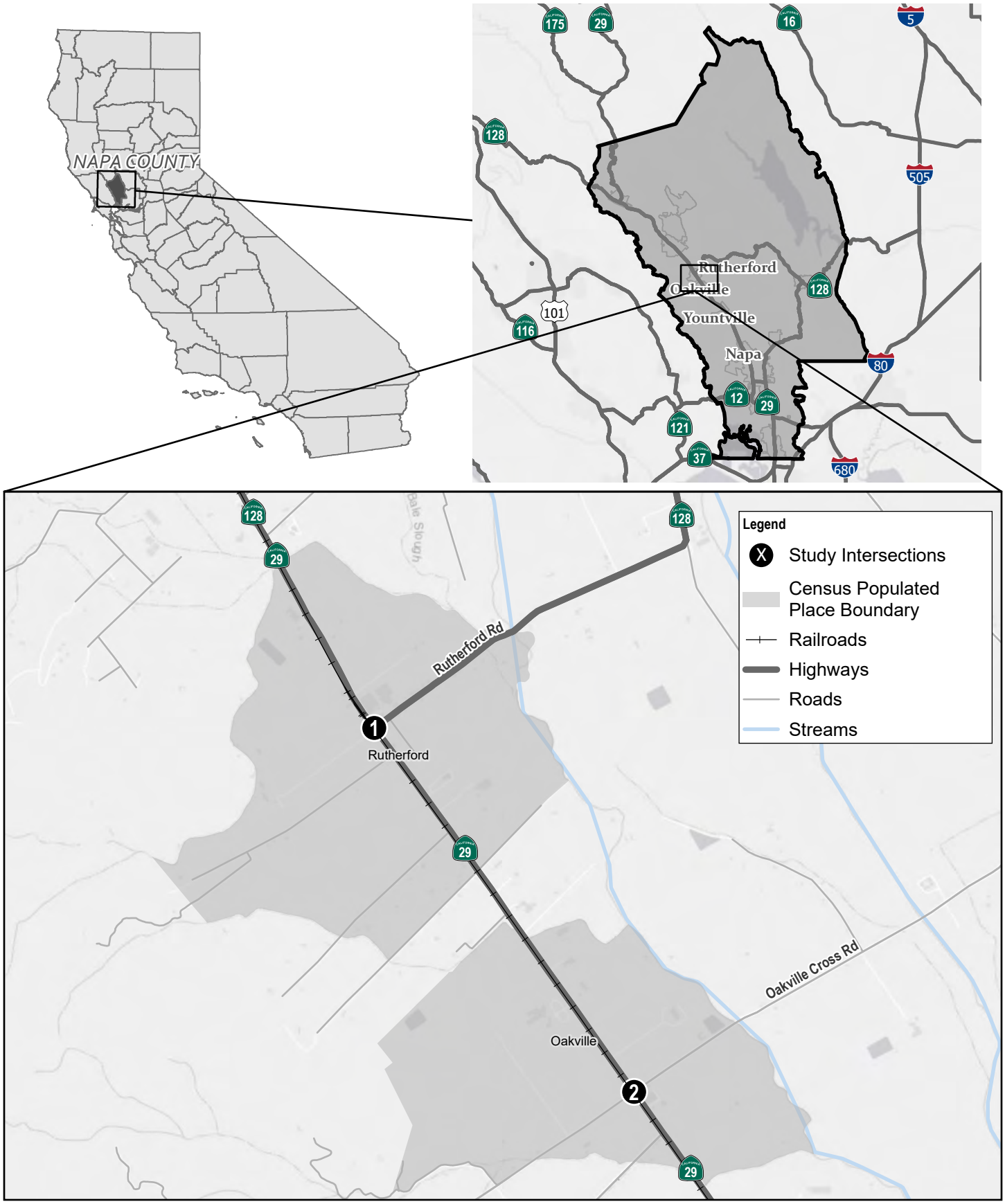

Paper Size ANSI A

0 1,500 3,000 4,500 6,000

US Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

GHD

METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

Vicinity Map

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 1-1

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_VicinityMap
Print date: 23 Feb 2023 - 19:17

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, USGS, EPA, NPS; World Light Gray Canvas Base: Esri, HERE, Garmin, USGS, EPA, NPS; TIGER, 2021. Created by: pthornton

1.2 Need and Purpose

1.2.1 Need

The intersections under study have been experiencing poor traffic operation and a high number of collisions due to the lack of protected turning movements.

- The number of collisions exceed the state-wide average for similar facilities
- Poor intersection operation occurs during peak and non-peak periods caused by high traffic volume
- Lack of protected turning movements limit access to and from Route-29 due to insufficient gaps in traffic streaming

1.2.2 Purpose

The purpose of the project is to enhance safety and traffic operations at the intersections of Route 29/Oakville Cross Road and Route 29/Rutherford Road.

- Improve travel time and reduce delay for side streets accessing Route 29
- Enhance traffic safety.
- Improve turning movements.

1.3 Previous Studies

In January 2020, MTC completed a traffic operations analysis to identify the causes of and potential solutions to congestion in the greater project vicinity. The results indicated that enhanced intersection control at the two intersections would improve multimodal traffic operations performance along Route 29. Preliminary crash data analysis provided by Caltrans indicates that the total rate of fatal and injury crashes at these two intersections is above the average crash rate for similar facilities statewide. Based on the results of traffic and safety analyses and feedback received from project stakeholders, the implementation of a traffic signal and roundabout are viable options to address the operations and safety needs.

Federal Highway Administration (FHWA) studies indicate that a properly designed roundabout would slow down traffic, thereby reducing the probability of the most severe types of intersection crashes and injuries. Roundabouts also allow for continuous flow of traffic at lower speed through this segment of the corridor and would be the ideal candidate to address the safety and operations challenges associated with the corridor.

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2. Analysis Policies and Methodologies

2.1 Level of Service Methodology

Traffic operations are quantified through the determination of "Level of Service" (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection, representing progressively worsening traffic operations as determined by vehicle delay or congestion. LOS “A” represents free-flow operating conditions and LOS “F” represents over-capacity conditions. These LOS letters correspond to numerical ranges of delay that are included in Table 2.1. Levels of Service were calculated for all study intersection control types using the methods documented in the Transportation Research Board Publication Highway Capacity Manual, Sixth Edition (HCM 6).

For signalized intersections, intersection delays and LOS are average values for all intersection movements. For two-way stop controlled (TWSC) intersections, the intersection delays and LOS are represented by the worst approach. All signalized intersection operations analyses were conducted using procedures and methodologies contained in the Highway Capacity Manual (HCM 6th Edition For unsignalized/signalized control, the LOS was determined using Synchro/SimTraffic 10 (Version 10.3.154.0) simulation software by Trafficware. For roundabout control, the LOS was determined using Sidra 9 (Version 9.0.2.9732) software using sidra analysis methodology. The model that was used in the analysis is the Akcelik M3 roundabout analysis model.

2.2 Study Facilities and Time Periods

2.2.1 Study Periods

The Route 29 study intersection weekday AM and PM peak hours as well as weekend mid-day peak hour were analyzed in the traffic operations analysis report (TOAR). Additionally, queue analysis was performed using SimTraffic in the TOAR.

2.2.2 Analysis Scenarios

The study facilities listed above were analyzed for the following analysis periods in the TOAR:

- Existing
- Year 2025 (Assumed to be Opening Year)
- Year 2035 (Assumed to be Design Year)

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2.3 Agency Guidelines and Policies

2.3.1 Level of Service

Napa County

The County of Napa General Plan contains the following policy pertaining to the LOS standards at intersections:

> *The County shall seek to maintain a Level of Service D or better at all signalized intersections, except where the level of service already exceeds this standard (i.e., Level of Service E or F) and where increased intersection capacity is not feasible without substantial right-of-way.*

Caltrans

Caltrans' Transportation Analysis Framework (TAF) and Transportation Analysis Under CEQA (TAC) state that intersection improvement projects are "not likely to lead to a measurable and substantial increase in VMT and which therefore generally should not require an induced travel analysis per OPR's Technical Advisory." For the purpose of this study, the intersections of Route 29/Rutherford Road (Route 128) and Route 29/Oakville Cross Road will be analyzed at a threshold of LOS D. Table 2.1 presents the Intersection Level of Service thresholds criteria.

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Table 2.1: Level of Service Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle	
				Signalized/Roundabout	Side-Street/All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	<10.0	<10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and <20.0	>10.0 and <15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and <35.0	>15.0 and <25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and <55.0	>25.0 and <35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and <80.0	>35.0 and <50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

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2.4 Key Technical Parameters and Assumptions

The following assumptions informed the analysis of potential improvements to the project's two study intersections as part of the Napa Valley Forward (NVF) Route 29 Safety & Operational Intersection Improvements project:

- The Peak Hour Factor (PHF) was calculated based on the traffic counts conducted for this study for each analysis location.
- A peak hour truck percentage for Route 29 was estimated from the existing traffic counts conducted at the study intersections.
- A travel speed of 50 mph was used for Route 29 and speeds on the local roadways will be based on the current posted speed limit.

Table 2.2 presents the technical parameters assumed for the evaluation of the study intersections for the analysis scenarios. All parameters not listed should be assumed as default or calculated values based on HCM methodology. These parameters were used in the preparation of the TOAR.

Table 2.2: Technical Parameters and Assumptions

Technical Parameters	Assumptions
1. Intersection Peak Hour Factor (PHF)	Intersection overall, Based on Existing Counts, PHF of 1.0 used for opening and design year
2. Intersection Heavy Vehicle Percentage	Intersection overall, Based on Existing Counts, min. 2%
3. Signal Timing	Based on current Caltrans Signal Timing Plans

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3. Existing Conditions

The existing conditions section presents the analysis scenarios in which current operations at study locations are analyzed and establishes the baseline traffic conditions.

Existing lane geometries and traffic control of the study intersections are presented in Figure 3.1. The figure also shows the length of right- and left-turn pocket storages, where present. The Rutherford Road and Oakville Cross Road intersections are both side-street stop-controlled.

To remain consistent with the calibrated SimTraffic model that was used in the Napa Route-29 and Silverado Trail Improvements Final Operations Analysis Memorandum (September 2019, Kimley-Horn), the following modifications were made to the Synchro/SimTraffic Model for the No Build scenarios:

- Headway @ 0 mph (sec) = Used 3 instead of default value of 0.65 to 0.35
- Headway @ 20 mph (sec) = Used 3 instead of default value of 1.80 to 0.80
- Headway @ 50 mph (sec) = Used 3 instead of default value of 2.20 to 1.00
- Headway @ 80 mph (sec) = Used 3 instead of default value of 2.20 to 1.00
- Gap Acceptance Factor = Used 0.75 instead of default value of 1.15 to 0.85
- Saturated flow on Route-29 adjusted to be 1,055 vphpl

Even with these changes to the model, SimTraffic lacks the capability to accurately model the traffic operations on this corridor as congestion occurs on the major roadway that is not the result of a stop-intersection control or reduction in roadway capacity. However, the adjustments will make the SimTraffic analysis closer to Existing Conditions and will allow for better comparison to the Build scenarios. These SimTraffic settings can also be found in Appendix L.

3.1 Traffic Volumes

Intersection turning movement counts were collected for the study intersections and daily traffic counts were collected for roadway segments on Route 29 between Rutherford Road and Oakville Cross Road. These counts were collected between May 5th, 2022, and May 8th, 2022. Counts at the study intersections were collected for the weekday AM peak period (6:00 AM to 9:00 AM), the weekday PM peak period (3:00 PM to 7:00 PM), and for the weekend mid-day peak period (11:00 AM to 3:00 PM). The total weekday daily traffic for the Route 29 segment between Oakville Cross Road and Rutherford Road was found to be 20,500, of which the NB traffic was 10,900 and the SB traffic was 9,600. The traffic counts are included in Appendix A.

3.1.1 Annual Average Daily Traffic

Caltrans publishes ADT data in a count book annually for all the facilities on the State Highway System. As noted in the count book, few locations are counted continuously, and the resulting counts are adjusted to derive an estimate of ADT.

More recent pre-pandemic data for 2019 was reviewed from the Caltrans count book in the project vicinity. The 2019 ADT data in the project vicinity (around PM 22.52 and 24.595) was found to be around 24,600 to 26,400.

Caltrans Highway Operations unit collected ADT counts in 2017 on the Route 29 segment north of the Oakville Cross Road in the northbound direction only. The actual data in 2017 was collected over a one-week period beginning April 12, 2017, thru April 19, 2017. The weekday average daily traffic over this period was found to be 10,900 (NB direction only). A comparison of 2017 Caltrans count in the NB direction and the 2022 May count indicates that the volume was almost identical and no growth in traffic was observed. Based on the data obtained in 2022, the combined NB and SB ADT can be estimated to 20,500.

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For 2017, the ADT data from the count book in the project vicinity (around PM 22.52 and 24.595) was found to be around 26,000 to 28,000, which is higher than the 20,500 ADT based on the actual count data.

Due to the travel restrictions associated with the COVID-19 pandemic, pre-COVID-19 historic Caltrans traffic data was obtained to compare to the existing counts to ensure that existing volumes reflect typical conditions. The existing 2022 ADT counts were found to be higher than the 2017 pre-COVID-19 counts. As such, after discussion with Caltrans, no adjustments were made to the existing 2022 traffic data. Table 3.1 below presents the roadway volumes for Thursday, Friday, and the highest weekend ADT. Table 3.2 below presents the same 2022 Roadway Segment ADTs broken down into passenger vehicles and Truck Traffic.

Table 3.1: 2022 Roadway Segment Volume Summary

Roadway	Segment	Thursday			Friday			Weekend		
		All Traffic	All Vehicular Traffic	Bike Traffic	All Traffic	All Vehicular Traffic	Bike Traffic	All Traffic	All Vehicular Traffic	Bike Traffic
Route 29	Between Rutherford Road and Oakville Cross Road	20,532	20,392	140	21,474	21,336	138	20,195	20,082	113

Table 3.2: 2022 Roadway Segment Truck Percent Summary

Roadway	Segment	Thursday				Friday				Weekend			
		Cars	Trucks	Total	Truck %	Cars	Trucks	Total	Truck %	Cars	Trucks	Total	Truck %
Route 29	Between Rutherford Road and Oakville Cross Road	18,949	2,387	21,336	11.2%	17,811	2,581	20,392	12.7%	18,759	1,323	20,082	6.6%

3.1.2 Existing (2022) Peak Hour Data

Figure 3.1 presents the existing lane geometrics and traffic control, Figure 3.2 presents the existing turning movement counts for the weekday AM and PM peak hour, and Figure 3.3 presents the existing turning movement counts for the weekend peak hour for each of the study intersections.

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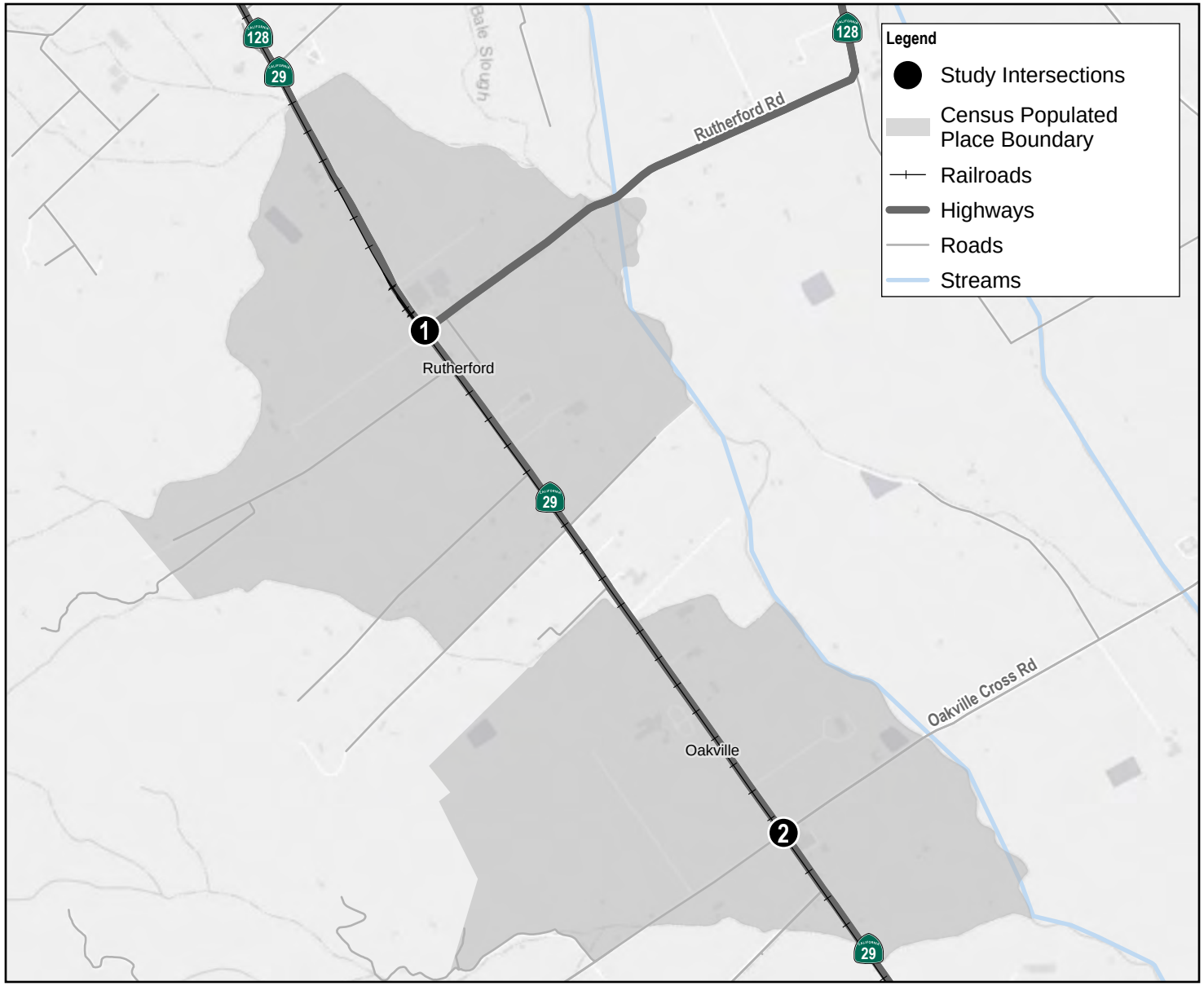

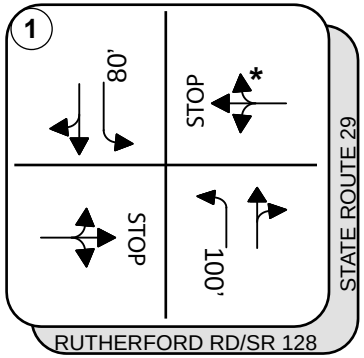

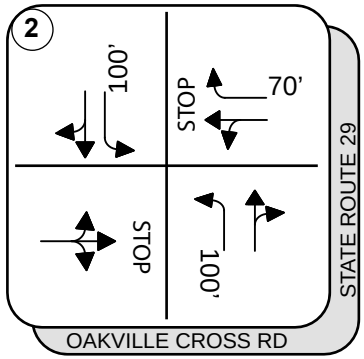

*Note: Existing lane geometry shows a shared right-turn for this movement, however it operates as an exclusive right-turn. Synchro model lane geometry reflects how the intersection operates.

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

EXISTING LANE GEOMETRIES & TRAFFIC CONTROL

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 3-1

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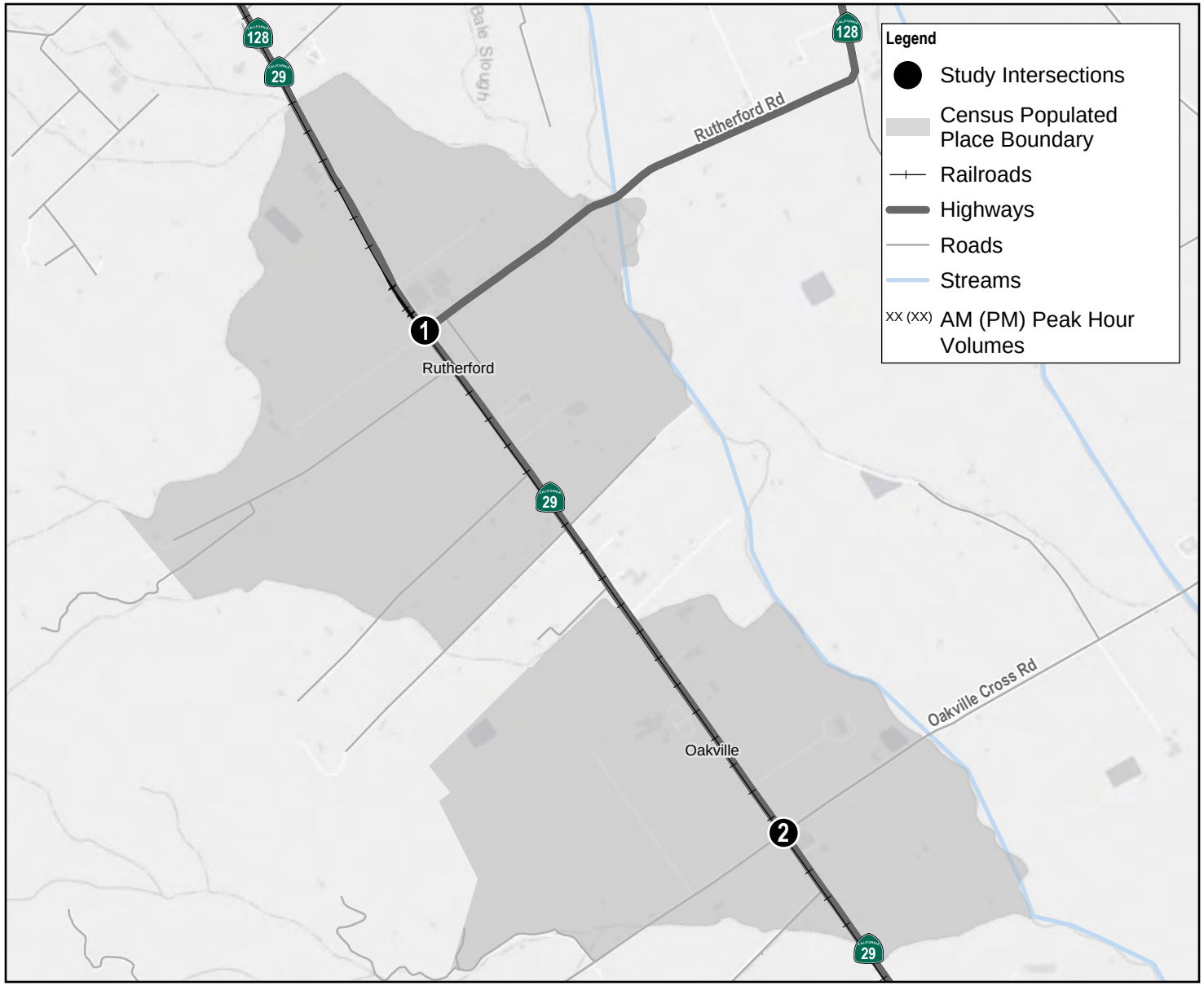
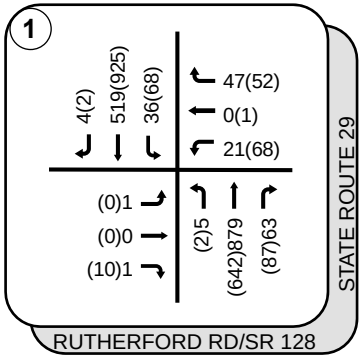
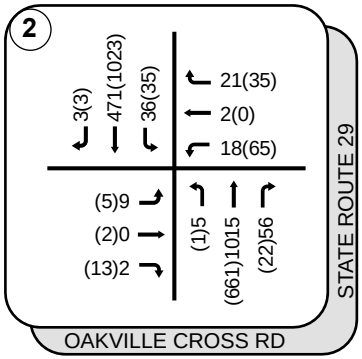
Print date: 23 Feb 2023 - 19:05

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Roads, Highways: TIGER, 2021. Created by: pthornton







*Note: Existing lane geometry shows a shared right-turn for this movement, however it operates as an exclusive right-turn. Synchro model lane geometry reflects how the intersection operates.

Paper Size ANSI A

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

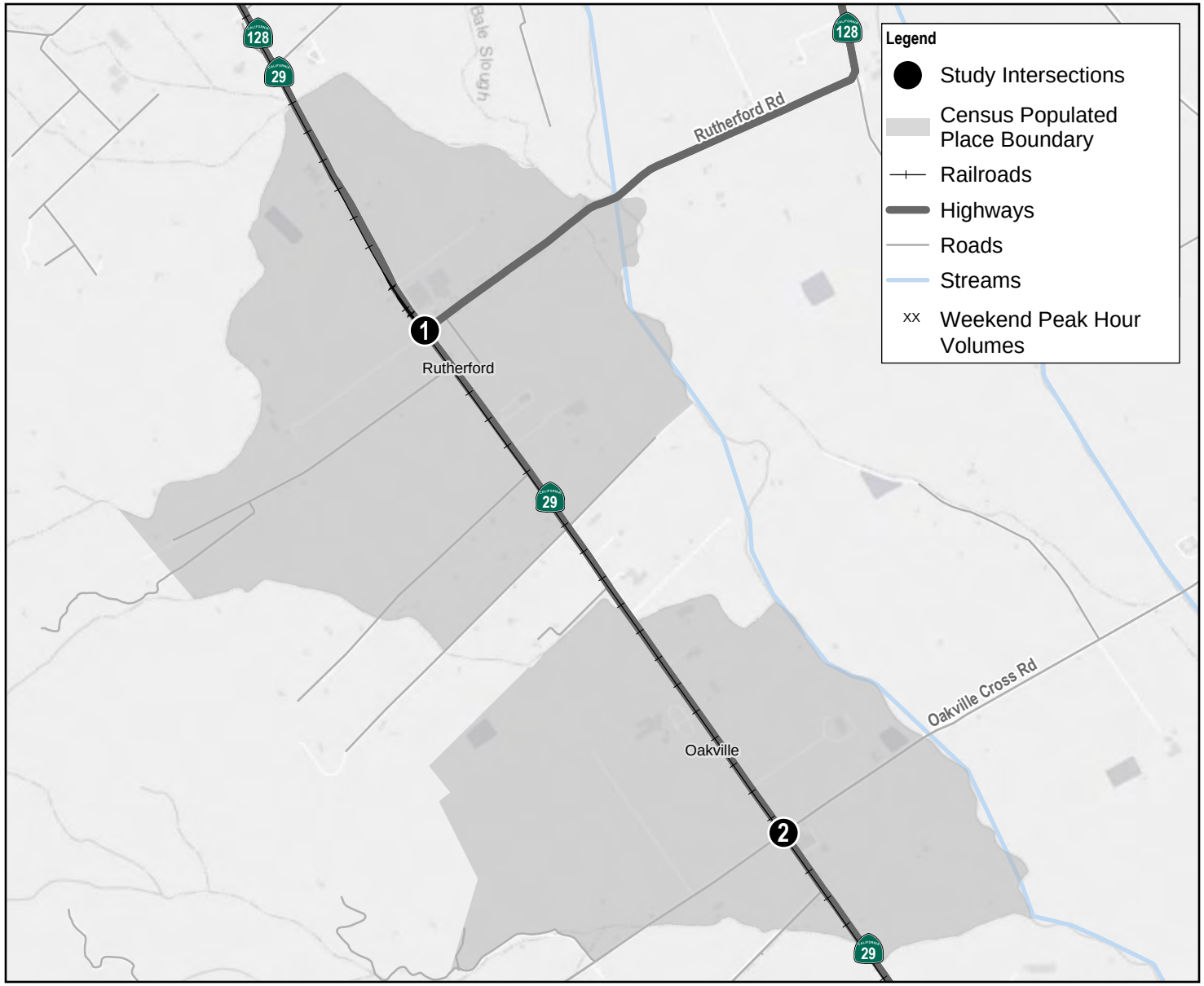
EXISTING WEEKDAY PEAK HOUR TURNING MOVEMENT COUNTS

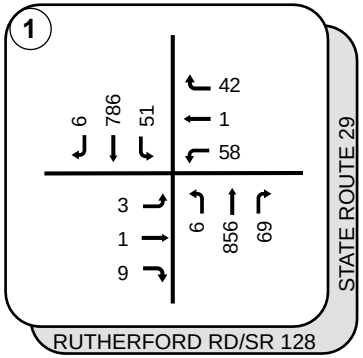
Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

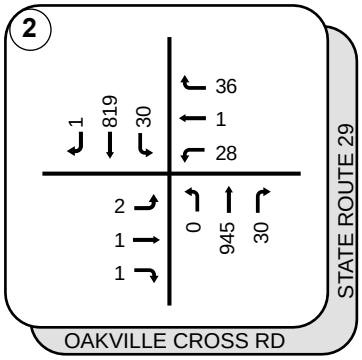
FIGURE 3-2

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
Print date: 23 Feb 2023 - 19:05

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Roads, Highways: TIGER, 2021. Created by: pthornton







*Note: Existing lane geometry shows a shared right-turn for this movement, however it operates as an exclusive right-turn. Synchro model lane geometry reflects how the intersection operates.

Paper Size ANSI A

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US Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

EXISTING WEEKEND PEAK HOUR TURNING MOVEMENT COUNTS

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 3-3

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
Print date: 23 Feb 2023 - 19:05

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Roads, Highways: TIGER, 2021. Created by: pthornton

3.1.3 Heavy Vehicle Impact

The peak hour heavy vehicle factors for both study intersections were 7% in the AM peak hour and 4% in the PM peak hour. These were obtained from actual counts and for the specific peak hours. The heavy vehicle factor was comparable to the Caltrans Truck Traffic: Annual Average Daily Truck Traffic (AADTT) (published in 2019) which showed an annual average of 6.21% of truck traffic between Oakville Cross and Rutherford Road. This data is for the average day and not for the specific peak hour. As the heavy vehicle percents were collected during the study peak hours, they represent the percentage for the peak hours only, not the average representation observed thru the day (ADT). This is why the truck percentage is higher than the average in the AM peak hour and lower in the PM peak hour. Therefore, the collected heavy vehicle percents were deemed more accurate than using AADT heavy vehicle percentages.

3.2 Traffic Operations

The existing traffic operations for 2022 was quantified as a baseline for current/existing delay and LOS. Table 3.3 presents the LOS results and queuing characteristics for the existing condition at the two study intersections. As shown, the LOS at both study intersections are below the threshold for acceptable traffic conditions, with excessive delay and queuing at the uncontrolled west- and -eastbound left-thru and left-thru-right movements.

3.2.1 Level of Service

The Route 29/Rutherford Road intersection experienced LOS E in the AM peak hour, and LOS F in both the PM and weekend peak hours. The westbound-left-thru movement experienced LOS F and the 95th percentile queue lengths were excessive across all peak periods for this movement. Further, the eastbound-left-thru-right movement experienced LOS E in the AM peak hour, with excessive 95th percentile queue lengths.

The Route 29/Oakville Cross Road intersection experienced LOS F across all peak periods, with both the westbound-left-thru and eastbound-left-thru-right movements both experiencing LOS F and excessive 95th percentile queue lengths.

All LOS calculation reports are provided in Appendix B.

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Table 3.3: Existing Level of Service, Delay and Queuing Characteristics

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
				Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	**Route 29 & Rutherford Road**	TWSC	**D**	**35.5**	**E**	**-**	**-**	**256.2**	**F**	**-**	**-**	**219.4**	**F**	**-**	**-**
	NB Left		D	8.6	A	12	100	10.2	B	12	100	9.5	A	22	100
	NB Thru/Right		D	0.0	A	11	-	0.0	A	28	-	0.0	A	21	-
	WB Left/Thru		**D**	**66.4**	**F**	**54**	**-**	**OVR**	**F**	**234**	**-**	**OVR**	**F**	**134**	**-**
	WB Right		D	14.8	B	61	25	12.6	B	68	25	14.4	B	67	25
	SB Left		D	10.6	B	36	80	9.7	A	38	80	10.5	B	33	80
	SB Thru/Right		D	0.0	A	18	-	0.0	A	87	-	0.0	A	80	-
	EB Left/Thru/Right		**D**	**35.5**	**E**	**18**	**-**	**17.5**	**C**	**37**	**-**	**39.5**	**E**	**41**	**-**
2	**Route 29 & Oakville Cross Road**	TWSC	**D**	**68.9**	**F**	**-**	**-**	**254.7**	**F**	**-**	**-**	**72.5**	**F**	**-**	**-**
	NB Left		D	8.5	A	9	100	10.7	B	0	100	0.0	A	0	100
	NB Thru		D	0.0	A	35	-	0.0	A	54	-	0.0	A	48	-
	NB Right		D	0.0	A	37	25	0.0	A	33	25	0.0	A	28	25
	WB Left/Thru		**D**	**82.7**	**F**	**58**	**-**	**OVR**	**F**	**650**	**-**	**147.7**	**F**	**85**	**-**
	WB Right		D	12.5	B	48	50	10.6	B	93	50	11.9	B	60	50
	SB Left		D	11.7	B	38	100	9.3	A	33	100	10.5	B	33	100
	SB Thru/Right		D	0.0	A	0	-	0.0	A	26	-	0.0	A	0	-
	EB Left/Thru/Right		**D**	**68.9**	**F**	**37**	**-**	**44.9**	**E**	**55**	**-**	**65.1**	**F**	**22**	**-**

Notes:
1 TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions
5. OVR = Delay over 300 seconds

3.3 Safety Analysis

Collision data for the study intersections were provided by Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for the most recently available 3-year period between January 1, 2018, and December 31, 2020. Reported collisions include those occurring at or within 1500 feet of the study intersection location.

3.3.1 Study Intersection Collision Types

Table 3.4 presents a summary of the collision types reported at the two study intersections. Collisions by type at the study intersections are also shown in Figure 3.4.

Of the total number of collisions reported at the Oakville Cross Road intersection, more than half were broadside and hit object collision types, at 31% and 27%, respectively. Of the remaining collisions, rear end collisions were also common, with 23% of the total number of collisions reported as rear end collisions.

Of the 22 collisions reported at the Rutherford Road intersection, 9, or 41% were rear end collisions. Of the remaining collisions, sideswipe and hit object type collisions were the most reported collision type, comprising another 41% of the total number of collisions at the study intersection.

Additionally, the TASAS crash data analysis cites primary crash factors as the following for each study intersection:

Route 29/Oakville Cross Road

- Failure to Yield,
- Improper Turning,
- Speeding,
- Influence of Alcohol; and
- Other violations

Route 29/Oakville Cross Road

- Speeding,
- Improper Turning,

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- Failure to Yield, and
- Other violations

Table 3.4: Collision Types (2018-2020)

Type of Collision	Intersection Location			
	Route 29 & Oakville Cross Road		Route 29 & Rutherford Road	
	Number of Collisions	Percent of Intersection Total	Number of Collisions	Percent of Intersection Total
Head-On	1	3.8%	2	9.1%
Sideswipe	4	15.4%	5	22.7%
Rear End	6	23.1%	9	40.9%
Broadside	8	30.8%	2	9.1%
Hit Object	7	26.9%	4	18.2%
Total Collisions	26	100%	22	100%

3.3.2 Study Intersection Crash Rates

Table 3.5 presents the collision rates for the study intersections compared to the average rate for similar facilities across the State of California, reported in the rate per million vehicle miles. As shown, there were 26 collisions reported at the Oakville Cross Road intersection, and 22 at the Rutherford Road intersection during the 3-year study period. While there was no fatal collision reported over the 3-year study period, the actual rates of “Fatal and Injury” and total collisions at the two study intersections were higher than the average for other similar facilities across the State.

Table 3.5: Collision Rates

Location	Total # of Crashes	Actual Rates (per million vehicle miles)			Average Rates (per million vehicle miles)		
		Fatal Crashes	Fatal & Injury Crashes	Total[1]	Fatal Crashes	Fatal & Injury Crashes	Total[2]
Route 29 PM 22.520 Oakville Cross Road	26	0	0.61	1.38	0.020	0.34	0.79
Route 29 PM 24.595 Rutherford Road	22	0	0.40	1.46			

[1] All reported crashes (includes Property Damage Only (PDO) crashes)

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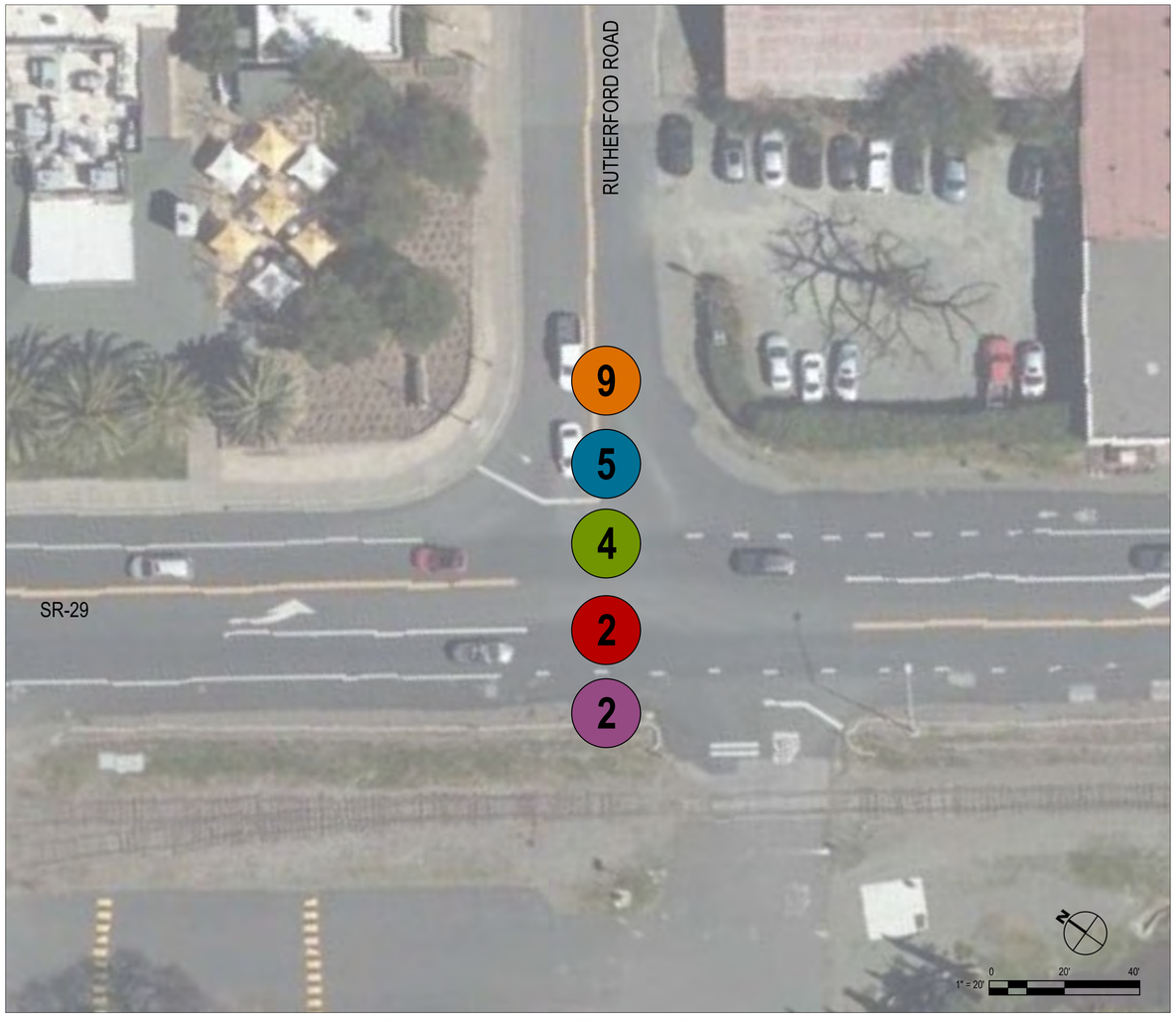
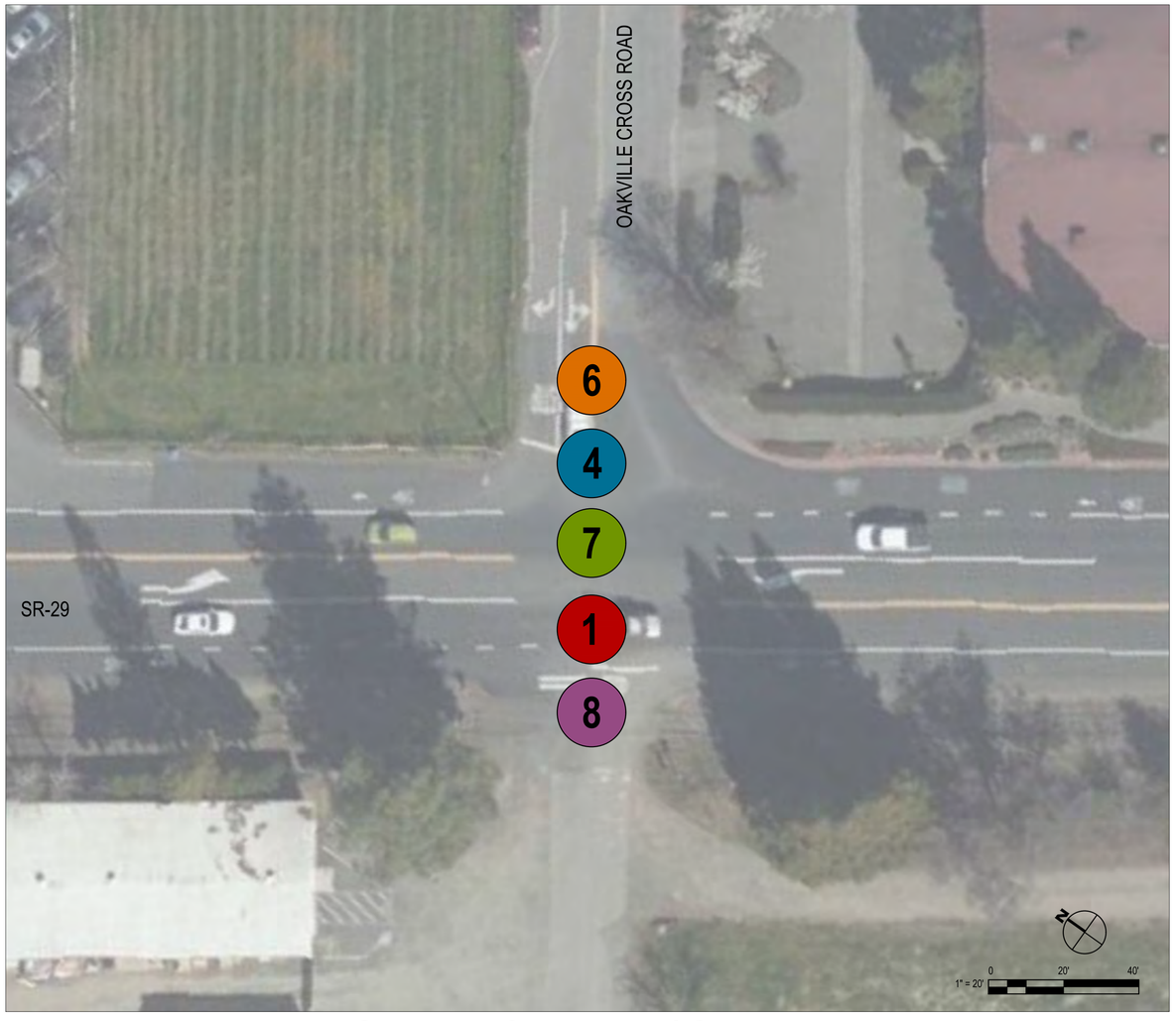


Rutherford Rd / SR-29 Intersection



Oakville Cross Rd / SR-29 Intersection

NOTE

Numbers represent the actual number of crashes within the segment of combined directions of NAP 29 at 1500 FT in either direction of the intersections between 01/01/2018 to 12/31/2020.

LEGEND

- # Rear End
- # Sideswipe
- # Hit Object
- # Head On
- # Broadside

PRELIMINARY

No.	Issue	Checked	Approved	Date
Author	Drafting Check	Project Manager		
Designer	Design Check	Project Director		

Bar is one inch on original size sheet
0 1"

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Client

Project **MTC SR-29 INTERSECTION IMPROVEMENTS**

Project No. | Date | Scale

Title
FIGURE 3-4
TASAS Crash Data Analysis

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Sheet No.

Plot Date: 15 December 2021 - 5:08 PM
Plotted By: Stephanie Ledbetter
Filename: \\ghdnet\ghd\US\Cameron Park\Projects\5611\11227647\03 - Exhibits\TASAS\X-11227647-TASAS.dwg

3.4 Traffic Signal Warrant Analysis

Based on the request from the PDT, Warrants 1, 2, 3 and 7 were performed for the intersection of Route 29/Rutherford Road to see if the installation of a traffic signal is justified. The signal warrant worksheets are provided in Appendix E.

The results of the traffic warrant analysis are summarized in Table 3.6 below, Warrants 1, 2, and 3 are all met.

Table 3.6 Signal Warrant Summary Table

Condition	Warrant 1 - Eight-Hour Vehicular Volume[1]					Warrant 2 - Four-Hour Vehicular Volume		Warrant 3 - Peak Hour		Warrant 7 - Crash Experience
	Overall	Condition A		Condition B						
		100% Condition	80% Condition	100% Condition	80% Condition	100% Condition	70% Condition	100% Condition	70% Condition	
Existing Weekend Volumes	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No

Notes:

[1] The approach volumes for 4 of the 8 hours on Rutherford and Route 29 SB were based on observed 24 hour counts broken down into 15-minute increments south of the Route 29 /Rutherford intersection.

3.5 Multimodal Facilities

3.5.1 Bicycle Facilities

Class II and III bicycle facilities exist within the study area as described below. Existing bicycle facilities are shown in Figure 3.5 and are described below:

- Class II Bicycle Lanes
  - Route 29, between Rutherford Road and Oakville Cross Road
- Class III Bike Route
  - Oakville Cross Road between Route 29 and Silverado Trail

3.5.2 Pedestrian Facilities

Existing pedestrian facilities, such as sidewalks, crosswalks, and curb ramps exist only in some places at the study intersection locations. A description of pedestrian facilities at each location is described below.

Route 29 and Rutherford Road/Route 128

There is a curb ramp at the northeast corner of this intersection with sidewalk segments that wrap around the same corner. The sidewalk continues for about 700 feet to the east along the north side of Rutherford Road and about 150 feet north from the intersection along the east side of Route 29. There are no other sidewalks or curb ramps, and no marked crosswalks at the study intersection.

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Route 29 and Oakville Cross Road

There is a curb ramp at the southeast corner of this intersection, with sidewalk segments that wrap around the same corner. The sidewalk continues for about 200 feet to the east along the south side of Oakville Cross Road and about 450 feet south from the intersection along the east side of Route 29. There are no other sidewalks or curb ramps, and no marked crosswalks at the study intersection.

3.5.3 Existing Transit Service

Existing transit service within the study area is shown in Figure 3.6. Transit service along Route 29 between the study intersections includes two Vine Transit bus routes operated by the Napa Valley Transportation Authority (NVTA). These routes include Route 10 and Route 10X, which both run from Napa to Calistoga. Both routes provide local service between Napa Valley College and Calistoga, providing local service in Rutherford and Oakville near both study intersections.

3.5.4 Existing Rail Activity

The Napa Valley Wine Train is a privately owned train operator that serves as a tourist activity for Napa Valley's winemaking region, beginning at the Napa Train Station in downtown Napa and ending in St. Helena. The train runs along the Napa Valley Railroad, parallel and adjacent to the west side of Route 29. While the Napa Valley Wine Train schedule is adjusted frequently to match customer demands, the train currently operates a few round trips per day with crossings occurring at the study intersections between 10:15 a.m. and 8:20 p.m. The schedule is further dependent on the day of week and additional trips run as a charter service. Still, the general Northbound and Southbound times that train passes the Oakville and Rutherford intersections are as follows:

- OAKVILLE:
    - NB 11:51
    - NB 12:10
    - NB 18:45
    - SB 13:50
    - SB 15:30
    - SB 19:30
- RUTHERFORD
    - NB 12:00
    - NB 12:20
    - NB 19:00
    - SB 13:45
    - SB 15:25
    - SB 19:20

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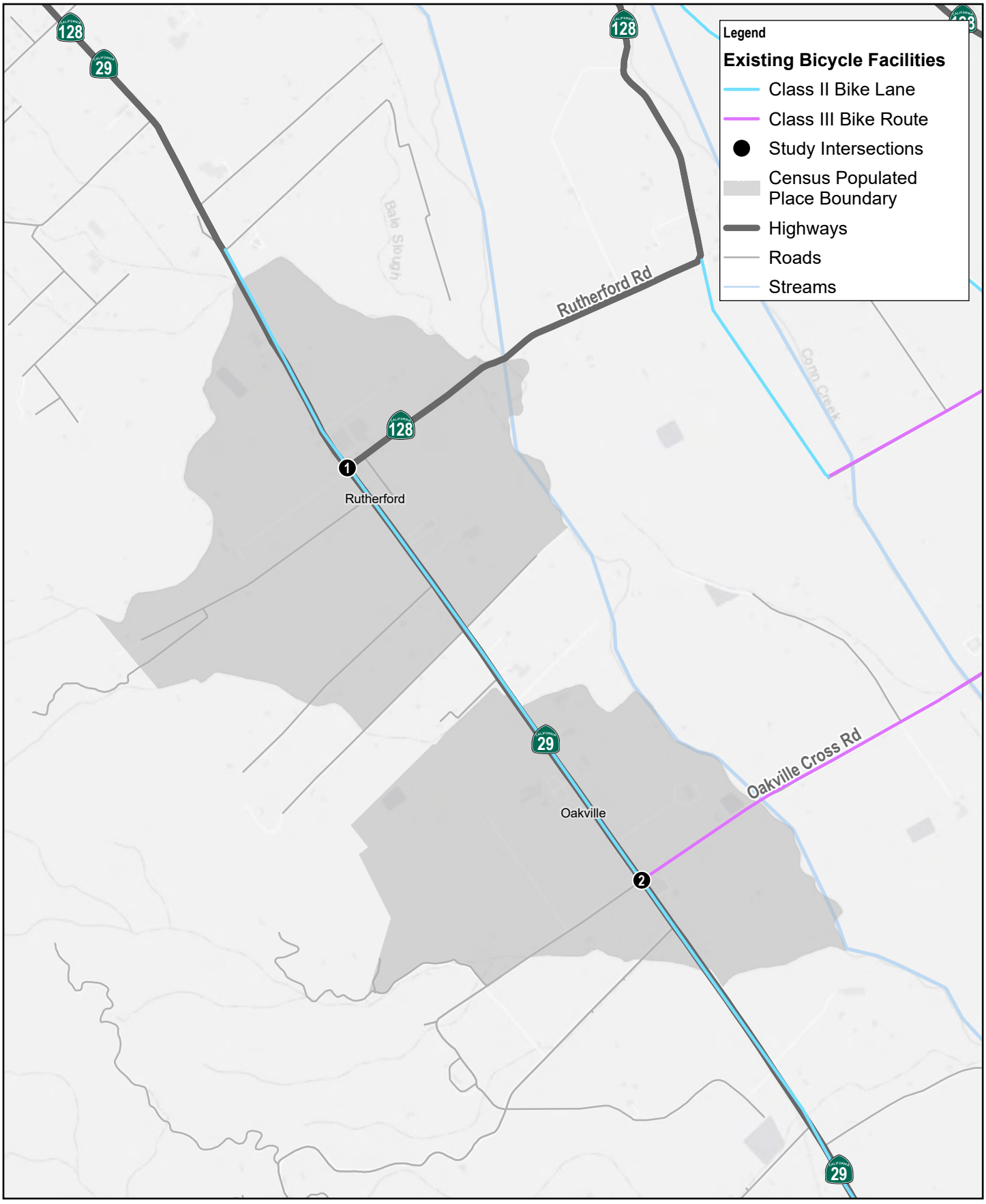

Paper Size ANSI A

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US Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet

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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

EXISTING BICYCLE FACILITIES

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 3-5

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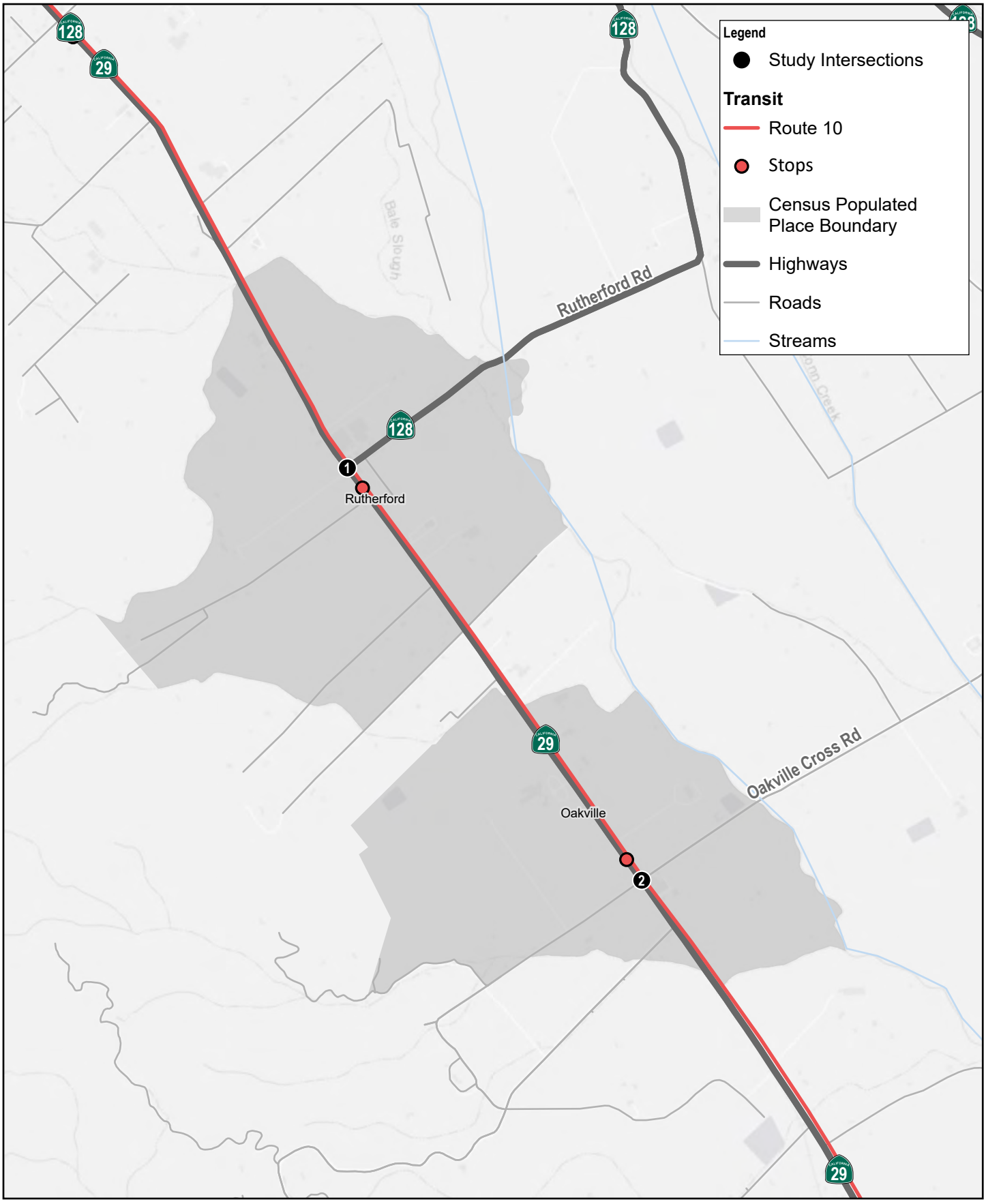
- 11227647_Bicycle Facilities
Print date: 23 Feb 2023 - 19:19

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA
Human Geography Base: County of Napa, Yolo County, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA; Bicycle Facilities: Napa County, 2021; Roads, Highways: TIGER, 2021.
Created by: pthornton



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Map Projection: Lambert Conformal Conic
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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

EXISTING TRANSIT FACILITIES

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 3-6

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx
- 11227647_Transit Facilities
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Human Geography Base: County of Napa, Yolo County, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA; Transit Facilities: MTC, 2021; Roads, Highways, TIGER, 2021.
Created by: pthornton

4. Design Conditions

4.1 Traffic Forecasts

Through coordination with the Metropolitan Transportation Commission (MTC), Napa County, and Caltrans District 4, an agreed methodology was used to develop the traffic forecast for Year 2025 (Opening Year) and Year 2035 (20-Year Forecast Design Year) at the study intersections. This methodology was documented in the technical memorandum titled *2025 and 2035 Forecasts*, which is provided in Appendix F.

The traffic volumes forecasted for the Opening Year (2025) weekday and weekend peak hour are shown in Figure 4.1 and Figure 4.2, respectively. The traffic volumes for Design Year (2035) weekday and weekend peak hour are shown in Figure 4.3 and Figure 4.4, respectively.

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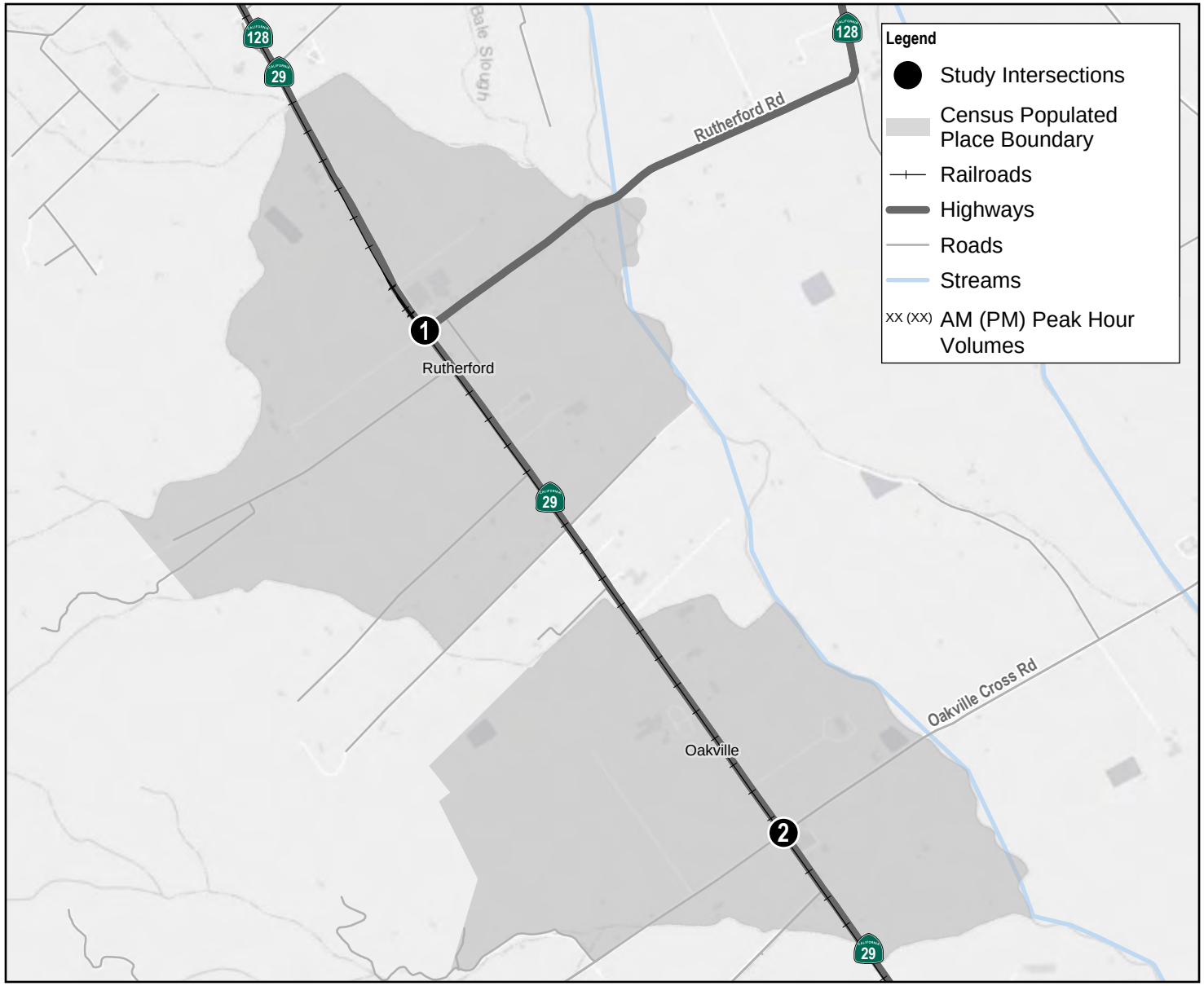

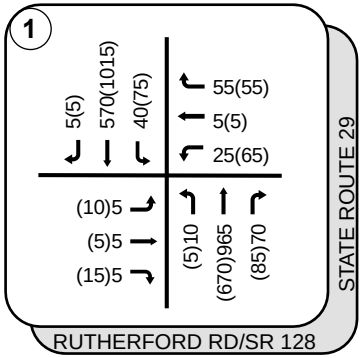

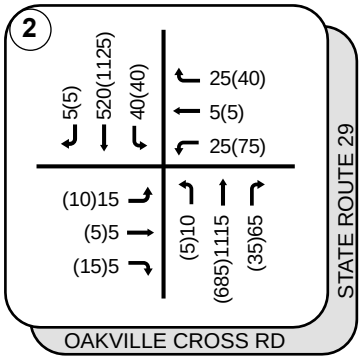

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NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

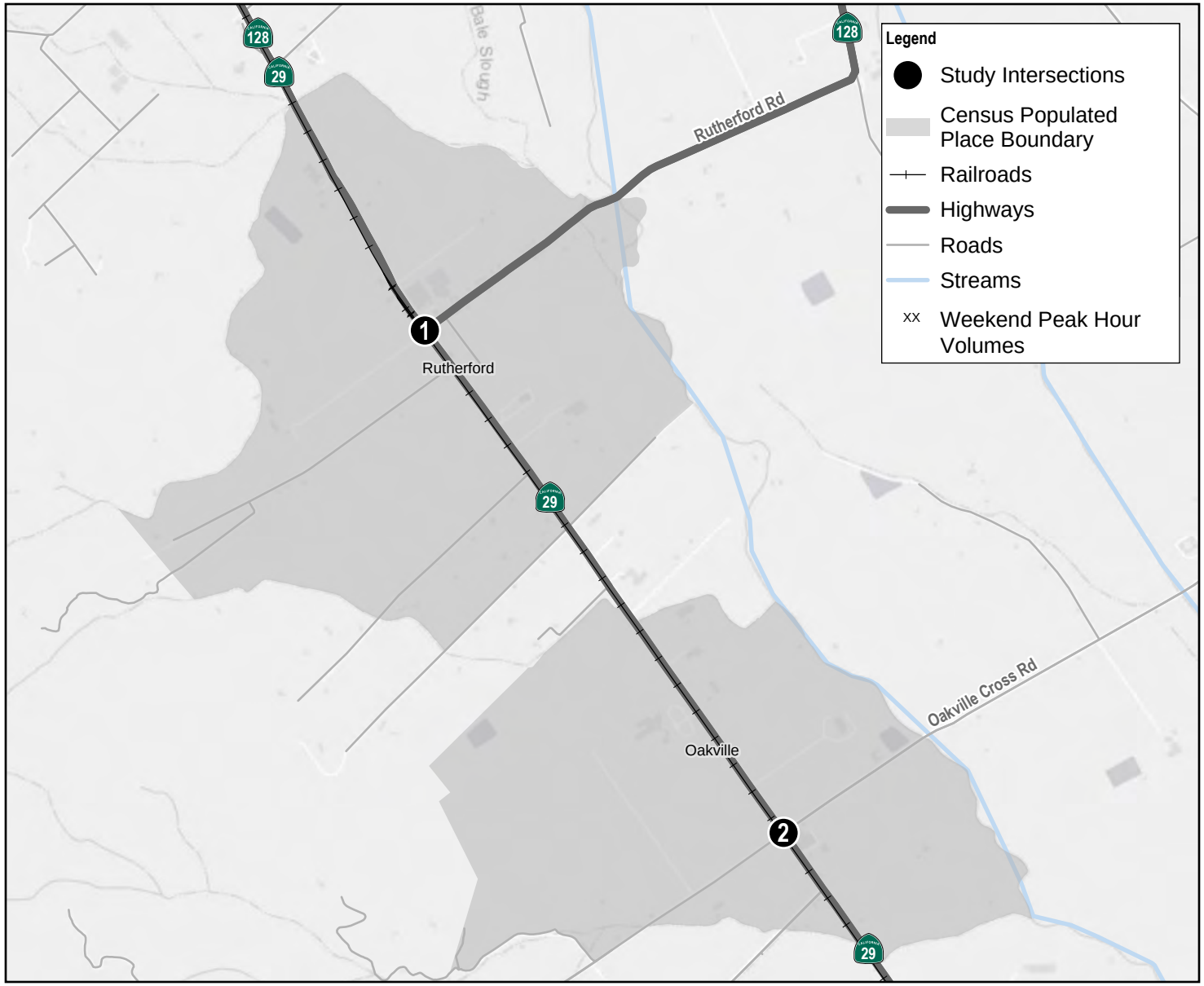
YEAR 2025 WEEKDAY PEAK HOUR TURNING MOVEMENT COUNTS

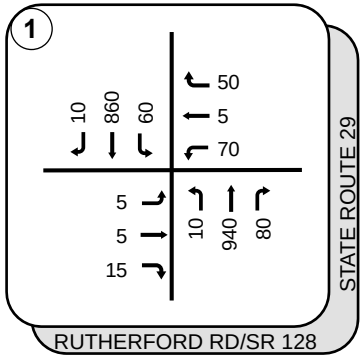
Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

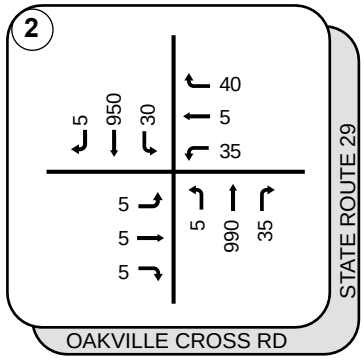
FIGURE 4-1

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
Print date: 23 Feb 2023 - 19:05

Data source: World Light Gray Canvas Base: County of Napa, Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA; Roads, Highways: TIGER, 2021. Created by: pthornton







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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

YEAR 2025 WEEKEND PEAK HOUR TURNING MOVEMENT COUNTS

Project No. **11227647**
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Date **Feb 2023**

FIGURE 4-2

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
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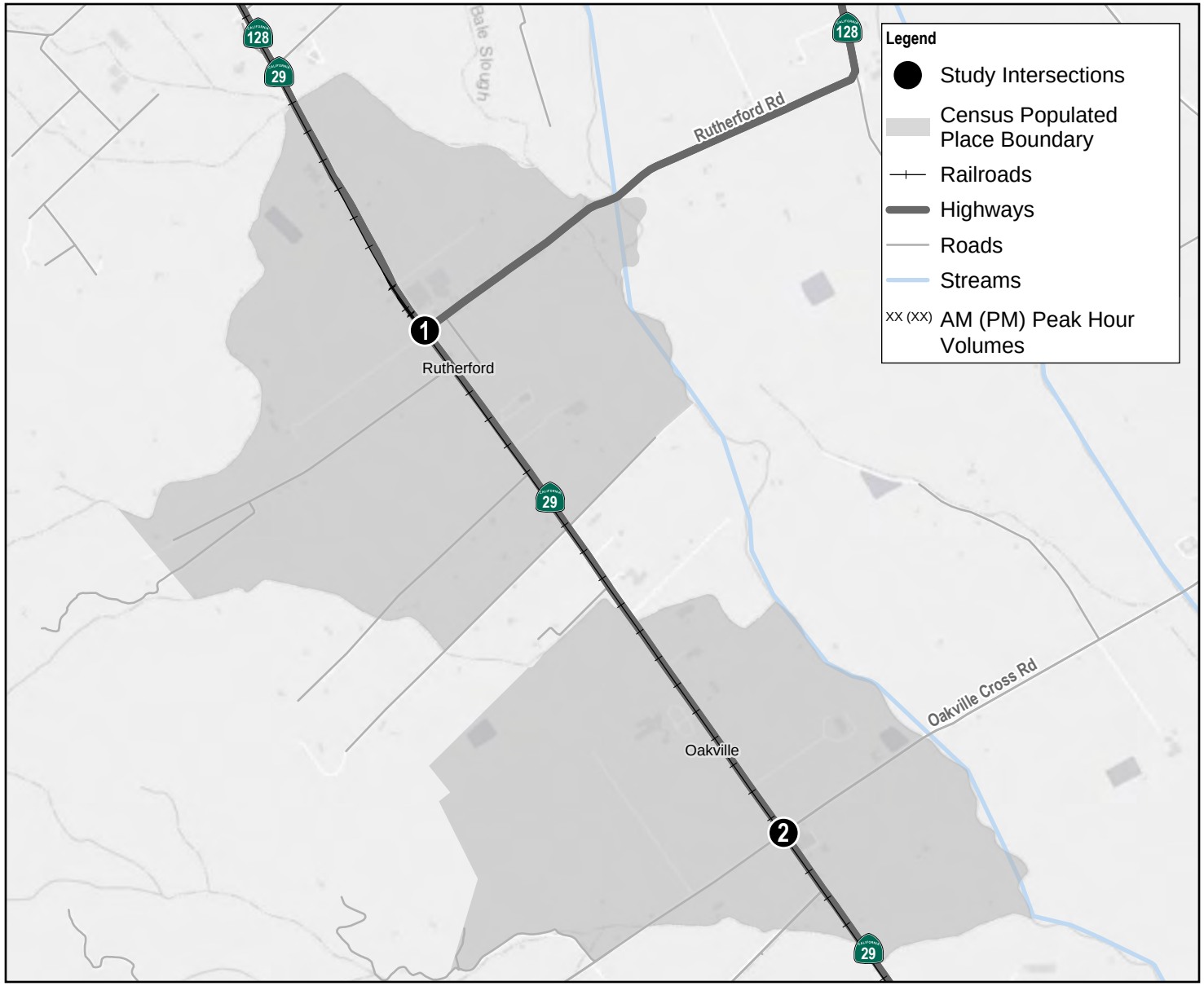

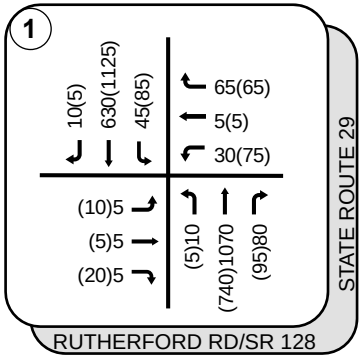

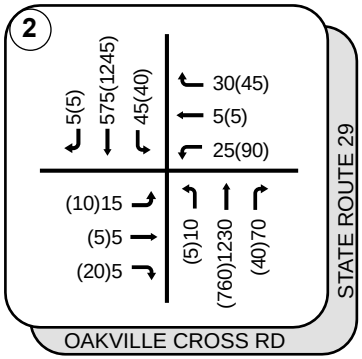

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NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

YEAR 2035 WEEKDAY PEAK HOUR TURNING MOVEMENT COUNTS

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 4-3

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
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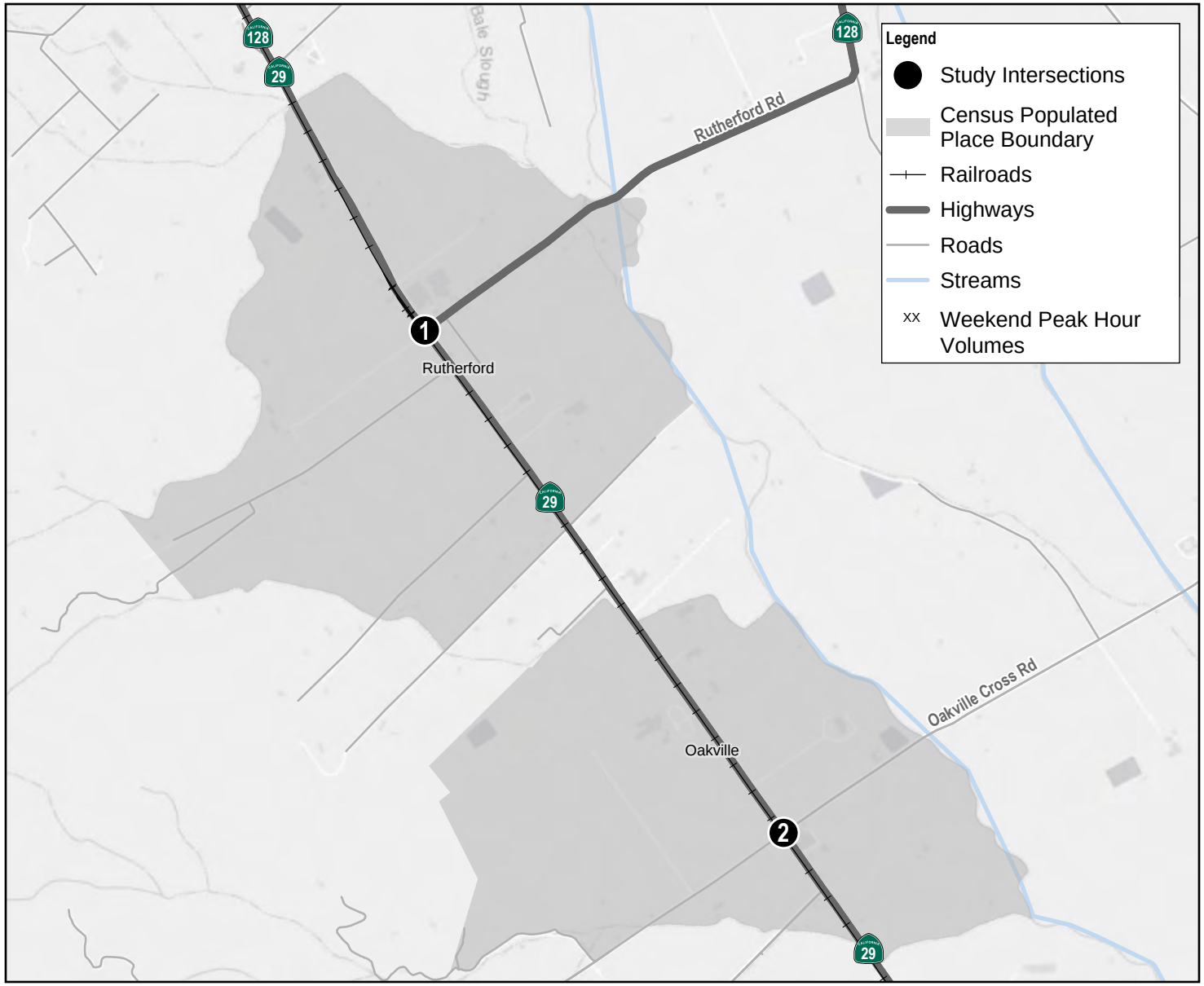

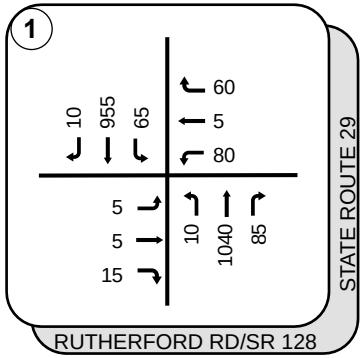

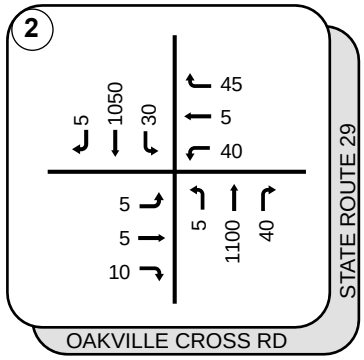

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Map Projection: Lambert Conformal Conic
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METROPOLITAN TRANSPORTATION COMMISSION (MTC)

NAPA VALLEY FORWARD 2R 29 SAFETY & OPERATIONAL INTERSECTION IMPROVEMENTS

YEAR 2035 WEEKEND PEAK HOUR TURNING MOVEMENT COUNTS

Project No. **11227647**
Revision No. **-**
Date **Feb 2023**

FIGURE 4-4

\\ghdnet\ghd\US\Cameron Park\Projects\561\11227647\08 - GIS\Maps\Deliverables\11227647_MTC SR 29 Intersections\11227647_MTC SR 29 Intersections.aprx - 11227647_Figure 3-1_TOAR_Existing Lane Geos
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5. No Build Conditions

The No Build alternative is the analysis scenario in which no intersection improvements are made before the project opening year, Year 2025, and the design year, Year 2035. All LOS calculation reports are provided in Appendix B.

5.1 Year 2025 No Build Conditions

Table 5.1 presents the LOS results and queuing characteristics for the Opening Year (2025). As shown, the LOS is below the threshold for acceptable conditions, with both study intersections experiencing LOS F and excessive delays across all three peak periods. As was the case with existing traffic operations at these locations, the uncontrolled WB left-thru and EB left-thru-right movements are causing LOS F conditions and excessive delay, with delay and queuing worse at Year 2025 than at the existing condition.

Table 5.1: Year 2025 No Build Intersection Level of Service and Queuing Characteristics

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
				Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	**Route 29 & Rutherford Road**	TWSC	**D**	**51.0**	**F**	**-**	**-**	**283.2**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**
	NB Left		D	8.7	A	15	100	10.4	B	19	100	9.7	A	21	100
	NB Thru/Right		D	0.0	A	8	-	0.0	A	29	-	0.0	A	25	-
	WB Left/Thru		**D**	**94.4**	**F**	**66**	**-**	**OVR**	**F**	**361**	**-**	**OVR**	**F**	**571**	**-**
	WB Right		D	15.5	C	64	25	12.5	B	70	25	15.0	B	68	25
	SB Left		D	10.8	B	34	80	9.7	A	34	80	10.8	B	31	80
	SB Thru/Right		D	0.0	A	34	-	0.0	A	85	-	0.0	A	84	-
	EB Left/Thru/Right		**D**	**51.0**	**F**	**40**	**-**	**80.4**	**F**	**96**	**-**	**63.2**	**F**	**73**	**-**
2	**Route 29 & Oakville Cross Road**	TWSC	**D**	**86.0**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**	**154.1**	**F**	**-**	**-**
	NB Left		D	8.6	A	12	100	10.9	B	13	100	10.0	A	12	100
	NB Thru		D	0.0	A	52	-	0.0	A	48	-	0.0	A	63	-
	NB Right		D	0.0	A	40	25	0.0	A	31	25	0.0	A	33	25
	WB Left/Thru		**D**	**114.2**	**F**	**71**	**-**	**OVR**	**F**	**1430**	**-**	**296.2**	**F**	**220**	**-**
	WB Right		D	12.6	B	54	50	10.6	B	87	50	12.0	B	91	50
	SB Left		D	11.8	B	40	100	9.3	A	34	100	10.6	B	32	100
	SB Thru/Right		D	0.0	A	3	-	0.0	A	19	-	0.0	A	14	-
	EB Left/Thru/Right		**D**	**86.0**	**F**	**50**	**-**	**77.5**	**F**	**67**	**-**	**87.5**	**F**	**54**	**-**

Notes:

1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions
5. OVR = Delay over 300 seconds

5.2 Year 2035 No Build Conditions

Table 5.2 presents the LOS results and queuing characteristics at the study intersections for the 2035 Design Year. Both intersections experience LOS F conditions and excessive delay, again with the uncontrolled west- and eastbound movements causing these issues.

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Table 5.2: 2035 No Build Intersection Level of Service and Queuing Characteristics

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
				Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	**Route 29 & Rutherford Road**	TWSC	**D**	**74.9**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**
	NB Left		D	9.0	A	16	100	10.9	B	17	100	10.1	B	24	100
	NB Thru/Right		D	0.0	A	17	-	0.0	A	29	-	0.0	A	27	-
	WB Left/Thru		**D**	**180.8**	**F**	**76**	**-**	**OVR**	**F**	**599**	**-**	**OVR**	**F**	**595**	**-**
	WB Right		D	17.3	C	63	25	13.3	B	71	25	16.6	C	72	25
	SB Left		D	11.6	B	34	80	10.1	B	40	80	11.5	B	39	80
	SB Thru/Right		D	0.0	A	34	-	0.0	A	90	-	0.0	A	86	-
	EB Left/Thru/Right		**D**	**74.9**	**F**	**41**	**-**	**135.4**	**F**	**92**	**-**	**102.5**	**F**	**52**	**-**
2	**Route 29 & Oakville Cross Road**	TWSC	**D**	**143.1**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**	**OVR**	**F**	**-**	**-**
	NB Left		D	8.8	A	15	100	11.6	B	16	100	10.5	B	8	100
	NB Thru		D	0.0	A	53	-	0.0	A	58	-	0.0	A	68	-
	NB Right		D	0.0	A	38	25	0.0	A	35	25	0.0	A	30	25
	WB Left/Thru		**D**	**189.1**	**F**	**195**	**-**	**OVR**	**F**	**1346**	**-**	**OVR**	**F**	**267**	**-**
	WB Right		D	13.4	B	64	50	11.0	B	91	50	12.8	B	90	50
	SB Left		D	12.7	B	40	100	9.7	A	34	100	11.2	B	29	100
	SB Thru/Right		D	0.0	A	5	-	0.0	A	24	-	0.0	A	20	-
	EB Left/Thru/Right		**D**	**143.1**	**F**	**55**	**-**	**118.0**	**F**	**60**	**-**	**112.3**	**F**	**52**	**-**

Notes:

1 TWSC = Two Way Stop Control

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal

3. Warrant = Based on California MUTCD Warrant 3

4. **Bold** = Unacceptable Conditions

5. OVR = Delay over 300 seconds

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6. Build Conditions

In order to reduce traffic congestion and enhance safety two build alternatives have been developed for each of the two study intersections. The two build alternatives considered at each location are described below.

6.1 Alternative 1 – Roundabout

6.1.1 Route 29/Rutherford Road – Roundabout

Alternative 1 at the Route 29/Rutherford Road intersection is a single lane 125' inscribed circle diameter (ICD) Compact Roundabout, which is presented in Appendix H. This alternative would include single lane approaches on all legs.

The compact roundabout would allow for lowered speeds through the intersection, safer turning movements for all vehicle approaches, and U-turn movement for all vehicles, including trucks, while being significantly less expensive and reducing right of way impacts when compared to a modern full-size roundabout.

Impacts associated with the roundabout include new right of way acquisition, removal of parking at the southeast corner of the intersection, impacts to Rutherford Grill property at the northeast corner, mainline channelization, and minimal impacts to railroad tracks.

6.1.2 Route 29/Oakville Cross Road – Roundabout

Alternative 1 at the Route 29/Oakville Cross Road intersection is a single lane 120' ICD Compact Roundabout, which is presented in Appendix H. This alternative would include single lane approaches on all legs.

The roundabout would allow for lowered speeds through the intersection, safer turning movements for all vehicle approaches, and U-turn movement for all vehicles, including trucks. Impacts associated with the roundabout include new right of way acquisition, removal of parking at the southeast corner of the intersection, removal of the vineyard at the northeast corner of the intersection, mainline channelization, and minimal impacts to railroad tracks, namely reconstruction of the grade crossing with no impact to the Napa Valley Wine Train tracks.

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6.2 Alternative 1 Operations

The roundabout operational analysis for Year 2025 and 2035 for both intersections is discussed in the following sections.

6.2.1 Year 2025 Roundabout Operational Analysis

This traffic analysis evaluates the Year 2025 Opening Conditions with the Roundabout Build Alternative at both study intersections. Table 6.1 presents the weekday AM and PM and weekend peak hour LOS, delay, and queuing characteristics for the Year 2025. Both intersections operate at an acceptable LOS.

Table 6.1: Alternative 1 – Roundabout – Year 2025 LOS and Queuing Characteristics

				AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
#	Intersection	Control Type[1,2]	Target LOS	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	Route 29 & Rutherford Road	RNDBT	D	5.3	A	-	-	6.0	A	-	-	5.8	A	-	-
	NB Left/Thru/Right		D	4.9	A	338.2	-	4.8	A	164.0	-	4.9	A	296.8	-
	WB Left/Thru/Right		D	15.3	B	35.6	-	11.6	B	29.5	-	15.2	B	45.1	-
	SB Left/Thru/Right		D	4.6	A	111.9	-	5.8	A	425.5	-	5.3	A	247.9	-
	EB Left/Thru/Right		D	9.9	A	3.0	-	18.5	B	18.2	-	12.8	B	8.8	-
2	Route 29 & Oakville Cross Road	RNDBT	D	6.3	A	-	-	6.2	A	-	-	5.0	A	-	-
	NB Left/Thru/Right		D	6.2	A	699.0	-	4.4	A	144.1	-	4.4	A	263.7	-
	WB Left/Thru/Right		D	23.2	C	47.0	-	12.4	B	27.0	-	14.9	B	26.5	-
	SB Left/Thru/Right		D	4.6	A	101.5	-	6.3	A	589.1	-	4.6	A	267.1	-
	EB Left/Thru/Right		D	11.2	B	4.8	-	23.2	C	25.8	-	13.9	B	5.0	-

Notes:

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2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal

3. Warrant = Based on California MUTCD Warrant 3

4. **Bold** = Unacceptable Conditions

5. OVR = Delay over 300 seconds

6.2.2 Year 2035 Roundabout Operational Analysis

This traffic analysis evaluates the Year 2035 Design Year Conditions with the Roundabout Build Alternative at both study intersections. Table 6.2 presents the weekday AM and PM and weekend peak hour LOS, delay, and queuing characteristics for the Year 2035. Both intersections operate at an acceptable LOS.

Table 6.2: Alternative 1 – Roundabout – Year 2035 LOS and Queuing Characteristics

				AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
#	Intersection	Control Type[1,2]	Target LOS	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	Route 29 & Rutherford Road	RNDBT	D	5.4	A	-	-	6.0	A	-	-	5.8	A	-	-
	NB Left/Thru/Right		D	4.8	A	326.1	-	4.7	A	168.4	-	4.8	A	287.1	-
	WB Left/Thru/Right		D	17.6	B	47.5	-	12.1	B	36.5	-	16.7	B	58.1	-
	SB Left/Thru/Right		D	4.6	A	116.1	-	5.7	A	440.5	-	5.2	A	255.4	-
	EB Left/Thru/Right		D	10.2	B	3.1	-	22.9	C	27.0	-	14.5	B	10.3	-
2	Route 29 & Oakville Cross Road	RNDBT	D	6.0	A	-	-	6.3	A	-	-	5.0	A	-	-
	NB Left/Thru/Right		D	5.7	A	636.2	-	4.3	A	144.3	-	4.3	A	247.5	-
	WB Left/Thru/Right		D	26.0	C	58.8	-	13.6	B	33.1	-	16.9	B	33.0	-
	SB Left/Thru/Right		D	4.6	A	101.5	-	3.2	A	605.0	-	4.5	A	259.2	-
	EB Left/Thru/Right		D	11.4	B	4.9	-	30.1	C	40.8	-	15.2	B	7.6	-

Notes:

1 TWSC = Two Way Stop Control

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal

3. Warrant = Based on California MUTCD Warrant 3

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5. OVR = Delay over 300 seconds

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6.2.3 Roundabout Geometrics

The geometric feasibility of a two-lane roundabout was considered for the Route 29 and Oakville Cross Road intersection, but is not feasible due to the right-of-way constraints. Despite the right of way constraints, the single lane roundabout alternative provides superior benefits in delay, queues, and safety compared to the signal alternative, as documented in the following section.

6.3 Alternative 2 – Signal

6.3.1 Route 29/Rutherford Road – Signal

Alternative 2 consists of a signalized intersection with crosswalks at the north and east legs. The signal design concept is included in Appendix H. The concept includes the following improvements:

- Signalized intersection
- Protected northbound left and southbound left phases.
- Split phases for the eastbound and westbound approaches (split phases were used for a more conservative delay analysis)

6.3.2 Route 29/Oakville Cross Road – Signal

The Signal Build Alternative (Alternative 2) for the Route 29 and Oakville Cross Road intersection is included in Appendix H. The concept includes the following improvements:

- Signalized intersection
- Protected northbound left and southbound left phases.
- Split phases for the eastbound and westbound approaches (split phases were used for a more conservative delay analysis)

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6.4 Alternative 2 Operations

The signal build operational analysis for Year 2025 and Year 2035 for both intersections is discussed in the following sections.

6.4.1 Year 2025 Signal Build Conditions Operational Analysis

This traffic analysis evaluates the Year 2025 Opening Conditions with the Signal Build Alternative at both study intersections. Table 6.3 presents the weekday AM and PM and weekend peak hour LOS, delay and queuing characteristics for the Year 2025. Both intersections operate at an acceptable LOS, however, several lanes operate below the LOS threshold.

Table 6.3: Alternative 2 – Signal – Year 2025 LOS and Queuing Characteristics

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
				Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	Route 29 & Rutherford Road	Signal	D	25.9	C	-	-	26.2	C	-	-	28.3	C	-	-
	NB Left		**D**	51.2	D	53	100	**52.0**	**D**	**39**	100	**57.0**	**E**	**55**	100
	NB Thru/Right		**D**	**57.1**	**E**	**671**	**-**	21.6	C	517	**-**	34.2	C	854	**-**
	WB Left/Thru		D	48.9	D	66	-	42.1	D	116	-	51.1	D	112	-
	WB Right		D	51.2	D	86	25	41.9	D	85	25	50.0	D	88	25
	SB Left		D	52.5	D	78	80	43.8	D	111	80	52.0	D	99	80
	SB Thru/Right		D	9.8	A	230	-	25.7	C	620	-	15.4	B	393	-
	EB Left/Thru/Right		**D**	**55.8**	**E**	**45**	**-**	45.7	D	58	**-**	54.1	D	51	**-**
2	Route 29 & Oakville Cross Road	Signal	D	23.1	C	-	-	28.1	C	-	-	21.9	C	-	-
	NB Left		**D**	51.3	D	52	100	**59.4**	**E**	**22**	100	**50.7**	**D**	**26**	100
	NB Thru		D	28.5	C	1905	-	15.8	B	376	-	25.0	C	521	-
	NB Right		D	6.1	A	56	25	9.7	A	47	25	8.7	A	51	25
	WB Left/Thru		D	53.1	D	78	-	51.0	D	116	-	40.5	D	73	-
	WB Right		D	53.1	D	57	50	48.8	D	77	50	40.8	D	66	50
	SB Left		D	46.6	D	79	100	52.0	D	93	100	44.3	D	74	100
	SB Thru/Right		D	6.4	A	203	-	32.1	C	652	-	16.4	B	331	-
	EB Left/Thru/Right		**D**	**62.7**	**E**	**59**	**-**	53.0	D	63	**-**	46.8	D	46	**-**

Notes:

1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal
3. Warrant = Based on California MUTCD Warrant 3
4. **Bold** = Unacceptable Conditions
5. OVR = Delay over 300 seconds

6.4.2 Year 2035 Signal Build Conditions Operational Analysis

This traffic analysis evaluates the Year 2035 Design Year Conditions with the Signal Build Alternative at both study intersections. Table 6.4 presents the weekday AM and PM and weekend peak hour LOS, delay, and queuing characteristics for the Year 2035. Both intersections operate at an acceptable LOS, however, several lanes operate below the LOS threshold.

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Table 6.4: Alternative 2 – Signal – Year 2035 LOS and Queuing Characteristics

#	Intersection	Control Type[1,2]	Target LOS	AM Peak Hour				PM Peak Hour				Weekend Peak Hour			
				Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage	Delay	LOS	95th Percentile Queue (ft)	Available Storage
1	Route 29 & Rutherford Road	Signal	D	35.4	D	-	-	32.8	C	-	-	36.1	D	-	-
	NB Left		**D**	**65.2**	**E**	**48**	**100**	**59.5**	**E**	**50**	**100**	**62.4**	**E**	**59**	**100**
	NB Thru/Right		D	45.9	D	769	-	23.8	C	636	-	47.4	D	1565	-
	WB Left/Thru		**D**	**57.3**	**E**	**83**	**-**	**51.0**	**D**	**118**	**-**	**58.1**	**E**	**129**	**-**
	WB Right		**D**	**61.1**	**E**	**92**	**25**	**50.7**	**D**	**100**	**25**	**56.7**	**E**	**97**	**25**
	SB Left		**D**	**60.6**	**E**	**80**	**80**	**52.5**	**D**	**120**	**80**	**57.8**	**E**	**99**	**80**
	SB Thru/Right		D	9.7	A	262	-	34.9	C	961	-	17.3	B	463	-
	EB Left/Thru/Right		**D**	**63.8**	**E**	**47**	**-**	**52.8**	**D**	**69**	**-**	**59.4**	**E**	**49**	**-**
2	Route 29 & Oakville Cross Road	Signal	D	35.1	D	-	-	40.7	D	-	-	26.4	C	-	-
	NB Left		**D**	**55.8**	**E**	**47**	**100**	**63.6**	**E**	**30**	**100**	**60.8**	**E**	**24**	**100**
	NB Thru		D	47.7	D	5103	-	17.2	B	479	-	30.8	C	786	-
	NB Right		D	6.0	A	53	25	9.6	A	50	25	8.3	A	46	25
	WB Left/Thru		**D**	**57.8**	**E**	**77**	**-**	**57.4**	**E**	**160**	**-**	**50.7**	**D**	**93**	**-**
	WB Right		**D**	**60.1**	**E**	**61**	**50**	53.6	D	81	**50**	51.2	D	74	**50**
	SB Left		**D**	51.0	D	96	100	**56.2**	**E**	**93**	100	**54.2**	**D**	**75**	100
	SB Thru/Right		D	6.4	A	251	-	53.2	D	2319	-	18.9	B	414	-
	EB Left/Thru/Right		**D**	**68.5**	**E**	**58**	**-**	**56.8**	**E**	**68**	**-**	**55.8**	**E**	**53**	**-**

Notes:

1 TWSC = Two Way Stop Control

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal

3. Warrant = Based on California MUTCD Warrant 3

4. **Bold** = Unacceptable Conditions

5. OVR = Delay over 300 seconds

6.5 Impact of Railroad on Operations

The existing traffic patterns were reviewed for movements on the mainline that may conflict with railroad crossings and have an impact on traffic operations with either the signal or the roundabout alternative. The Napa Valley Wine Train operates outside the traditional AM peak period but does operate a few trips during the PM Peak period.

Under Existing conditions, the southbound right turn traffic at both Oakville Cross Road and Rutherford Road have a refuge in the shoulder/bike lane which minimizes disruption to the southbound through traffic during the train crossing. The northbound left turns have turn pockets and the traffic will wait in the pockets during the train crossing.

The following are the traffic patterns summarized based on the existing data collected over a 4 hour period in the afternoon from 3 pm to 7 pm:

- Rutherford Road intersection: 12 vehicles turning northbound left and 6 vehicles turning southbound right during the 4 hour period, which translates to an average of 3 northbound left and 1.5 southbound right turning vehicles per hour, respectively.
- Oakville Cross Road intersection: 3 vehicles turning northbound left and 3 vehicles turning southbound right during the 4 hour period, which translates to an average of 1 turning vehicle per hour for both directions.

Based on the above data, it can be inferred that the frequency of vehicles crossing from the mainline towards the railroad track and eventually to their destination is very low.

With either the roundabout or the signal alternative, the crossing is expected to be controlled along the west leg of both the intersections with a crossing time of two to two and half minutes. Furthermore, there will be room to store a minimum of one vehicle. Due to the volume of traffic being extremely low combined with the ability to store one vehicle, operations for through traffic are not expected to be disrupted.

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7. Sensitivity Analysis

A sensitivity analysis was completed to test if the proposed roundabout geometry at the intersection of State Route 29 and Oakville Cross Road can accommodate variations in traffic. The sensitivity analysis was specifically performed to assess the future year (service life) through which the roundabout will operate at a practical degree of saturation (defined by volume/capacity over 0.85). It should be noted that the practical degree of saturation of 0.85 was established in the 2000 FHWA publication titled *Roundabouts*: *An Informational Guide* and the subsequent 2010 roundabout guide, National Cooperative Highway Research Program (NCHRP) Report 672.

7.1 National Cooperative Highway Research Program 1043

The following excerpts are quoted from the NCHRP 1043 (Guide for roundabouts 2023):

- "NCHRP is supported on a continuing basis by funds from participating member states of AASHTO and receives the full cooperation and support of the Federal Highway Administration (FHWA)"
- "NCHRP Research Report 1043: Guide for Roundabouts provides information and guidance on all aspects of roundabouts and supersedes NCHRP Report 672: Roundabouts: An Informational Guide—Second Edition"
- "The information contained in NCHRP Research Report 1043 will help highway agencies and other organizations address relevant issues when considering the planning and implementation of roundabouts"
- "A volume-to-capacity ratio of 0.85 (in other words degree of saturation or practical capacity) need not be considered an absolute threshold; in fact, acceptable operations may be achieved at higher ratios"
- "Using hourly time periods for analysis of future conditions (i.e., peak hour factor of 1) instead of peak 15-minute time periods. Forecasted volumes rarely have the level of detail to support 15-minute time periods" is supported by the Guide.
- "Conducting a sensitivity analysis to evaluate whether changes in traffic volume assumptions, lane configuration, or other geometric features have dramatic impacts on delay or queues" is supported by the Guide.

7.2 Traffic Operations

We understand that Caltrans has not formally adopted NCHRP 1043 as the overarching roundabout guide. As such we are performing the sensitivity analysis for the practical capacity (v/c of 0.85). However, consistent with our discussion during the focus meeting held August 2, 2023, we performed the sensitivity analysis using the following parameters consistent with Caltrans policies and the latest recommendations from the NCHRP 1043:

- Environmental Factor 1.0 (as we are performing an assessment of geometric needs for future conditions)
- Peak Hour Factor 1.0
- An average growth rate of 1.23% per year which was derived based on the future forecasts approved by the Caltrans Forecasting unit for the subject intersection

With the above inputs, the expected service life at the practical capacity (v/c of 0.85) was found to be 12 years. It should be noted that 95% queues are sensitive to geometry in the northbound direction during the AM peak period (17 vehicles) and in the southbound direction during the PM peak period (17 vehicles).

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8. Intersection Control Evaluation – Life Cycle Benefit/Cost Analysis

The following sections present a brief summary of the parameters used to assess and monetize the life cycle benefits and costs for each of the proposed Build alternatives.

8.1 Methodology

8.1.1 Safety Benefit

Safety costs associated with collisions anticipated for each proposed intersection improvement were quantified using the Caltrans Intersection Control Evaluation Collision Cost Analysis spreadsheet.

To compute the existing collision rate, existing collision data over a three-year period was utilized. The intersection ADT was converted to a Million Vehicle (MV) per year. The number of collisions were then divided by the total number of vehicles to obtain a collision rate (collision/MV). This determines the base cost of collisions for existing conditions.

Due to the high number of collisions in the project area, the monetized safety benefit is relatively high and gives both alternatives rather large cost benefit ratios.

The benefits of converting to a roundabout would reduce the number of conflict points for vehicles. Additionally, roundabouts reduce the entry speed of vehicles, reducing the severity of any collisions that do occur. Signal improvements will reduce congestion and provide dedicated phasing for turns off of side streets, which would in turn reduce potential collisions.

8.1.2 Vehicular Delay Reduction Benefit

To calculate the delay reduction benefit, the value of travel time was quantified for each proposed build alternative. Costs associated with vehicular delay were computed using the delay for the AM and PM peak hour periods of all the alternatives. In assessing the delay costs, the weighted average for costing the value of time for automobiles and trucks was used.

An average delay cost of $19.54/person/hour was used—a value escalated from the original value in the published data by Caltrans for Vehicle Operation Costs Parameters for 2016 (**https://dot.ca.gov/programs/transportation-planning/economics-datamanagement /transportation-economics/vehicle-operation-cost-parameters**). The rate was grown by 12% from the 2016 values, based on 2% per year, and was weighted based on heavy vehicle percentages. The delay reduction benefit, therefore, includes the reduction in delay in dollar amounts compared to No Build conditions.

8.1.3 Fuel Benefit

To calculate the fuel cost for the alternatives, the vehicle operating costs were quantified. The fuel costs (vehicle operating costs) were computed using the delay for the AM and PM peak hour periods of all alternatives. An average fuel price for regular unleaded automobile fuel of $4.09 was used based on the last year's average price at the pump.

8.1.4 Environmental Benefit

To calculate the environmental cost, the greenhouse gas emissions costs were quantified for the project. The health cost of Carbon Monoxide (CO) in a rural/suburban California town is $84/ton. The health cost of Nitrogen Oxide is $15,568/ton. The methodology for using the environmental costs comes from the ICE guidelines.

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8.1.5 Construction Cost

Based on the concept-level preliminary project costs estimates, the total estimated project construction costs (including design, environmental, right of way, construction, and construction management costs) for each alternative are presented in the Life Cycle Cost Analysis tables presented in the following section.

8.1.6 Other Costs

Operation and maintenance costs are other important components of the cost associated with each alternative. The operation and maintenance costs for a traffic signal include providing power service to the signal and street lighting ($750/year), signal retiming ($1,000/year), and signal maintenance for power outages/new detector loops/etc. ($1,500/year).

The roundabout alternatives would have lower operation and maintenance costs limited to power service for street lighting ($750/year). These values are typical industry averages.

8.2 Life Cycle Benefit/Cost Summary

In evaluating the life-cycle costs of the project, a 15-year service life was used in comparing the No Build and Build Alternatives (Roundabout and Signal). In following Caltrans methodology and transportation economics, Caltrans Vehicle Operations Cost Parameters (2016 Current Dollar Value), the vehicle operations costs, collision costs, and emission cost parameters (CA rural area) were used. The life cycle costs for each of the study intersections are reported below.

8.2.1 Route 29 and Rutherford Road

As presented in Table 8.1, the No Build Alternative is expected to have life-cycle costs of $46,899,000 and the higher cost is mainly attributed to the collision costs. Table 8.2 presents the cost/benefit ratio for each alternative.

Table 8.1: Route 29 & Rutherford Road Life Cycle Costs

Life Cycle Costs (15 year design)	Roundabout Alternative	Traffic Signal Alternative	No Build Alternative
Collision and Mobility Costs			
Collision Costs of predicted crashes	$1,257,000	$17,037,000	$42,786,000
Delay Costs	$410,000	$2,220,000	$1,920,000
Fuel and GHG Costs	$1,503,000	$1,503,000	$2,176,000
Project Costs Including Design, Construction and Maintenance			
Operations and Maintenance Costs	$26,000	$45,000	$17,000
Construction Costs	$4,758,000	$1,193,000	$0
Total Life Cycle Costs	**$7,954,000**	**$21,998,000**	**$46,899,000**

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Table 8.2: Route 29 & Rutherford Road Life Cycle Cost/Benefit Ratio

Life Cycle Benefit/Cost Ratio	No Build VS Roundabout	No Build VS Signal
Safety Benefit	$ 41,529,000	$ 25,749,000
Delay Reduction Benefit	$ 1,510,000	$ (300,000)
Fuel and GHG Benefit	$ 673,000	$ 673,000
Total Benefits	**$ 43,712,000**	**$ 26,122,000**
Added Operations & Maintenance Costs	$ 9,000	$ 28,000
Construction Costs	$ 4,758,000	$ 1,193,000
Total Costs	**$ 4,767,000**	**$ 1,221,000**
Life Cycle Benefit/Cost Ratio	**9.2**	**21.4**

8.2.2 Route 29 and Oakville Cross Road

As presented in Table 8.3, the No Build Alternative is expected to have life-cycle costs of $54,934,000 with the higher cost mainly attributed to the collision costs. Table 8.4 presents the cost/benefit ratio for each alternative.

Table 8.3: Route 29 & Oakville Cross Road Life Cycle Costs - No Build Alternative

Life Cycle Costs (15 year design)	Roundabout Alternative	Traffic Signal Alternative	No Build Alternative
Collision and Mobility Costs			
Collision Costs of predicted crashes	$1,496,000	$20,276,000	$50,919,000
Delay Costs	$520,000	$2,350,000	$1,660,000
Fuel and GHG Costs	$1,492,000	$1,451,000	$2,338,000
Project Costs Including Design, Construction and Maintenance			
Operations and Maintenance Costs	$26,000	$45,000	$17,000
Construction Costs	$4,281,000	$1,193,000	$0
Total Life Cycle Costs	**$7,815,000**	**$25,315,000**	**$54,934,000**

Table 8.4: Route 29 & Oakville Cross Road Life Cycle Cost/Benefit Ratio

Life Cycle Benefit/Cost Ratio	No Build VS Roundabout	No Build VS Signal
Safety Benefit	$ 49,423,000	$ 30,643,000
Delay Reduction Benefit	$ 1,140,000	$ (690,000)
Fuel and GHG Benefit	$ 846,000	$ 887,000
Total Benefits	**$ 51,409,000**	**$ 30,840,000**
Added Operations & Maintenance Costs	$ 9,000	$ 28,000
Construction Costs	$ 4,281,000	$ 1,193,000
Total Costs	**$ 4,290,000**	**$ 1,221,000**
Life Cycle Benefit/Cost Ratio	**12.0**	**25.3**

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9. Design Exhibits

The design concepts for both alternatives were provided to the Caltrans Design group for review and comment. The project team is actively working on obtaining concurrence of the concepts as part of the PSR-PR approval.

10. Conclusions

10.1 Project Alternatives

10.1.1 Rutherford Road Intersection

Due to right of way constraints, construction of a roundabout at the subject intersection is not viable.

At the Rutherford Road intersection, a traffic signal alternative along with active transportation improvements (including bicyclist and pedestrian facilities that make it safer for pedestrian and bicyclist movements at the intersection) and traffic calming measures along the mainline are a viable option. Limits of improvements on Route 29 would extend approximately 0.5 miles north and south from the center of the Rutherford Road intersection, and approximately 500 feet east along Rutherford Road.

Due to the proximity to the Napa Valley Wine Train tracks, railroad crossing improvements will be needed, but there will be no impacts to the Napa Valley Wine Train tracks.

10.1.2 Oakville Cross Road Intersection

At the Oakville Cross Road intersection, both a signal and a roundabout are viable options. Although both alternatives result in increased queues along the mainline, they offer significant safety benefits and improve operations for side street approaches. However, the roundabout alternative results in shorter delays and queue lengths than the signal alternative in all scenarios. Additionally, the roundabout provides a location where vehicles, including rucks, could safely make U-turns.

Due to the proximity to the Napa Valley Wine Train tracks, railroad crossing improvements will be needed, but there will be no impacts to the Napa Valley Wine Train tracks.

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Technical Appendices

Appendix Index

Appendix A: Traffic Counts

Appendix B: Synchro Reports

Appendix C: SimTraffic Queue Reports

Appendix D: Sidra LOS Reports

Appendix E: Signal Warrant Worksheets

Appendix F: 2025 and 2035 Traffic Forecasts Memorandum

Appendix G: TASAS Data

Appendix H: Alternative Exhibits

Appendix I: Cost Estimates

Appendix J: Emissions Reports

Appendix K: ICE Calculations

Appendix L: Kimley Horn Study

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Appendix A – Traffic Counts

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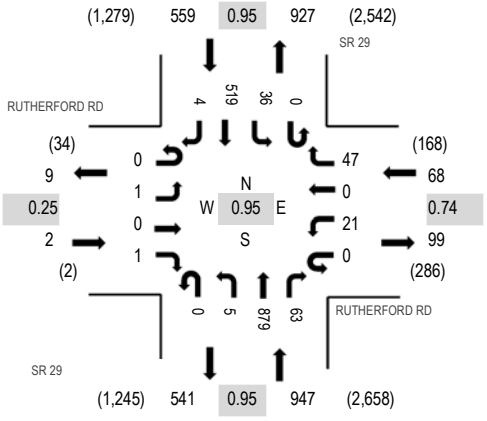
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

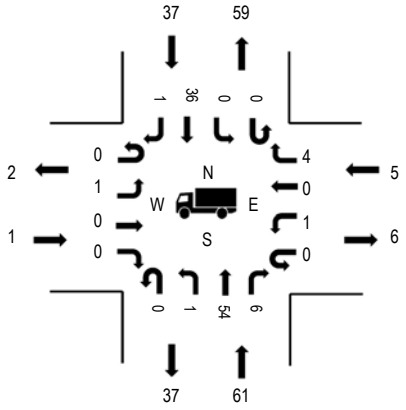
Location: 1 SR 29 & RUTHERFORD RD AM
Date: Thursday, May 5, 2022
Study Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes in Study Peak Hour: 08:15 AM - 08:30 AM

Study Peak Hour (for all study intersections)

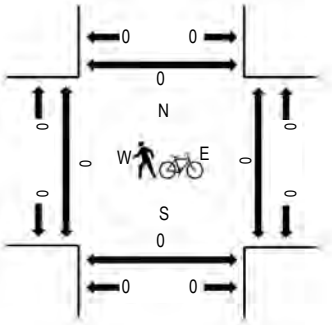
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	50.0%	0.25
WB	7.4%	0.74
NB	6.4%	0.95
SB	6.6%	0.95
All	6.6%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	RUTHERFORD RD Eastbound				RUTHERFORD RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
6:00 AM	0	0	0	0	0	6	0	6	0	0	174	27	0	0	78	0	291	1,181
6:15 AM	0	0	0	0	0	6	0	6	0	0	160	20	0	5	66	0	263	1,200
6:30 AM	0	0	0	0	0	4	0	8	1	1	208	20	0	4	83	1	330	1,248
6:45 AM	0	0	0	0	0	0	1	9	0	5	174	25	0	6	74	3	297	1,288
7:00 AM	0	0	0	0	0	5	0	5	0	2	197	10	0	5	85	1	310	1,350
7:15 AM	0	0	0	0	0	6	0	13	0	3	194	13	0	9	70	3	311	1,390
7:30 AM	0	0	0	0	0	6	0	8	0	1	215	16	0	8	116	0	370	1,492
7:45 AM	0	0	0	0	0	2	0	9	0	0	229	16	0	3	96	4	359	1,525
8:00 AM	0	0	0	0	0	5	0	12	0	2	195	8	0	3	124	1	350	1,576
8:15 AM	0	0	0	0	0	5	0	18	0	2	225	19	0	11	132	1	413	
8:30 AM	0	0	0	0	0	3	0	7	0	0	233	13	0	11	136	0	403	
8:45 AM	0	1	0	1	0	8	0	10	0	1	226	23	0	11	127	2	410	
Count Total	0	1	0	1	0	56	1	111	1	17	2,430	210	0	76	1,187	16	4,107	
Peak Hour	0	1	0	1	0	21	0	47	0	5	879	63	0	36	519	4	1,576	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	10	0	1	11	6:00 AM	0	0	0	0	0	6:00 AM	0	0	0	0	0
6:15 AM	0	11	0	3	14	6:15 AM	0	0	0	0	0	6:15 AM	0	0	0	0	0
6:30 AM	0	10	0	4	14	6:30 AM	0	0	0	0	0	6:30 AM	0	0	0	0	0
6:45 AM	0	12	1	4	17	6:45 AM	0	0	0	0	0	6:45 AM	0	0	0	0	0
7:00 AM	0	9	1	8	18	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	10	3	6	19	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	6	2	13	21	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	5	3	13	21	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	0	13	2	13	28	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0

8:15 AM	0	14	0	10	24	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:30 AM	0	16	0	6	22	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	1	18	3	8	30	8:45 AM	0	1	0	0	1	8:45 AM	0	0	0	0	0
Count Total	1	134	15	89	239	Count Total	0	1	0	0	1	Count Total	0	0	0	0	0
Peak Hour	1	61	5	37	104	Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
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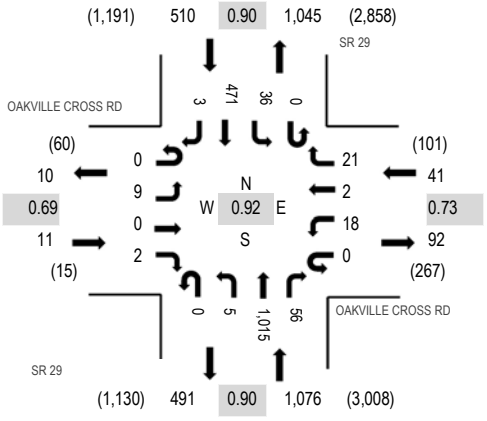
Location: 2 SR 29 & OAKVILLE CROSS RD AM
Date: Thursday, May 5, 2022
Study Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes in Study Peak Hour: 08:15 AM - 08:30 AM

Study Peak Hour (for all study intersections)

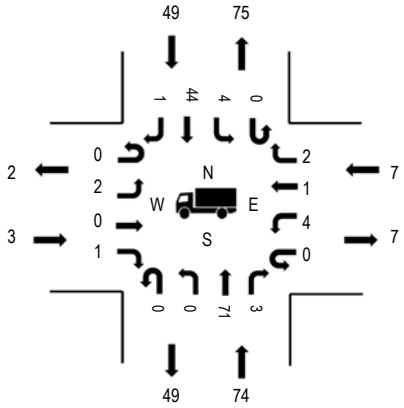
Motorized Vehicles



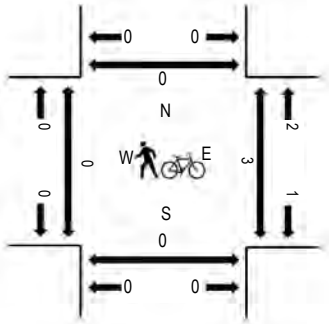
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	27.3%	0.69
WB	17.1%	0.73
NB	6.9%	0.90
SB	9.6%	0.90
All	8.1%	0.92

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	OAKVILLE CROSS RD Eastbound				OAKVILLE CROSS RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
6:00 AM	0	1	0	0	0	0	0	1	0	7	210	40	0	4	67	2	332	1,305
6:15 AM	0	0	0	0	0	1	0	6	0	0	205	12	0	3	68	3	298	1,270
6:30 AM	0	0	0	0	0	2	2	5	0	6	247	15	0	7	77	2	363	1,293
6:45 AM	0	0	0	0	0	2	0	6	0	3	218	16	0	3	55	9	312	1,285
7:00 AM	0	0	0	0	0	5	4	4	0	1	183	12	0	3	82	3	297	1,372
7:15 AM	0	1	0	1	0	2	0	3	0	2	218	8	0	6	78	2	321	1,426
7:30 AM	0	0	0	1	0	2	0	6	0	0	227	13	0	4	101	1	355	1,550
7:45 AM	0	0	0	0	0	3	0	6	0	2	266	21	0	8	92	1	399	1,629
8:00 AM	0	4	0	0	0	4	1	9	0	2	209	12	0	7	103	0	351	1,638
8:15 AM	0	1	0	1	0	3	1	4	0	1	280	17	0	15	121	1	445	
8:30 AM	0	2	0	0	0	6	0	3	0	1	265	15	0	8	132	2	434	
8:45 AM	0	2	0	1	0	5	0	5	0	1	261	12	0	6	115	0	408	
Count Total	0	11	0	4	0	35	8	58	0	26	2,789	193	0	74	1,091	26	4,315	
Peak Hour	0	9	0	2	0	18	2	21	0	5	1,015	56	0	36	471	3	1,638	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	8	0	1	9	6:00 AM	0	0	0	0	0	6:00 AM	0	0	1	0	1
6:15 AM	0	12	0	5	17	6:15 AM	0	1	0	0	1	6:15 AM	0	0	0	1	1
6:30 AM	0	11	2	7	20	6:30 AM	0	1	0	0	1	6:30 AM	0	0	0	0	0
6:45 AM	0	16	0	5	21	6:45 AM	0	0	0	0	0	6:45 AM	0	0	0	0	0
7:00 AM	0	13	2	6	21	7:00 AM	0	0	0	0	0	7:00 AM	0	0	4	0	4
7:15 AM	1	12	1	8	22	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	12	0	14	26	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:45 AM	0	6	0	15	21	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
8:00 AM	1	18	3	15	37	8:00 AM	0	0	0	0	0	8:00 AM	0	0	1	0	1

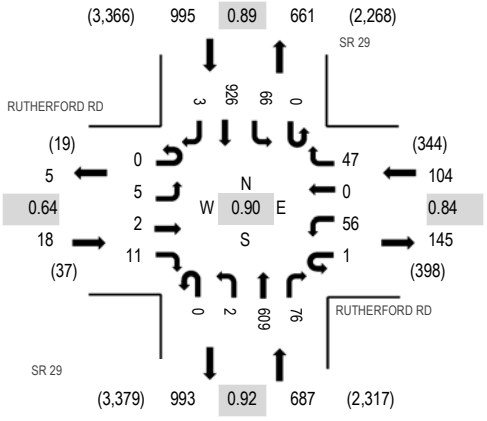
8:15 AM	2	18	0	17	37	8:15 AM	0	0	0	0	0	8:15 AM	0	0	1	0	1
8:30 AM	0	22	2	9	33	8:30 AM	0	1	0	0	1	8:30 AM	0	0	0	0	0
8:45 AM	0	16	2	8	26	8:45 AM	0	0	0	0	0	8:45 AM	0	0	1	0	1
Count Total	4	164	12	110	290	Count Total	0	3	0	0	3	Count Total	0	0	8	1	9
Peak Hour	3	74	7	49	133	Peak Hour	0	1	0	0	1	Peak Hour	0	0	3	0	3

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 SR 29 & RUTHERFORD RD PM
Date: Thursday, May 5, 2022
Study Peak Hour: 03:30 PM - 04:30 PM
Peak 15-Minutes in Study Peak Hour: 03:30 PM - 03:45 PM

Study Peak Hour (for all study intersections)

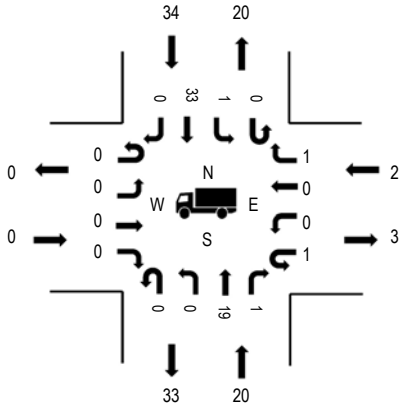
Motorized Vehicles



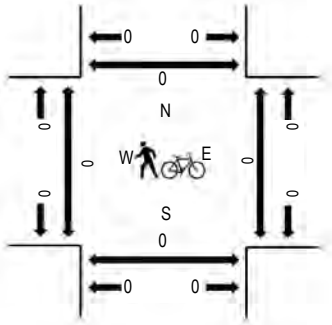
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.64
WB	1.9%	0.84
NB	2.9%	0.92
SB	3.4%	0.89
All	3.1%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RUTHERFORD RD Eastbound				RUTHERFORD RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
3:00 PM	0	0	1	1	0	12	1	8	0	0	144	21	0	9	222	0	419	1,805
3:15 PM	0	1	0	4	0	12	0	8	0	0	161	17	0	24	202	0	429	1,814
3:30 PM	0	3	0	4	0	21	0	10	0	1	165	20	0	16	263	0	503	1,804
3:45 PM	0	0	1	2	0	11	0	13	0	1	143	23	0	13	246	1	454	1,728
4:00 PM	0	0	1	4	1	12	0	15	0	0	153	16	0	20	204	2	428	1,670
4:15 PM	0	2	0	1	0	12	0	9	0	0	148	17	0	17	213	0	419	1,659
4:30 PM	0	0	0	2	0	17	0	12	0	0	148	10	0	20	218	0	427	1,627
4:45 PM	0	0	0	0	0	6	0	14	0	1	126	5	0	14	230	0	396	1,584
5:00 PM	0	0	0	1	0	18	0	9	0	1	135	7	0	19	227	0	417	1,533
5:15 PM	0	0	0	1	0	18	0	8	0	3	122	7	0	14	214	0	387	1,419
5:30 PM	0	0	0	0	0	14	0	14	0	2	138	7	0	12	197	0	384	1,288
5:45 PM	0	0	0	0	0	10	0	8	0	1	127	13	0	9	175	2	345	1,165
6:00 PM	0	0	1	0	0	10	0	2	0	1	100	7	0	9	173	0	303	1,056
6:15 PM	0	0	0	2	0	12	0	6	0	0	104	5	0	1	125	1	256	
6:30 PM	0	0	2	1	0	8	0	6	0	1	106	7	0	3	127	0	261	
6:45 PM	0	0	0	2	0	4	0	3	0	0	97	6	0	3	121	0	236	
Count Total	0	6	6	25	1	197	1	145	0	12	2,117	188	0	203	3,157	6	6,064	
Peak Hour	0	5	2	11	1	56	0	47	0	2	609	76	0	66	926	3	1,804	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	6	1	4	11	3:00 PM	0	1	0	0	1	3:00 PM	0	0	0	0	0
3:15 PM	0	6	0	8	14	3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0
3:30 PM	0	3	1	7	11	3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0
3:45 PM	0	3	0	9	12	3:45 PM	0	1	0	0	1	3:45 PM	0	0	0	0	0
4:00 PM	0	7	1	10	18	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0

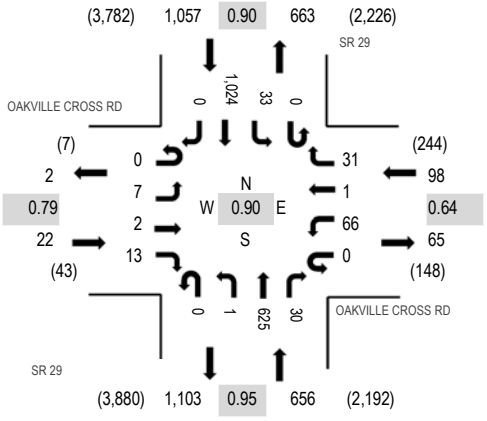
4:15 PM	0	7	0	8	15	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	5	2	3	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	7	9	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	1	1	1	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	3	1	1	5	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	6	7	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	4	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
6:00 PM	0	2	0	8	10	6:00 PM	0	0	0	0	0	6:00 PM	0	0	0	0	0
6:15 PM	0	2	0	3	5	6:15 PM	0	0	0	0	0	6:15 PM	0	0	0	1	1
6:30 PM	0	1	0	1	2	6:30 PM	0	0	0	0	0	6:30 PM	0	0	0	0	0
6:45 PM	0	2	0	1	3	6:45 PM	0	0	0	0	0	6:45 PM	0	0	0	0	0
Count Total	0	51	7	81	139	Count Total	0	2	0	0	2	Count Total	0	0	0	1	1
Peak Hour	0	20	2	34	56	Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 SR 29 & OAKVILLE CROSS RD PM
Date: Thursday, May 5, 2022
Study Peak Hour: 03:30 PM - 04:30 PM
Peak 15-Minutes in Study Peak Hour: 03:30 PM - 03:45 PM

Study Peak Hour (for all study intersections)

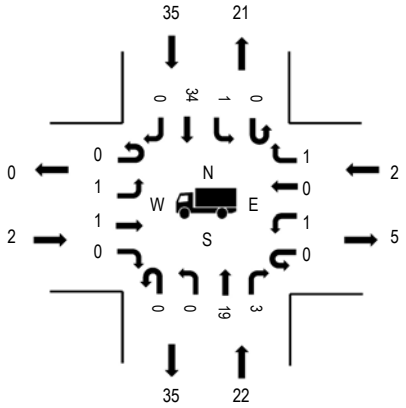
Motorized Vehicles



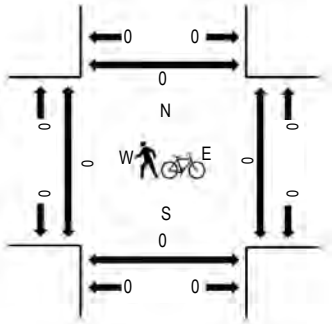
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	9.1%	0.79
WB	2.0%	0.64
NB	3.4%	0.95
SB	3.3%	0.90
All	3.3%	0.90

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	OAKVILLE CROSS RD Eastbound				OAKVILLE CROSS RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
3:00 PM	0	1	2	5	0	13	0	10	0	1	145	6	0	12	255	0	450	1,802
3:15 PM	0	2	0	2	0	3	0	10	0	1	187	4	0	5	200	2	416	1,794
3:30 PM	0	2	1	4	0	27	0	11	0	1	160	8	0	9	286	0	509	1,833
3:45 PM	0	0	1	6	0	12	0	5	0	0	142	8	0	6	247	0	427	1,759
4:00 PM	0	3	0	3	0	14	1	11	0	0	159	5	0	11	235	0	442	1,728
4:15 PM	0	2	0	0	0	13	0	4	0	0	164	9	0	7	256	0	455	1,705
4:30 PM	0	1	1	0	0	11	0	5	0	0	138	4	0	4	271	0	435	1,647
4:45 PM	0	0	0	0	0	6	0	7	0	0	114	1	0	4	264	0	396	1,651
5:00 PM	0	0	0	1	0	15	0	2	0	0	126	4	0	5	266	0	419	1,643
5:15 PM	0	0	1	0	0	10	0	2	0	0	123	2	0	1	258	0	397	1,549
5:30 PM	0	0	0	0	0	19	0	7	0	0	128	3	0	6	275	1	439	1,394
5:45 PM	0	0	0	0	0	5	0	4	0	0	125	1	0	2	251	0	388	1,226
6:00 PM	0	2	0	0	0	5	0	3	0	0	107	0	0	4	204	0	325	1,088
6:15 PM	0	0	0	2	0	0	0	1	0	0	88	2	0	4	145	0	242	
6:30 PM	0	0	0	1	0	2	0	2	0	0	115	3	0	1	147	0	271	
6:45 PM	0	0	0	0	0	3	0	1	0	0	107	1	0	0	138	0	250	
Count Total	0	13	6	24	0	158	1	85	0	3	2,128	61	0	81	3,698	3	6,261	
Peak Hour	0	7	2	13	0	66	1	31	0	1	625	30	0	33	1,024	0	1,833	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	7	0	6	13	3:00 PM	0	2	0	2	4	3:00 PM	0	0	0	0	0
3:15 PM	0	9	1	8	18	3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0
3:30 PM	0	5	0	8	13	3:30 PM	0	0	1	1	2	3:30 PM	0	0	0	0	0
3:45 PM	1	3	1	5	10	3:45 PM	0	0	0	3	3	3:45 PM	0	0	0	0	0
4:00 PM	1	8	0	11	20	4:00 PM	0	0	0	2	2	4:00 PM	0	0	0	0	0

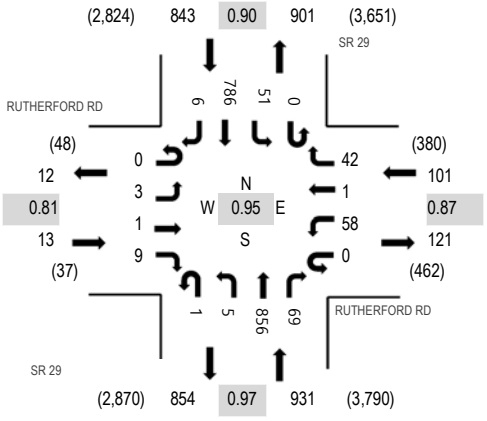
4:15 PM	0	6	1	11	18	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:30 PM	0	5	1	10	16	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	6	8	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
5:00 PM	0	1	1	4	6	5:00 PM	1	1	0	0	2	5:00 PM	0	0	0	0	0
5:15 PM	0	4	0	5	9	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	2	1	5	8	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	5	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
6:00 PM	0	2	0	8	10	6:00 PM	0	0	0	0	0	6:00 PM	0	0	0	0	0
6:15 PM	0	2	0	2	4	6:15 PM	0	0	0	0	0	6:15 PM	0	0	0	0	0
6:30 PM	0	4	0	3	7	6:30 PM	0	0	0	0	0	6:30 PM	0	0	0	0	0
6:45 PM	0	1	0	3	4	6:45 PM	0	0	0	0	0	6:45 PM	0	0	0	0	0
Count Total	2	61	6	100	169	Count Total	1	3	1	8	13	Count Total	0	0	0	0	0
Peak Hour	2	22	2	35	61	Peak Hour	0	0	1	6	7	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 SR 29 & RUTHERFORD RD Noon
Date: Saturday, May 7, 2022
Study Peak Hour: 01:45 PM - 02:45 PM
Peak 15-Minutes in Study Peak Hour: 02:00 PM - 02:15 PM

Study Peak Hour (for all study intersections)

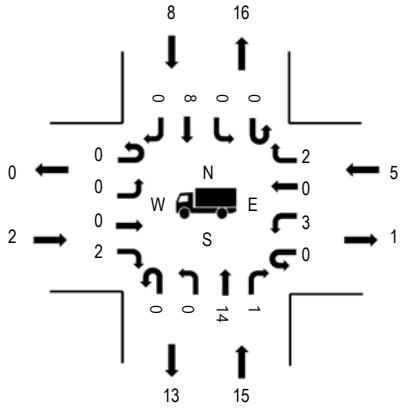
Motorized Vehicles



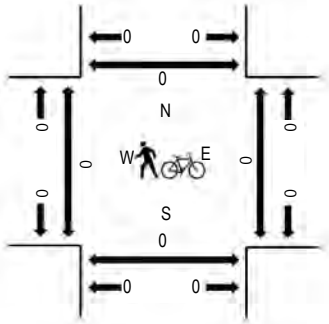
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	15.4%	0.81
WB	5.0%	0.87
NB	1.6%	0.97
SB	0.9%	0.90
All	1.6%	0.95

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	RUTHERFORD RD Eastbound				RUTHERFORD RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
11:00 AM	0	0	0	2	0	14	1	8	0	1	236	15	0	4	119	3	403	1,641
11:15 AM	0	0	0	2	0	11	1	10	0	0	239	23	0	7	111	0	404	1,678
11:30 AM	0	0	0	0	0	13	0	4	0	0	217	18	0	6	140	0	398	1,670
11:45 AM	0	2	0	0	0	5	0	14	0	3	228	19	0	10	155	0	436	1,715
12:00 PM	0	0	0	0	0	10	0	11	0	2	235	20	0	14	146	2	440	1,701
12:15 PM	0	1	0	2	0	8	0	13	0	2	205	17	0	10	134	4	396	1,707
12:30 PM	0	2	0	0	0	7	0	10	0	1	238	19	0	13	153	0	443	1,783
12:45 PM	0	1	0	0	0	22	1	8	0	0	185	14	0	14	177	0	422	1,801
1:00 PM	0	3	0	4	0	11	0	9	0	2	213	27	0	13	163	1	446	1,812
1:15 PM	0	0	0	1	0	14	0	14	0	3	235	15	0	11	179	0	472	1,862
1:30 PM	0	1	0	0	0	19	0	13	0	3	206	17	0	5	196	1	461	1,883
1:45 PM	0	1	1	2	0	10	0	7	1	2	216	13	0	16	163	1	433	1,888
2:00 PM	0	1	0	3	0	18	0	11	0	2	225	14	0	12	209	1	496	1,877
2:15 PM	0	0	0	4	0	14	0	12	0	1	205	23	0	13	217	4	493	
2:30 PM	0	1	0	0	0	16	1	12	0	0	210	19	0	10	197	0	466	
2:45 PM	0	2	0	1	0	17	1	10	0	2	177	22	0	8	180	2	422	
Count Total	0	15	1	21	0	209	5	166	1	24	3,470	295	0	166	2,639	19	7,031	
Peak Hour	0	3	1	9	0	58	1	42	1	5	856	69	0	51	786	6	1,888	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
11:00 AM	0	5	1	6	12	11:00 AM	0	0	2	0	2	11:00 AM	0	0	1	0	1
11:15 AM	0	7	1	2	10	11:15 AM	0	11	0	1	12	11:15 AM	0	0	0	0	0
11:30 AM	0	6	0	3	9	11:30 AM	0	2	0	0	2	11:30 AM	0	0	0	0	0
11:45 AM	0	1	1	1	3	11:45 AM	0	3	0	0	3	11:45 AM	0	0	0	0	0
12:00 PM	0	4	0	1	5	12:00 PM	0	2	1	1	4	12:00 PM	0	0	0	0	0

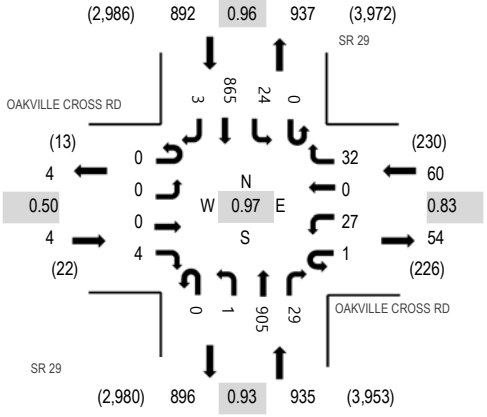
12:15 PM	1	8	1	6	16	12:15 PM	0	2	2	2	6	12:15 PM	0	0	0	0	0
12:30 PM	0	0	1	2	3	12:30 PM	0	1	0	3	4	12:30 PM	0	0	0	0	0
12:45 PM	0	2	1	4	7	12:45 PM	0	0	0	0	0	12:45 PM	0	0	0	0	0
1:00 PM	2	2	0	1	5	1:00 PM	0	0	0	0	0	1:00 PM	0	0	0	0	0
1:15 PM	0	2	0	3	5	1:15 PM	0	2	0	0	2	1:15 PM	0	0	0	0	0
1:30 PM	0	2	0	2	4	1:30 PM	0	0	0	0	0	1:30 PM	0	0	0	0	0
1:45 PM	1	4	0	3	8	1:45 PM	0	0	0	6	6	1:45 PM	0	0	0	0	0
2:00 PM	1	4	2	2	9	2:00 PM	0	1	2	0	3	2:00 PM	0	0	0	0	0
2:15 PM	0	4	2	0	6	2:15 PM	0	0	0	6	6	2:15 PM	0	0	0	0	0
2:30 PM	0	3	1	3	7	2:30 PM	0	2	0	3	5	2:30 PM	0	0	0	0	0
2:45 PM	0	3	0	0	3	2:45 PM	0	2	1	2	5	2:45 PM	0	1	0	0	1
Count Total	5	57	11	39	112	Count Total	0	28	8	24	60	Count Total	0	1	1	0	2
Peak Hour	2	15	5	8	30	Peak Hour	0	3	2	15	20	Peak Hour	0	0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 SR 29 & OAKVILLE CROSS RD Noon
Date: Saturday, May 7, 2022
Study Peak Hour: 01:45 PM - 02:45 PM
Peak 15-Minutes in Study Peak Hour: 01:45 PM - 02:00 PM

Study Peak Hour (for all study intersections)

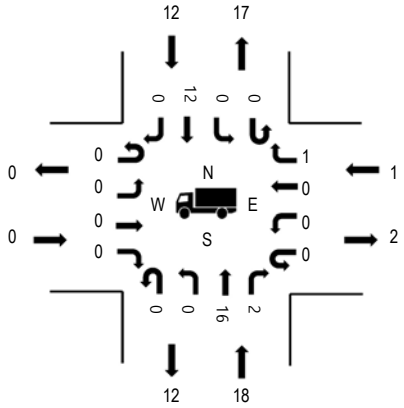
Motorized Vehicles



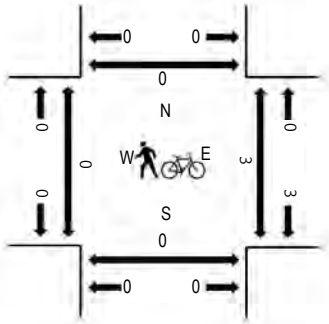
Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.50
WB	1.7%	0.83
NB	1.9%	0.93
SB	1.3%	0.96
All	1.6%	0.97

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	OAKVILLE CROSS RD Eastbound				OAKVILLE CROSS RD Westbound				SR 29 Northbound				SR 29 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
11:00 AM	0	1	0	2	0	0	0	4	0	0	284	7	0	2	143	0	443	1,690
11:15 AM	0	1	0	0	0	5	0	4	0	0	264	7	1	3	117	0	402	1,702
11:30 AM	0	0	0	0	0	2	0	7	0	0	245	7	1	5	154	0	421	1,750
11:45 AM	0	0	0	1	0	2	0	9	0	1	242	7	0	3	158	1	424	1,779
12:00 PM	0	0	0	1	0	12	0	7	0	0	260	5	1	3	164	2	455	1,782
12:15 PM	0	2	0	1	0	7	0	16	0	0	247	9	0	7	160	1	450	1,794
12:30 PM	0	0	0	0	0	3	0	10	0	1	236	10	1	12	177	0	450	1,810
12:45 PM	0	0	0	1	0	10	0	8	0	0	223	9	0	11	164	1	427	1,819
1:00 PM	0	1	0	1	0	4	0	10	0	0	246	10	2	8	184	1	467	1,881
1:15 PM	0	0	0	0	0	7	0	9	0	0	234	9	1	11	195	0	466	1,894
1:30 PM	0	2	1	0	0	8	1	11	0	0	232	7	0	6	191	0	459	1,884
1:45 PM	0	0	0	0	0	7	0	7	0	0	242	10	0	4	219	0	489	1,891
2:00 PM	0	0	0	1	0	6	0	9	0	0	237	4	0	8	214	1	480	1,838
2:15 PM	0	0	0	1	0	7	0	11	0	1	196	8	0	6	224	2	456	
2:30 PM	0	0	0	2	1	7	0	5	0	0	230	7	0	6	208	0	466	
2:45 PM	0	0	0	3	0	7	0	7	0	0	206	10	0	3	200	0	436	
Count Total	0	7	1	14	1	94	1	134	0	3	3,824	126	7	98	2,872	9	7,191	
Peak Hour	0	0	0	4	1	27	0	32	0	1	905	29	0	24	865	3	1,891	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
11:00 AM	0	7	1	6	14	11:00 AM	0	0	0	2	2	11:00 AM	0	0	0	0	0
11:15 AM	0	3	0	4	7	11:15 AM	0	7	2	1	10	11:15 AM	0	0	0	0	0
11:30 AM	0	6	0	2	8	11:30 AM	0	6	2	0	8	11:30 AM	0	0	0	0	0
11:45 AM	0	2	0	2	4	11:45 AM	0	3	1	0	4	11:45 AM	0	0	0	0	0
12:00 PM	0	2	1	0	3	12:00 PM	0	10	1	0	11	12:00 PM	0	0	2	0	2

12:15 PM	0	7	0	7	14	12:15 PM	0	9	0	1	10	12:15 PM	0	0	0	0	0
12:30 PM	0	2	0	3	5	12:30 PM	0	4	0	0	4	12:30 PM	0	0	10	0	10
12:45 PM	0	0	0	3	3	12:45 PM	0	0	2	2	4	12:45 PM	0	0	0	0	0
1:00 PM	0	2	0	4	6	1:00 PM	0	2	0	0	2	1:00 PM	0	0	0	0	0
1:15 PM	0	2	0	4	6	1:15 PM	0	0	0	0	0	1:15 PM	0	0	0	0	0
1:30 PM	0	2	0	3	5	1:30 PM	0	0	2	0	2	1:30 PM	0	0	0	0	0
1:45 PM	0	5	0	3	8	1:45 PM	0	4	1	5	10	1:45 PM	0	0	0	0	0
2:00 PM	0	5	1	4	10	2:00 PM	0	1	3	1	5	2:00 PM	0	0	0	0	0
2:15 PM	0	5	0	2	7	2:15 PM	0	1	0	1	2	2:15 PM	0	0	3	0	3
2:30 PM	0	3	0	3	6	2:30 PM	0	0	1	8	9	2:30 PM	0	0	0	0	0
2:45 PM	0	2	0	0	2	2:45 PM	0	5	0	2	7	2:45 PM	0	0	0	0	0
Count Total	0	55	3	50	108	Count Total	0	52	15	23	90	Count Total	0	0	15	0	15
Peak Hour	0	18	1	12	31	Peak Hour	0	6	5	15	26	Peak Hour	0	0	3	0	3

All Traffic Data Services, LLC

www.alltrafficdata.net

Site Code: 4
SR 29 BTW RUTHERFORD & OAKVILLE CROSS

Start	05-May-22		06-May-22		07-May-22		08-May-22		09-May-22		10-May-22		11-May-22		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	34	32	60	44	66	95	79	143	*	*	*	*	*	*	60	78
01:00	30	24	42	46	33	45	48	54	*	*	*	*	*	*	38	42
02:00	36	24	32	40	16	23	21	36	*	*	*	*	*	*	26	31
03:00	43	29	41	31	34	29	17	14	*	*	*	*	*	*	34	26
04:00	145	58	122	64	60	32	22	25	*	*	*	*	*	*	87	45
05:00	707	185	714	175	305	77	104	52	*	*	*	*	*	*	458	122
06:00	878	307	829	288	325	155	155	112	*	*	*	*	*	*	547	216
07:00	852	358	852	351	366	249	236	163	*	*	*	*	*	*	576	280
08:00	**1015**	452	895	408	650	348	376	282	*	*	*	*	*	*	734	372
09:00	867	435	**914**	495	782	396	593	418	*	*	*	*	*	*	789	436
10:00	723	531	776	546	**925**	431	699	470	*	*	*	*	*	*	781	494
11:00	733	**608**	807	**613**	903	**477**	**830**	**518**	*	*	*	*	*	*	**818**	**554**
12:00 PM	**711**	702	**742**	694	**864**	603	**833**	639	*	*	*	*	*	*	**788**	660
01:00	687	665	673	721	821	697	733	668	*	*	*	*	*	*	728	688
02:00	630	788	703	800	815	754	721	777	*	*	*	*	*	*	717	780
03:00	577	860	644	**943**	765	**910**	593	812	*	*	*	*	*	*	645	**881**
04:00	429	**887**	464	815	576	875	507	**854**	*	*	*	*	*	*	494	858
05:00	365	852	493	807	459	901	410	792	*	*	*	*	*	*	432	838
06:00	399	619	453	587	364	736	337	689	*	*	*	*	*	*	388	658
07:00	336	367	344	386	309	567	298	469	*	*	*	*	*	*	322	447
08:00	251	299	307	316	273	385	281	332	*	*	*	*	*	*	278	333
09:00	219	235	228	342	251	402	190	257	*	*	*	*	*	*	222	309
10:00	158	168	180	282	240	370	144	202	*	*	*	*	*	*	180	256
11:00	87	135	129	236	151	285	91	154	*	*	*	*	*	*	114	202
Total	10912	9620	11444	10030	10353	9842	8318	8932	0	0	0	0	0	0	10256	9606
Day	20532		21474		20195		17250		0		0		0		19862	
AM Peak	08:00	11:00	09:00	11:00	10:00	11:00	11:00	11:00	-	-	-	-	-	-	11:00	11:00
Vol.	1015	608	914	613	925	477	830	518	-	-	-	-	-	-	818	554
PM Peak	12:00	16:00	12:00	15:00	12:00	15:00	12:00	16:00	-	-	-	-	-	-	12:00	15:00
Vol.	711	887	742	943	864	910	833	854	-	-	-	-	-	-	788	881

Comb. Total	20532	21474	20195	17250	0	0	0	19862

ADT ADT 19,863 AADT 19,863

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Site Code: 4
SR 29 BTW RUTHERFORD & OAKVILLE CROSS

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/05/22	0	19	10	1	2	0	0	1	1	0	0	0	0	34
01:00	0	18	4	0	7	0	0	1	0	0	0	0	0	30
02:00	0	15	6	1	14	0	0	0	0	0	0	0	0	36
03:00	0	15	11	2	12	1	0	1	1	0	0	0	0	43
04:00	0	76	34	3	28	0	0	1	3	0	0	0	0	145
05:00	2	435	172	3	77	1	0	8	9	0	0	0	0	707
06:00	**3**	475	**222**	6	141	3	0	15	12	0	1	0	0	878
07:00	0	461	176	**24**	**151**	**5**	0	**26**	9	0	0	0	0	852
08:00	2	**639**	190	15	129	3	0	23	14	0	0	0	0	**1015**
09:00	3	501	169	13	137	5	0	21	**15**	**1**	**2**	0	0	867
10:00	3	403	166	21	109	4	**1**	6	10	0	0	0	0	723
11:00	3	450	155	16	79	5	0	10	14	0	1	0	0	733
12 PM	2	**449**	140	**11**	**85**	6	0	10	7	0	1	0	0	**711**
13:00	5	434	**142**	5	68	**7**	0	**13**	**11**	0	**2**	0	0	687
14:00	4	429	119	9	56	1	0	8	4	0	0	0	0	630
15:00	6	393	119	7	45	1	0	3	3	0	0	0	0	577
16:00	**25**	290	69	11	28	0	0	3	3	0	0	0	0	429
17:00	15	262	58	3	23	3	0	0	1	0	0	0	0	365
18:00	2	275	86	5	28	0	0	2	1	0	0	0	0	399
19:00	1	222	68	1	37	0	0	4	2	0	1	0	0	336
20:00	0	166	61	1	22	0	0	1	0	0	0	0	0	251
21:00	0	147	53	1	13	0	0	2	3	0	0	0	0	219
22:00	0	112	27	1	14	0	0	4	0	0	0	0	0	158
23:00	0	62	19	0	1	1	0	3	1	0	0	0	0	87
Day Total	76	6748	2276	160	1306	46	1	166	124	1	8	0	0	10912
Percent	0.7%	61.8%	20.9%	1.5%	12.0%	0.4%	0.0%	1.5%	1.1%	0.0%	0.1%	0.0%	0.0%	
AM Peak	06:00	08:00	06:00	07:00	07:00	07:00	10:00	07:00	09:00	09:00	09:00			08:00
Vol.	3	639	222	24	151	5	1	26	15	1	2			1015
PM Peak	16:00	12:00	13:00	12:00	12:00	13:00		13:00	13:00		13:00			12:00
Vol.	25	449	142	11	85	7		13	11		2			711

All Traffic Data Services, LLC

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SR 29 BTW RUTHERFORD & OAKVILLE CROSS

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/06/22	0	32	17	2	6	0	0	2	1	0	0	0	0	60
01:00	0	21	13	0	6	0	0	1	1	0	0	0	0	42
02:00	0	14	12	1	4	0	0	1	0	0	0	0	0	32
03:00	0	20	6	0	10	1	0	4	0	0	0	0	0	41
04:00	2	64	32	2	15	0	0	4	2	0	**1**	0	0	122
05:00	2	445	166	6	75	2	**2**	11	5	0	0	0	0	714
06:00	4	439	**223**	8	130	3	0	15	7	0	0	0	0	829
07:00	3	501	156	14	**139**	4	0	**20**	**15**	0	0	0	0	852
08:00	**7**	**578**	162	15	97	**7**	0	19	9	0	0	**1**	0	895
09:00	5	561	175	**17**	117	6	1	16	15	0	1	0	0	**914**
10:00	3	471	160	14	102	4	0	15	7	0	0	0	0	776
11:00	5	517	167	13	78	6	0	12	8	0	1	0	0	807
12 PM	1	**489**	132	13	**83**	**8**	0	9	**6**	0	**1**	0	0	**742**
13:00	2	443	131	**15**	61	4	0	**12**	5	0	0	0	0	673
14:00	4	469	**143**	10	61	5	**1**	8	1	0	1	0	0	703
15:00	5	461	108	8	53	2	0	3	4	0	0	0	0	644
16:00	5	330	82	8	35	1	0	1	2	0	0	0	0	464
17:00	**10**	360	82	4	34	0	0	1	2	0	0	0	0	493
18:00	3	318	87	10	31	1	0	3	0	0	0	0	0	453
19:00	1	240	74	2	25	0	0	1	1	0	0	0	0	344
20:00	0	213	75	0	13	0	0	5	1	0	0	0	0	307
21:00	0	179	33	1	12	0	0	2	1	0	0	0	0	228
22:00	2	130	36	0	10	0	0	0	2	0	0	0	0	180
23:00	0	89	23	2	14	0	0	0	1	0	0	0	0	129
Day Total	64	7384	2295	165	1211	54	4	165	96	0	5	1	0	11444
Percent	0.6%	64.5%	20.1%	1.4%	10.6%	0.5%	0.0%	1.4%	0.8%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	06:00	09:00	07:00	08:00	05:00	07:00	07:00		04:00	08:00		09:00
Vol.	7	578	223	17	139	7	2	20	15		1	1		914
PM Peak	17:00	12:00	14:00	13:00	12:00	12:00	14:00	13:00	12:00		12:00			12:00
Vol.	10	489	143	15	83	8	1	12	6		1			742

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Site Code: 4
SR 29 BTW RUTHERFORD & OAKVILLE CROSS

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/07/22	0	42	13	0	10	0	0	0	1	0	0	0	0	66
01:00	0	20	9	0	3	0	0	1	0	0	0	0	0	33
02:00	0	10	5	0	1	0	0	0	0	0	0	0	0	16
03:00	0	18	5	1	8	0	0	1	1	0	0	0	0	34
04:00	0	33	10	1	10	0	0	3	**3**	0	0	0	0	60
05:00	1	175	82	1	41	0	0	4	1	0	0	0	0	305
06:00	0	178	84	4	47	0	0	**9**	3	0	0	0	0	325
07:00	1	189	98	4	64	**1**	0	7	1	**1**	0	0	0	366
08:00	4	441	111	**11**	**72**	0	0	9	2	0	0	0	0	650
09:00	3	550	149	11	61	0	0	5	3	0	0	0	0	782
10:00	**7**	**676**	**161**	7	70	1	0	2	1	0	0	0	0	**925**
11:00	6	665	161	8	54	0	0	6	3	0	0	0	0	903
12 PM	4	**646**	**150**	8	**52**	**2**	0	0	**2**	0	0	0	0	**864**
13:00	4	628	140	6	40	0	0	2	1	0	0	0	0	821
14:00	3	626	128	6	47	2	0	2	1	0	0	0	0	815
15:00	**5**	563	145	5	40	0	**1**	**4**	2	0	0	0	0	765
16:00	3	423	106	**9**	31	0	0	3	1	0	0	0	0	576
17:00	0	338	79	8	32	1	0	1	0	0	0	0	0	459
18:00	3	264	64	3	27	1	0	2	0	0	0	0	0	364
19:00	3	216	67	1	22	0	0	0	0	0	0	0	0	309
20:00	2	202	51	1	17	0	0	0	0	0	0	0	0	273
21:00	0	182	53	0	15	1	0	0	0	0	0	0	0	251
22:00	0	171	49	0	17	0	0	3	0	0	0	0	0	240
23:00	0	111	24	0	16	0	0	0	0	0	0	0	0	151
Day Total	49	7367	1944	95	797	9	1	64	26	1	0	0	0	10353
Percent	0.5%	71.2%	18.8%	0.9%	7.7%	0.1%	0.0%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	10:00	10:00	08:00	08:00	07:00		06:00	04:00	07:00				10:00
Vol.	7	676	161	11	72	1		9	3	1				925
PM Peak	15:00	12:00	12:00	16:00	12:00	12:00	15:00	15:00	12:00					12:00
Vol.	5	646	150	9	52	2	1	4	2					864

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SR 29 BTW RUTHERFORD & OAKVILLE CROSS

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/08/22	1	51	15	2	9	0	0	1	0	0	0	0	0	79
01:00	0	36	7	0	5	0	0	0	0	0	0	0	0	48
02:00	0	14	4	1	1	0	0	1	0	0	0	0	0	21
03:00	0	11	4	0	1	0	0	0	**1**	0	0	0	0	17
04:00	0	12	8	0	2	0	0	0	0	0	0	0	0	22
05:00	0	66	26	0	12	0	0	0	0	0	0	0	0	104
06:00	0	109	34	0	11	0	0	1	0	0	0	0	0	155
07:00	0	132	66	**7**	30	0	0	0	1	0	0	0	0	236
08:00	2	279	57	6	30	0	0	2	0	0	0	0	0	376
09:00	4	446	96	0	42	0	0	**5**	0	0	0	0	0	593
10:00	0	519	125	3	**49**	1	0	2	0	0	0	0	0	699
11:00	**9**	**621**	**142**	7	47	**2**	0	1	1	0	0	0	0	**830**
12 PM	4	**612**	**162**	**5**	**47**	0	0	3	0	0	0	0	0	**833**
13:00	**7**	561	118	3	41	0	0	3	0	0	0	0	0	733
14:00	4	531	142	4	38	0	**1**	1	0	0	0	0	0	721
15:00	4	449	101	2	33	0	0	**4**	0	0	0	0	0	593
16:00	3	373	101	0	26	**1**	0	2	**1**	0	0	0	0	507
17:00	2	294	89	2	21	0	0	1	1	0	0	0	0	410
18:00	1	237	72	1	23	1	0	1	1	0	0	0	0	337
19:00	0	215	56	1	22	1	0	3	0	0	0	0	0	298
20:00	2	193	62	1	23	0	0	0	0	0	0	0	0	281
21:00	2	140	32	1	14	0	0	1	0	0	0	0	0	190
22:00	1	97	35	0	11	0	0	0	0	0	0	0	0	144
23:00	2	60	20	0	9	0	0	0	0	0	0	0	0	91
Day Total	48	6058	1574	46	547	6	1	32	6	0	0	0	0	8318
Percent	0.6%	72.8%	18.9%	0.6%	6.6%	0.1%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	07:00	10:00	11:00		09:00	03:00					11:00
Vol.	9	621	142	7	49	2		5	1					830
PM Peak	13:00	12:00	12:00	12:00	12:00	16:00	14:00	15:00	16:00					12:00
Vol.	7	612	162	5	47	1	1	4	1					833
Grand Total	237	27557	8089	466	3861	115	7	427	252	2	13	1	0	41027
Percent	0.6%	67.2%	19.7%	1.1%	9.4%	0.3%	0.0%	1.0%	0.6%	0.0%	0.0%	0.0%	0.0%	

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SR 29 BTW RUTHERFORD & OAKVILLE CROSS

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/05/22	0	24	6	0	1	0	0	0	1	0	0	0	0	32
01:00	0	13	4	0	5	0	0	1	1	0	0	0	0	24
02:00	0	15	5	0	3	0	0	0	1	0	0	0	0	24
03:00	0	16	8	0	3	0	0	1	0	0	1	0	0	29
04:00	0	29	18	0	6	2	0	0	3	0	0	0	0	58
05:00	1	111	43	0	21	1	0	1	7	0	0	0	0	185
06:00	1	197	78	2	20	2	1	4	2	0	0	0	0	307
07:00	0	233	68	3	20	2	1	**10**	**20**	0	1	0	0	358
08:00	1	289	89	6	39	5	**3**	6	14	0	0	0	0	452
09:00	1	284	90	6	31	2	1	6	14	0	0	0	0	435
10:00	1	322	**123**	3	**52**	5	2	7	14	0	**2**	0	0	531
11:00	**2**	**399**	117	**12**	48	**9**	1	7	13	0	0	0	0	**608**
12 PM	6	468	133	6	**54**	9	1	7	**17**	0	**1**	0	0	702
13:00	2	465	121	8	42	5	2	9	10	**1**	0	0	0	665
14:00	7	534	157	**11**	54	8	1	8	7	0	1	0	0	788
15:00	4	588	**192**	5	43	10	1	**13**	4	0	0	0	0	860
16:00	**15**	**678**	129	6	28	**16**	4	10	1	0	0	0	0	**887**
17:00	15	674	114	1	23	9	**7**	8	1	0	0	0	0	852
18:00	5	487	91	0	30	1	0	2	3	0	0	0	0	619
19:00	0	297	57	2	10	0	0	1	0	0	0	0	0	367
20:00	1	244	33	4	15	0	0	0	2	0	0	0	0	299
21:00	1	185	35	1	11	0	0	0	2	0	0	0	0	235
22:00	1	134	20	2	9	0	0	1	0	0	1	0	0	168
23:00	0	116	12	4	1	1	0	0	1	0	0	0	0	135
Day Total	64	6802	1743	82	569	87	25	102	138	1	7	0	0	9620
Percent	0.7%	70.7%	18.1%	0.9%	5.9%	0.9%	0.3%	1.1%	1.4%	0.0%	0.1%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	11:00	10:00	11:00	08:00	07:00	07:00		10:00			11:00
Vol.	2	399	123	12	52	9	3	10	20		2			608
PM Peak	16:00	16:00	15:00	14:00	12:00	16:00	17:00	15:00	12:00	13:00	12:00			16:00
Vol.	15	678	192	11	54	16	7	13	17	1	1			887

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SR 29 BTW RUTHERFORD & OAKVILLE CROSS

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/06/22	0	33	3	1	0	6	0	0	1	0	0	0	0	44
01:00	0	29	6	1	2	4	0	0	4	0	0	0	0	46
02:00	0	28	6	0	5	1	0	0	0	0	0	0	0	40
03:00	0	17	7	1	3	2	0	0	1	0	0	0	0	31
04:00	1	35	17	0	8	2	0	0	1	0	0	0	0	64
05:00	1	114	35	1	20	0	0	1	3	0	0	0	0	175
06:00	**2**	182	71	3	24	1	0	4	0	0	**1**	0	0	288
07:00	2	228	69	4	21	**9**	0	10	7	0	1	0	0	351
08:00	0	268	81	7	22	6	2	7	14	0	0	0	**1**	408
09:00	0	323	95	2	44	4	1	**15**	10	0	1	0	0	495
10:00	2	354	109	6	35	5	**3**	15	**15**	0	1	**1**	0	546
11:00	2	**405**	**128**	**8**	**45**	9	0	11	5	0	0	0	0	**613**
12 PM	2	487	123	6	41	**8**	3	**14**	8	0	**2**	0	0	694
13:00	6	515	118	**7**	**48**	2	0	11	**13**	0	1	0	0	721
14:00	7	549	166	6	45	3	3	14	7	0	0	0	0	800
15:00	8	**684**	**189**	6	43	8	0	2	3	0	0	0	0	**943**
16:00	**15**	643	108	6	26	7	**4**	5	1	0	0	0	0	815
17:00	14	658	101	4	22	1	4	2	1	0	0	0	0	807
18:00	7	486	75	2	15	0	0	1	1	0	0	0	0	587
19:00	1	319	46	3	14	0	0	1	2	0	0	0	0	386
20:00	2	259	45	2	5	1	0	1	1	0	0	0	0	316
21:00	1	273	47	3	17	0	0	1	0	0	0	0	0	342
22:00	0	225	42	4	7	1	0	1	2	0	0	0	0	282
23:00	1	198	22	1	11	0	0	0	3	0	0	0	0	236
Day Total	74	7312	1709	84	523	80	20	116	103	0	7	1	1	10030
Percent	0.7%	72.9%	17.0%	0.8%	5.2%	0.8%	0.2%	1.2%	1.0%	0.0%	0.1%	0.0%	0.0%	
AM Peak	06:00	11:00	11:00	11:00	11:00	07:00	10:00	09:00	10:00		06:00	10:00	08:00	11:00
Vol.	2	405	128	8	45	9	3	15	15		1	1	1	613
PM Peak	16:00	15:00	15:00	13:00	13:00	12:00	16:00	12:00	13:00		12:00			15:00
Vol.	15	684	189	7	48	8	4	14	13		2			943

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SR 29 BTW RUTHERFORD & OAKVILLE CROSS

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/07/22	0	76	14	1	3	0	0	0	1	0	0	0	0	95
01:00	0	34	6	0	4	0	0	1	0	0	0	0	0	45
02:00	0	19	3	0	0	0	0	0	1	0	0	0	0	23
03:00	0	22	2	1	3	0	0	0	1	0	0	0	0	29
04:00	0	19	6	1	2	0	0	1	3	0	0	0	0	32
05:00	0	54	16	1	3	1	0	1	1	0	0	0	0	77
06:00	0	108	33	0	8	**2**	0	2	2	0	0	0	0	155
07:00	0	170	50	1	21	2	0	3	2	0	0	0	0	249
08:00	1	256	60	1	17	2	0	3	**8**	0	0	0	0	348
09:00	5	285	77	2	19	1	0	**5**	2	0	0	0	0	396
10:00	3	317	**81**	**3**	21	0	0	4	2	0	0	0	0	431
11:00	**6**	**366**	76	2	**22**	1	0	4	0	0	0	0	0	**477**
12 PM	6	480	93	2	21	0	0	1	0	0	0	0	0	603
13:00	6	563	96	6	22	**2**	0	0	**2**	0	0	0	0	697
14:00	7	626	83	**8**	**28**	0	0	0	2	0	0	0	0	754
15:00	**10**	742	**127**	2	27	1	0	1	0	0	0	0	0	**910**
16:00	2	737	99	6	28	1	**1**	0	1	0	0	0	0	875
17:00	5	**769**	88	7	28	1	0	**2**	1	0	0	0	0	901
18:00	4	655	58	1	17	1	0	0	0	0	0	0	0	736
19:00	3	471	69	2	20	0	0	2	0	0	0	0	0	567
20:00	5	321	51	0	6	0	0	1	1	0	0	0	0	385
21:00	0	334	57	2	9	0	0	0	0	0	0	0	0	402
22:00	0	324	34	1	10	0	0	0	1	0	0	0	0	370
23:00	1	238	33	5	7	0	0	1	0	0	0	0	0	285
Day Total	64	7986	1312	55	346	15	1	32	31	0	0	0	0	9842
Percent	0.7%	81.1%	13.3%	0.6%	3.5%	0.2%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	10:00	11:00	06:00		09:00	08:00					11:00
Vol.	6	366	81	3	22	2		5	8					477
PM Peak	15:00	17:00	15:00	14:00	14:00	13:00	16:00	17:00	13:00					15:00
Vol.	10	769	127	8	28	2	1	2	2					910

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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
05/08/22	0	116	16	1	9	0	0	1	0	0	0	0	0	143
01:00	0	42	5	**3**	4	0	0	0	0	0	0	0	0	54
02:00	0	25	7	2	1	0	0	1	0	0	0	0	0	36
03:00	0	11	3	0	0	0	0	0	0	0	0	0	0	14
04:00	0	21	2	0	1	0	0	0	**1**	0	0	0	0	25
05:00	1	41	9	0	1	0	0	0	0	0	0	0	0	52
06:00	1	95	13	0	2	0	0	1	0	0	0	0	0	112
07:00	0	130	23	0	9	0	0	1	0	0	0	0	0	163
08:00	**3**	227	40	1	10	0	0	0	1	0	0	0	0	282
09:00	0	344	56	1	**14**	**1**	0	1	1	0	0	0	0	418
10:00	1	390	67	0	10	0	0	**2**	0	0	0	0	0	470
11:00	2	**431**	**70**	2	12	0	0	1	0	0	0	0	0	**518**
12 PM	**6**	528	82	1	20	0	0	**2**	0	0	0	0	0	639
13:00	4	548	90	2	**22**	0	0	2	0	0	0	0	0	668
14:00	6	648	**102**	**4**	15	0	0	2	0	0	0	0	0	777
15:00	3	719	76	2	11	0	0	1	0	0	0	0	0	812
16:00	2	**761**	70	0	18	1	0	1	1	0	0	0	0	**854**
17:00	4	696	74	1	15	1	0	1	0	0	0	0	0	792
18:00	3	607	67	1	9	0	0	0	**2**	0	0	0	0	689
19:00	4	408	43	1	11	0	0	2	0	0	0	0	0	469
20:00	2	281	38	1	8	**2**	0	0	0	0	0	0	0	332
21:00	1	218	35	1	2	0	0	0	0	0	0	0	0	257
22:00	0	176	19	0	7	0	0	0	0	0	0	0	0	202
23:00	0	140	13	0	1	0	0	0	0	0	0	0	0	154
Day Total	43	7603	1020	24	212	5	0	19	6	0	0	0	0	8932
Percent	0.5%	85.1%	11.4%	0.3%	2.4%	0.1%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	11:00	01:00	09:00	09:00		10:00	04:00					11:00
Vol.	3	431	70	3	14	1		2	1					518
PM Peak	12:00	16:00	14:00	14:00	13:00	20:00		12:00	18:00					16:00
Vol.	6	761	102	4	22	2		2	2					854
Grand Total	245	29703	5784	245	1650	187	46	269	278	1	14	1	1	38424
Percent	0.6%	77.3%	15.1%	0.6%	4.3%	0.5%	0.1%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	

Appendix B –Synchro Reports

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	21	0	47	5	879	63	36	519	4
Future Vol, veh/h	1	0	1	21	0	47	5	879	63	36	519	4
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	1	0	1	22	0	49	5	925	66	38	546	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1617	1625	548	1593	1594	958	550	0	0	991	0	0
Stage 1	624	624	-	968	968	-	-	-	-	-	-	-
Stage 2	993	1001	-	625	626	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.57	6.27	7.17	6.57	5.1	4.17	-	-	4.17	-	-
Critical Hdwy Stg 1	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.063	3.363	3.563	4.063	3.363	2.263	-	-	2.263	-	-
Pot Cap-1 Maneuver	81	100	527	84	104	417	995	-	-	678	-	-
Stage 1	465	470	-	299	326	-	-	-	-	-	-	-
Stage 2	289	314	-	464	469	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	68	94	527	80	98	417	995	-	-	678	-	-
Mov Cap-2 Maneuver	68	94	-	80	98	-	-	-	-	-	-	-
Stage 1	463	444	-	298	324	-	-	-	-	-	-	-
Stage 2	253	312	-	437	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.5	30.7	0	0.7
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	995	-	-	120	80	417	678	-	-
HCM Lane V/C Ratio	0.005	-	-	0.018	0.276	0.119	0.056	-	-
HCM Control Delay (s)	8.6	-	-	35.5	66.4	14.8	10.6	-	-
HCM Lane LOS	A	-	-	E	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1	0.4	0.2	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	0	2	18	2	21	5	1015	56	36	471	3
Future Vol, veh/h	9	0	2	18	2	21	5	1015	56	36	471	3
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	10	0	2	20	2	23	5	1103	61	39	512	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1748	1766	514	1706	1706	1103	515	0	0	1164	0	0
Stage 1	592	592	-	1113	1113	-	-	-	-	-	-	-
Stage 2	1156	1174	-	593	593	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	4	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	5.4	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	2.5	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	65	81	549	70	88	503	1021	-	-	579	-	-
Stage 1	482	485	-	314	277	-	-	-	-	-	-	-
Stage 2	233	259	-	883	484	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	57	75	549	66	82	503	1021	-	-	579	-	-
Mov Cap-2 Maneuver	57	75	-	66	82	-	-	-	-	-	-	-
Stage 1	480	453	-	312	276	-	-	-	-	-	-	-
Stage 2	220	258	-	820	452	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	68.9	46.7	0	0.8
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1021	-	-	68	67	503	579	-	-
HCM Lane V/C Ratio	0.005	-	-	0.176	0.324	0.045	0.068	-	-
HCM Control Delay (s)	8.5	-	-	68.9	82.7	12.5	11.7	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	1.2	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	10	68	1	52	2	642	87	68	925	2
Future Vol, veh/h	0	0	10	68	1	52	2	642	87	68	925	2
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	0	11	72	1	55	2	683	93	72	984	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1891	1909	985	1869	1864	730	986	0	0	776	0	0
Stage 1	1129	1129	-	734	734	-	-	-	-	-	-	-
Stage 2	762	780	-	1135	1130	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	5.1	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	53	67	298	~ 55	72	528	693	-	-	831	-	-
Stage 1	246	277	-	409	423	-	-	-	-	-	-	-
Stage 2	394	403	-	244	276	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	61	298	~ 49	66	528	693	-	-	831	-	-
Mov Cap-2 Maneuver	44	61	-	~ 49	66	-	-	-	-	-	-	-
Stage 1	245	253	-	408	422	-	-	-	-	-	-	-
Stage 2	351	402	-	215	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	256.2	0	0.7
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	298	49	528	831	-	-
HCM Lane V/C Ratio	0.003	-	-	0.036	1.498	0.105	0.087	-	-
HCM Control Delay (s)	10.2	-	-	17.5	$ 439.7	12.6	9.7	-	-
HCM Lane LOS	B	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	7	0.3	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	14.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	13	65	0	35	1	661	22	35	1023	3
Future Vol, veh/h	5	2	13	65	0	35	1	661	22	35	1023	3
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	5	2	14	68	0	37	1	696	23	37	1077	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1881	1874	1079	1859	1852	696	1080	0	0	719	0	0
Stage 1	1153	1153	-	698	698	-	-	-	-	-	-	-
Stage 2	728	721	-	1161	1154	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	4	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	5.4	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	2.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	54	71	263	~ 56	73	676	638	-	-	873	-	-
Stage 1	238	270	-	494	439	-	-	-	-	-	-	-
Stage 2	412	429	-	762	269	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	68	263	~ 50	70	676	638	-	-	873	-	-
Mov Cap-2 Maneuver	49	68	-	~ 50	70	-	-	-	-	-	-	-
Stage 1	238	259	-	493	438	-	-	-	-	-	-	-
Stage 2	389	428	-	686	258	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.9	254.7	0	0.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	638	-	-	111	50	676	873	-	-
HCM Lane V/C Ratio	0.002	-	-	0.19	1.368	0.055	0.042	-	-
HCM Control Delay (s)	10.7	-	-	44.9	$ 386.2	10.6	9.3	-	-
HCM Lane LOS	B	-	-	E	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	6.3	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1	9	58	1	42	6	856	69	51	786	6
Future Vol, veh/h	3	1	9	58	1	42	6	856	69	51	786	6
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1	9	61	1	44	6	901	73	54	827	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1910	1924	830	1893	1891	938	833	0	0	974	0	0
Stage 1	938	938	-	950	950	-	-	-	-	-	-	-
Stage 2	972	986	-	943	941	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	5.1	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	52	67	370	~ 53	70	429	800	-	-	708	-	-
Stage 1	317	343	-	312	339	-	-	-	-	-	-	-
Stage 2	304	326	-	315	342	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	43	62	370	~ 48	64	429	800	-	-	708	-	-
Mov Cap-2 Maneuver	43	62	-	~ 48	64	-	-	-	-	-	-	-
Stage 1	315	317	-	310	337	-	-	-	-	-	-	-
Stage 2	270	324	-	283	316	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.5	219.4	0.1	0.6
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	800	-	-	118	48	429	708	-	-
HCM Lane V/C Ratio	0.008	-	-	0.116	1.294	0.103	0.076	-	-
HCM Control Delay (s)	9.5	-	-	39.5	$ 365.3	14.4	10.5	-	-
HCM Lane LOS	A	-	-	E	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	5.8	0.3	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1	1	28	1	36	0	945	30	30	819	1
Future Vol, veh/h	2	1	1	28	1	36	0	945	30	30	819	1
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	1	29	1	37	0	974	31	31	844	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1916	1912	845	1882	1881	974	845	0	0	1005	0	0
Stage 1	907	907	-	974	974	-	-	-	-	-	-	-
Stage 2	1009	1005	-	908	907	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	4	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	5.4	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	2.5	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	51	68	363	54	71	557	792	-	-	689	-	-
Stage 1	330	355	-	368	330	-	-	-	-	-	-	-
Stage 2	290	319	-	822	355	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	65	363	51	68	557	792	-	-	689	-	-
Mov Cap-2 Maneuver	45	65	-	51	68	-	-	-	-	-	-	-
Stage 1	330	339	-	368	330	-	-	-	-	-	-	-
Stage 2	270	319	-	780	339	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	65.1	72.5	0	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	792	-	-	64	51	557	689	-	-
HCM Lane V/C Ratio	-	-	-	0.064	0.586	0.067	0.045	-	-
HCM Control Delay (s)	0	-	-	65.1	147.7	11.9	10.5	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	2.3	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	25	5	55	10	965	70	40	570	5
Future Vol, veh/h	5	5	5	25	5	55	10	965	70	40	570	5
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	5	5	5	25	5	55	10	965	70	40	570	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1703	1708	573	1678	1675	1000	575	0	0	1035	0	0
Stage 1	653	653	-	1020	1020	-	-	-	-	-	-	-
Stage 2	1050	1055	-	658	655	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.57	6.27	7.17	6.57	5.1	4.17	-	-	4.17	-	-
Critical Hdwy Stg 1	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.063	3.363	3.563	4.063	3.363	2.263	-	-	2.263	-	-
Pot Cap-1 Maneuver	70	89	510	73	93	399	974	-	-	653	-	-
Stage 1	448	456	-	279	308	-	-	-	-	-	-	-
Stage 2	269	296	-	445	455	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	55	83	510	65	86	399	974	-	-	653	-	-
Mov Cap-2 Maneuver	55	83	-	65	86	-	-	-	-	-	-	-
Stage 1	444	428	-	276	305	-	-	-	-	-	-	-
Stage 2	226	293	-	409	427	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	51	43.3	0.1	0.7
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	974	-	-	93	68	399	653	-	-
HCM Lane V/C Ratio	0.01	-	-	0.161	0.441	0.138	0.061	-	-
HCM Control Delay (s)	8.7	-	-	51	94.4	15.5	10.9	-	-
HCM Lane LOS	A	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.7	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	5	5	25	5	25	10	1115	65	40	520	5
Future Vol, veh/h	15	5	5	25	5	25	10	1115	65	40	520	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	15	5	5	25	5	25	10	1115	65	40	520	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1786	1803	523	1743	1740	1115	525	0	0	1180	0	0
Stage 1	603	603	-	1135	1135	-	-	-	-	-	-	-
Stage 2	1183	1200	-	608	605	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	4	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	5.4	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	2.5	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	61	77	542	66	84	498	1012	-	-	571	-	-
Stage 1	476	479	-	306	270	-	-	-	-	-	-	-
Stage 2	225	252	-	880	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	52	71	542	58	77	498	1012	-	-	571	-	-
Mov Cap-2 Maneuver	52	71	-	58	77	-	-	-	-	-	-	-
Stage 1	471	445	-	303	267	-	-	-	-	-	-	-
Stage 2	208	249	-	802	445	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	86	68	0.1	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1012	-	-	68	60	498	571	-	-
HCM Lane V/C Ratio	0.01	-	-	0.368	0.5	0.05	0.07	-	-
HCM Control Delay (s)	8.6	-	-	86	114.2	12.6	11.8	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.4	2	0.2	0.2	-	-

Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	15	65	5	55	5	670	85	75	1015	5
Future Vol, veh/h	10	5	15	65	5	55	5	670	85	75	1015	5
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	10	5	15	65	5	55	5	670	85	75	1015	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1921	1933	1018	1901	1893	713	1020	0	0	755	0	0
Stage 1	1168	1168	-	723	723	-	-	-	-	-	-	-
Stage 2	753	765	-	1178	1170	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	5.1	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	50	65	286	~ 52	69	537	673	-	-	846	-	-
Stage 1	233	265	-	414	428	-	-	-	-	-	-	-
Stage 2	399	409	-	230	265	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	39	59	286	~ 43	62	537	673	-	-	846	-	-
Mov Cap-2 Maneuver	39	59	-	~ 43	62	-	-	-	-	-	-	-
Stage 1	231	241	-	411	425	-	-	-	-	-	-	-
Stage 2	351	406	-	194	241	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	80.4	283.2	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	673	-	-	76	44	537	846	-	-
HCM Lane V/C Ratio	0.007	-	-	0.395	1.591	0.102	0.089	-	-
HCM Control Delay (s)	10.4	-	-	80.4	$ 495.9	12.5	9.7	-	-
HCM Lane LOS	B	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	7	0.3	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	24.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	15	75	5	40	5	685	35	40	1125	5
Future Vol, veh/h	10	5	15	75	5	40	5	685	35	40	1125	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	10	5	15	75	5	40	5	685	35	40	1125	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1943	1938	1128	1913	1905	685	1130	0	0	720	0	0
Stage 1	1208	1208	-	695	695	-	-	-	-	-	-	-
Stage 2	735	730	-	1218	1210	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	4	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	5.4	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	2.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	48	65	246	~ 51	68	681	611	-	-	872	-	-
Stage 1	222	254	-	495	441	-	-	-	-	-	-	-
Stage 2	408	425	-	749	253	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	41	61	246	~ 43	64	681	611	-	-	872	-	-
Mov Cap-2 Maneuver	41	61	-	~ 43	64	-	-	-	-	-	-	-
Stage 1	220	242	-	491	437	-	-	-	-	-	-	-
Stage 2	377	422	-	657	241	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77.5	$ 395.8	0.1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	611	-	-	78	44	681	872	-	-
HCM Lane V/C Ratio	0.008	-	-	0.385	1.818	0.059	0.046	-	-
HCM Control Delay (s)	10.9	-	-	77.5	$ 588.4	10.6	9.3	-	-
HCM Lane LOS	B	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.5	8.2	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	25.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	15	70	5	50	10	940	80	60	860	10
Future Vol, veh/h	5	5	15	70	5	50	10	940	80	60	860	10
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	15	70	5	50	10	940	80	60	860	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2013	2025	865	1995	1990	980	870	0	0	1020	0	0
Stage 1	985	985	-	1000	1000	-	-	-	-	-	-	-
Stage 2	1028	1040	-	995	990	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	5.1	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	44	58	353	~ 45	61	411	775	-	-	680	-	-
Stage 1	299	326	-	293	321	-	-	-	-	-	-	-
Stage 2	283	307	-	295	324	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	33	52	353	~ 37	55	411	775	-	-	680	-	-
Mov Cap-2 Maneuver	33	52	-	~ 37	55	-	-	-	-	-	-	-
Stage 1	295	297	-	289	317	-	-	-	-	-	-	-
Stage 2	241	303	-	253	295	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.2	$ 415.4	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	775	-	-	86	38	411	680	-	-
HCM Lane V/C Ratio	0.013	-	-	0.291	1.974	0.122	0.088	-	-
HCM Control Delay (s)	9.7	-	-	63.2	$ 682.3	15	10.8	-	-
HCM Lane LOS	A	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.1	8.1	0.4	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	35	5	40	5	990	35	30	950	5
Future Vol, veh/h	5	5	5	35	5	40	5	990	35	30	950	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	5	35	5	40	5	990	35	30	950	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2053	2048	953	2018	2015	990	955	0	0	1025	0	0
Stage 1	1013	1013	-	1000	1000	-	-	-	-	-	-	-
Stage 2	1040	1035	-	1018	1015	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	4	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	5.4	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	2.5	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	41	56	314	43	59	551	720	-	-	677	-	-
Stage 1	288	316	-	358	321	-	-	-	-	-	-	-
Stage 2	278	309	-	797	316	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	34	53	314	38	56	551	720	-	-	677	-	-
Mov Cap-2 Maneuver	34	53	-	38	56	-	-	-	-	-	-	-
Stage 1	286	302	-	355	319	-	-	-	-	-	-	-
Stage 2	252	307	-	737	302	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	87.5	154.1	0	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	720	-	-	58	40	551	677	-	-
HCM Lane V/C Ratio	0.007	-	-	0.259	1	0.073	0.044	-	-
HCM Control Delay (s)	10	-	-	87.5	296.2	12	10.6	-	-
HCM Lane LOS	B	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	3.9	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	5	30	5	65	10	1070	80	45	630	10
Future Vol, veh/h	5	5	5	30	5	65	10	1070	80	45	630	10
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	7	7	7	7	7	7	7	7	7	7	7
Mvmt Flow	5	5	5	30	5	65	10	1070	80	45	630	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1890	1895	635	1860	1860	1110	640	0	0	1150	0	0
Stage 1	725	725	-	1130	1130	-	-	-	-	-	-	-
Stage 2	1165	1170	-	730	730	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.57	6.27	7.17	6.57	5.1	4.17	-	-	4.17	-	-
Critical Hdwy Stg 1	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.57	-	6.17	5.57	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.063	3.363	3.563	4.063	3.363	2.263	-	-	2.263	-	-
Pot Cap-1 Maneuver	52	68	470	54	71	357	921	-	-	590	-	-
Stage 1	409	423	-	242	273	-	-	-	-	-	-	-
Stage 2	231	261	-	406	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	37	62	470	47	65	357	921	-	-	590	-	-
Mov Cap-2 Maneuver	37	62	-	47	65	-	-	-	-	-	-	-
Stage 1	405	391	-	239	270	-	-	-	-	-	-	-
Stage 2	183	258	-	366	388	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	74.9	74.5	0.1	0.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	921	-	-	66	49	357	590	-	-
HCM Lane V/C Ratio	0.011	-	-	0.227	0.714	0.182	0.076	-	-
HCM Control Delay (s)	9	-	-	74.9	180.8	17.3	11.6	-	-
HCM Lane LOS	A	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8	2.9	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	5	5	25	5	30	10	1230	70	45	575	5
Future Vol, veh/h	15	5	5	25	5	30	10	1230	70	45	575	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	8	8	8	8	8	8	8	8	8	8	8
Mvmt Flow	15	5	5	25	5	30	10	1230	70	45	575	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1971	1988	578	1923	1920	1230	580	0	0	1300	0	0
Stage 1	668	668	-	1250	1250	-	-	-	-	-	-	-
Stage 2	1303	1320	-	673	670	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.18	6.58	4	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.18	5.58	-	5.4	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	2.5	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.572	4.072	3.372	2.272	-	-	2.272	-	-
Pot Cap-1 Maneuver	45	59	504	49	65	458	965	-	-	513	-	-
Stage 1	438	447	-	270	238	-	-	-	-	-	-	-
Stage 2	192	220	-	866	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	36	53	504	42	59	458	965	-	-	513	-	-
Mov Cap-2 Maneuver	36	53	-	42	59	-	-	-	-	-	-	-
Stage 1	434	408	-	267	236	-	-	-	-	-	-	-
Stage 2	174	218	-	773	407	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	143.1	101.3	0.1	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	965	-	-	48	44	458	513	-	-
HCM Lane V/C Ratio	0.01	-	-	0.521	0.682	0.066	0.088	-	-
HCM Control Delay (s)	8.8	-	-	143.1	189.1	13.4	12.7	-	-
HCM Lane LOS	A	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.9	2.6	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	41.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	20	75	5	65	5	740	95	85	1125	5
Future Vol, veh/h	10	5	20	75	5	65	5	740	95	85	1125	5
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	10	5	20	75	5	65	5	740	95	85	1125	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2131	2143	1128	2108	2098	788	1130	0	0	835	0	0
Stage 1	1298	1298	-	798	798	-	-	-	-	-	-	-
Stage 2	833	845	-	1310	1300	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	5.1	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	35	48	246	~ 37	51	498	611	-	-	790	-	-
Stage 1	197	230	-	377	395	-	-	-	-	-	-	-
Stage 2	360	376	-	194	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	25	42	246	~ 28	45	498	611	-	-	790	-	-
Mov Cap-2 Maneuver	25	42	-	~ 28	45	-	-	-	-	-	-	-
Stage 1	195	205	-	374	392	-	-	-	-	-	-	-
Stage 2	306	373	-	155	204	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	135.4	$ 603	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	611	-	-	58	29	498	790	-	-
HCM Lane V/C Ratio	0.008	-	-	0.603	2.759	0.131	0.108	-	-
HCM Control Delay (s)	10.9	-	-	135.4	$ 1082.2	13.3	10.1	-	-
HCM Lane LOS	B	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.5	9.5	0.4	0.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	54.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	5	20	90	5	45	5	760	40	40	1245	5
Future Vol, veh/h	10	5	20	90	5	45	5	760	40	40	1245	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	10	5	20	90	5	45	5	760	40	40	1245	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2143	2138	1248	2110	2100	760	1250	0	0	800	0	0
Stage 1	1328	1328	-	770	770	-	-	-	-	-	-	-
Stage 2	815	810	-	1340	1330	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.14	6.54	4	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.14	5.54	-	5.4	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	2.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.536	4.036	3.336	2.236	-	-	2.236	-	-
Pot Cap-1 Maneuver	35	48	209	~ 37	51	646	550	-	-	814	-	-
Stage 1	189	222	-	457	407	-	-	-	-	-	-	-
Stage 2	368	390	-	722	222	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	29	45	209	~ 29	48	646	550	-	-	814	-	-
Mov Cap-2 Maneuver	29	45	-	~ 29	48	-	-	-	-	-	-	-
Stage 1	187	211	-	453	403	-	-	-	-	-	-	-
Stage 2	335	386	-	606	211	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	118	$ 853	0.1	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	550	-	-	63	30	646	814	-	-
HCM Lane V/C Ratio	0.009	-	-	0.556	3.167	0.07	0.049	-	-
HCM Control Delay (s)	11.6	-	-	118	$ 1251.8	11	9.7	-	-
HCM Lane LOS	B	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.3	11.3	0.2	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	50.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	15	80	5	60	10	1040	85	65	955	10
Future Vol, veh/h	5	5	15	80	5	60	10	1040	85	65	955	10
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	-	-	-	-	-	25	100	-	-	80	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	15	80	5	60	10	1040	85	65	955	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2225	2235	960	2203	2198	1083	965	0	0	1125	0	0
Stage 1	1090	1090	-	1103	1103	-	-	-	-	-	-	-
Stage 2	1135	1145	-	1100	1095	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	5.1	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	31	43	311	~ 32	45	370	714	-	-	621	-	-
Stage 1	261	291	-	256	287	-	-	-	-	-	-	-
Stage 2	246	274	-	257	290	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	21	38	311	~ 25	40	370	714	-	-	621	-	-
Mov Cap-2 Maneuver	21	38	-	~ 25	40	-	-	-	-	-	-	-
Stage 1	257	260	-	252	283	-	-	-	-	-	-	-
Stage 2	200	270	-	215	260	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	102.5	$ 789.7	0.1	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	714	-	-	60	26	370	621	-	-
HCM Lane V/C Ratio	0.014	-	-	0.417	3.269	0.162	0.105	-	-
HCM Control Delay (s)	10.1	-	-	102.5	$ 1335.5	16.6	11.5	-	-
HCM Lane LOS	B	-	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.6	10.4	0.6	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	13.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	5	10	40	5	45	5	1100	40	30	1050	5
Future Vol, veh/h	5	5	10	40	5	45	5	1100	40	30	1050	5
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	-	-	-	-	-	50	100	-	25	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	10	40	5	45	5	1100	40	30	1050	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2268	2263	1053	2230	2225	1100	1055	0	0	1140	0	0
Stage 1	1113	1113	-	1110	1110	-	-	-	-	-	-	-
Stage 2	1155	1150	-	1120	1115	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	4	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	5.4	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	2.5	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	29	41	275	~ 31	43	509	660	-	-	613	-	-
Stage 1	253	284	-	317	285	-	-	-	-	-	-	-
Stage 2	240	273	-	773	283	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	23	39	275	~ 26	41	509	660	-	-	613	-	-
Mov Cap-2 Maneuver	23	39	-	~ 26	41	-	-	-	-	-	-	-
Stage 1	251	270	-	314	283	-	-	-	-	-	-	-
Stage 2	213	271	-	695	269	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	112.3	$ 325.5	0	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	660	-	-	52	27	509	613	-	-
HCM Lane V/C Ratio	0.008	-	-	0.385	1.667	0.088	0.049	-	-
HCM Control Delay (s)	10.5	-	-	112.3	$ 638.3	12.8	11.2	-	-
HCM Lane LOS	B	-	-	F	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.4	5.4	0.3	0.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	1	21	0	47	5	879	63	36	519	4
Future Volume (veh/h)	1	0	1	21	0	47	5	879	63	36	519	4
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	1	0	1	22	0	49	5	925	66	38	546	4
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, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	5	0	5	166	0	148	24	1003	72	125	1183	9
Arrive On Green	0.01	0.00	0.01	0.10	0.00	0.10	0.01	0.61	0.61	0.07	0.66	0.66
Sat Flow, veh/h	805	0	805	1711	0	1522	1711	1657	118	1711	1781	13
Grp Volume(v), veh/h	2	0	0	22	0	49	5	0	991	38	0	550
Grp Sat Flow(s),veh/h/ln	1611	0	0	1711	0	1522	1711	0	1775	1711	0	1794
Q Serve(g_s), s	0.1	0.0	0.0	1.1	0.0	2.9	0.3	0.0	48.0	2.0	0.0	14.3
Cycle Q Clear(g_c), s	0.1	0.0	0.0	1.1	0.0	2.9	0.3	0.0	48.0	2.0	0.0	14.3
Prop In Lane	0.50		0.50	1.00		1.00	1.00		0.07	1.00		0.01
Lane Grp Cap(c), veh/h	10	0	0	166	0	148	24	0	1075	125	0	1192
V/C Ratio(X)	0.21	0.00	0.00	0.13	0.00	0.33	0.20	0.00	0.92	0.30	0.00	0.46
Avail Cap(c_a), veh/h	268	0	0	285	0	253	196	0	1403	196	0	1418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.6	0.0	0.0	39.7	0.0	40.5	46.9	0.0	16.9	42.3	0.0	7.8
Incr Delay (d2), s/veh	10.4	0.0	0.0	0.4	0.0	1.3	4.0	0.0	8.6	1.4	0.0	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	0.1	0.0	0.0	0.5	0.0	1.1	0.1	0.0	18.2	0.9	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	0.0	40.1	0.0	41.8	50.9	0.0	25.5	43.6	0.0	8.1
LnGrp LOS	E	A	A	D	A	D	D	A	C	D	A	A
Approach Vol, veh/h		2			71			996			588	
Approach Delay, s/veh		58.0			41.3			25.7			10.4	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	65.1		5.3	6.1	70.8		14.0				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 11	76.0		* 16	* 11	76.0		16.0				
Max Q Clear Time (g_c+I1), s	4.0	50.0		2.1	2.3	16.3		4.9				
Green Ext Time (p_c), s	0.0	8.3		0.0	0.0	3.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		20.9	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	2	18	2	21	5	1015	56	36	471	3
Future Volume (veh/h)	9	0	2	18	2	21	5	1015	56	36	471	3
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	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	10	0	2	20	2	23	5	1103	61	39	512	3
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, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	20	0	4	56	6	55	24	1182	1001	125	1279	7
Arrive On Green	0.01	0.00	0.01	0.04	0.04	0.04	0.01	0.66	0.66	0.07	0.72	0.72
Sat Flow, veh/h	1385	0	277	1549	155	1510	1697	1781	1510	1697	1769	10
Grp Volume(v), veh/h	12	0	0	22	0	23	5	1103	61	39	0	515
Grp Sat Flow(s),veh/h/ln	1662	0	0	1704	0	1510	1697	1781	1510	1697	0	1780
Q Serve(g_s), s	0.7	0.0	0.0	1.2	0.0	1.4	0.3	53.1	1.4	2.1	0.0	10.9
Cycle Q Clear(g_c), s	0.7	0.0	0.0	1.2	0.0	1.4	0.3	53.1	1.4	2.1	0.0	10.9
Prop In Lane	0.83		0.17	0.91		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	24	0	0	62	0	55	24	1182	1001	125	0	1286
V/C Ratio(X)	0.51	0.00	0.00	0.36	0.00	0.42	0.21	0.93	0.06	0.31	0.00	0.40
Avail Cap(c_a), veh/h	449	0	0	285	0	252	192	1396	1183	192	0	1395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	45.6	0.0	45.7	47.2	14.4	5.7	42.6	0.0	5.2
Incr Delay (d2), s/veh	15.8	0.0	0.0	3.4	0.0	5.1	4.1	10.6	0.0	1.4	0.0	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	0.4	0.0	0.0	0.6	0.0	0.6	0.1	19.4	0.4	0.9	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	0.0	0.0	49.1	0.0	50.8	51.4	25.0	5.8	44.0	0.0	5.4
LnGrp LOS	E	A	A	D	A	D	D	C	A	D	A	A
Approach Vol, veh/h		12			45			1169			554	
Approach Delay, s/veh		63.2			50.0			24.1			8.2	
Approach LOS		E			D			C			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.9	71.2		5.9	6.1	77.0		8.0
Change Period (Y+Rc), s	* 4.7	6.9		4.5	* 4.7	6.9		4.5
Max Green Setting (Gmax), s	* 11	76.0		26.2	* 11	76.0		16.2
Max Q Clear Time (g_c+I1), s	14.1	55.1		2.7	2.3	12.9		3.4
Green Ext Time (p_c), s	0.0	9.2		0.0	0.0	3.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	10	68	1	52	2	642	87	68	925	2
Future Volume (veh/h)	0	0	10	68	1	52	2	642	87	68	925	2
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	0	11	72	1	55	2	683	93	72	984	2
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	0	0	46	213	3	192	10	786	107	185	1093	2
Arrive On Green	0.00	0.00	0.03	0.12	0.12	0.12	0.01	0.50	0.50	0.11	0.60	0.60
Sat Flow, veh/h	0	0	1560	1730	24	1560	1753	1586	216	1753	1836	4
Grp Volume(v), veh/h	0	0	11	73	0	55	2	0	776	72	0	986
Grp Sat Flow(s),veh/h/ln	0	0	1560	1754	0	1560	1753	0	1802	1753	0	1840
Q Serve(g_s), s	0.0	0.0	0.6	3.2	0.0	2.7	0.1	0.0	32.5	3.3	0.0	39.8
Cycle Q Clear(g_c), s	0.0	0.0	0.6	3.2	0.0	2.7	0.1	0.0	32.5	3.3	0.0	39.8
Prop In Lane	0.00		1.00	0.99		1.00	1.00		0.12	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	46	216	0	192	10	0	893	185	0	1095
V/C Ratio(X)	0.00	0.00	0.24	0.34	0.00	0.29	0.19	0.00	0.87	0.39	0.00	0.90
Avail Cap(c_a), veh/h	0	0	293	329	0	293	294	0	1643	294	0	1678
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)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	40.4	34.2	0.0	34.0	42.1	0.0	19.0	35.5	0.0	15.0
Incr Delay (d2), s/veh	0.0	0.0	2.6	0.9	0.0	0.8	8.6	0.0	2.8	1.3	0.0	4.8
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	0.0	0.0	0.3	1.4	0.0	1.1	0.1	0.0	12.1	1.4	0.0	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	43.0	35.1	0.0	34.8	50.7	0.0	21.8	36.9	0.0	19.8
LnGrp LOS	A	A	D	D	A	C	D	A	C	D	A	B
Approach Vol, veh/h		11			128			778			1058	
Approach Delay, s/veh		43.0			35.0			21.9			21.0	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	49.1		7.2	5.2	57.6		15.2				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 14	77.7		16.0				
Max Q Clear Time (g_c+I1), s	5.3	34.5		2.6	2.1	41.8		5.2				
Green Ext Time (p_c), s	0.1	6.0		0.0	0.0	8.9		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		22.4	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2	13	65	0	35	1	661	22	35	1023	3
Future Volume (veh/h)	5	2	13	65	0	35	1	661	22	35	1023	3
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	5	2	14	68	0	37	1	696	23	37	1077	3
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	19	8	53	182	0	162	5	1045	886	124	1165	3
Arrive On Green	0.05	0.05	0.05	0.10	0.00	0.10	0.00	0.57	0.57	0.07	0.64	0.64
Sat Flow, veh/h	387	155	1084	1753	0	1560	1753	1841	1560	1753	1835	5
Grp Volume(v), veh/h	21	0	0	68	0	37	1	696	23	37	0	1080
Grp Sat Flow(s),veh/h/ln	1626	0	0	1753	0	1560	1753	1841	1560	1753	0	1840
Q Serve(g_s), s	1.2	0.0	0.0	3.6	0.0	2.2	0.1	26.4	0.6	2.0	0.0	52.0
Cycle Q Clear(g_c), s	1.2	0.0	0.0	3.6	0.0	2.2	0.1	26.4	0.6	2.0	0.0	52.0
Prop In Lane	0.24		0.67	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	79	0	0	182	0	162	5	1045	886	124	0	1169
V/C Ratio(X)	0.27	0.00	0.00	0.37	0.00	0.23	0.19	0.67	0.03	0.30	0.00	0.92
Avail Cap(c_a), veh/h	259	0	0	280	0	249	192	1487	1260	192	0	1486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.0	0.0	0.0	41.9	0.0	41.3	49.9	15.1	9.5	44.3	0.0	16.2
Incr Delay (d2), s/veh	1.8	0.0	0.0	1.3	0.0	0.7	16.4	0.7	0.0	1.3	0.0	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.6	0.0	0.9	0.0	9.7	0.2	0.9	0.0	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	0.0	0.0	43.2	0.0	42.0	66.3	15.8	9.5	45.6	0.0	24.7
LnGrp LOS	D	A	A	D	A	D	E	B	A	D	A	C
Approach Vol, veh/h		21			105			720			1117	
Approach Delay, s/veh		47.8			42.7			15.7			25.4	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	63.8		9.6	5.0	70.6		15.1
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7
Max Green Setting (Gmax), s	* 11	81.0		* 16	* 11	81.0		16.0
Max Q Clear Time (g_c+I1), s	14.0	28.4		3.2	2.1	54.0		5.6
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	9.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	9	58	1	42	6	856	69	51	786	6
Future Volume (veh/h)	3	1	9	58	1	42	6	856	69	51	786	6
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	3	1	9	61	1	44	6	901	73	54	827	6
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	13	4	38	180	3	162	30	981	79	150	1191	9
Arrive On Green	0.03	0.03	0.03	0.10	0.10	0.10	0.02	0.57	0.57	0.08	0.64	0.64
Sat Flow, veh/h	380	127	1140	1754	29	1585	1781	1707	138	1781	1854	13
Grp Volume(v), veh/h	13	0	0	62	0	44	6	0	974	54	0	833
Grp Sat Flow(s),veh/h/ln	1646	0	0	1783	0	1585	1781	0	1845	1781	0	1868
Q Serve(g_s), s	0.8	0.0	0.0	3.3	0.0	2.6	0.3	0.0	48.6	2.9	0.0	29.4
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.3	0.0	2.6	0.3	0.0	48.6	2.9	0.0	29.4
Prop In Lane	0.23		0.69	0.98		1.00	1.00		0.07	1.00		0.01
Lane Grp Cap(c), veh/h	55	0	0	182	0	162	30	0	1060	150	0	1199
V/C Ratio(X)	0.24	0.00	0.00	0.34	0.00	0.27	0.20	0.00	0.92	0.36	0.00	0.69
Avail Cap(c_a), veh/h	258	0	0	279	0	248	192	0	1404	249	0	1481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	0.0	42.6	0.0	42.3	49.5	0.0	19.6	44.2	0.0	11.8
Incr Delay (d2), s/veh	2.2	0.0	0.0	1.1	0.0	0.9	3.2	0.0	8.2	1.4	0.0	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	0.4	0.0	0.0	1.5	0.0	1.1	0.2	0.0	20.0	1.3	0.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.0	0.0	43.7	0.0	43.2	52.7	0.0	27.8	45.6	0.0	12.9
LnGrp LOS	D	A	A	D	A	D	D	A	C	D	A	B
Approach Vol, veh/h		13			106			980			887	
Approach Delay, s/veh		50.3			43.5			27.9			14.9	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.3	65.6		8.1	6.4	72.5		15.2				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 11	81.0		16.0				
Max Q Clear Time (g_c+I1), s	4.9	50.6		2.8	2.3	31.4		5.3				
Green Ext Time (p_c), s	0.1	8.1		0.0	0.0	6.7		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		23.1
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

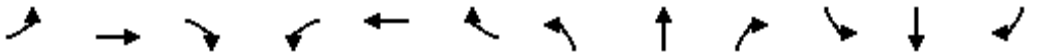
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	1	28	1	36	0	945	30	30	819	1
Future Volume (veh/h)	2	1	1	28	1	36	0	945	30	30	819	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	2	1	1	29	1	37	0	974	31	31	844	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	10	5	5	175	6	161	2	1084	918	119	1307	2
Arrive On Green	0.01	0.01	0.01	0.10	0.10	0.10	0.00	0.58	0.58	0.07	0.70	0.70
Sat Flow, veh/h	874	437	437	1725	59	1585	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	4	0	0	30	0	37	0	974	31	31	0	845
Grp Sat Flow(s),veh/h/ln	1748	0	0	1784	0	1585	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.2	0.0	0.0	1.3	0.0	1.9	0.0	39.8	0.7	1.4	0.0	21.6
Cycle Q Clear(g_c), s	0.2	0.0	0.0	1.3	0.0	1.9	0.0	39.8	0.7	1.4	0.0	21.6
Prop In Lane	0.50		0.25	0.97		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	20	0	0	181	0	161	2	1084	918	119	0	1309
V/C Ratio(X)	0.20	0.00	0.00	0.17	0.00	0.23	0.00	0.90	0.03	0.26	0.00	0.65
Avail Cap(c_a), veh/h	321	0	0	328	0	291	225	1631	1382	225	0	1631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	0.0	0.0	35.8	0.0	36.0	0.0	16.1	7.9	38.6	0.0	7.2
Incr Delay (d2), s/veh	4.6	0.0	0.0	0.4	0.0	0.7	0.0	4.9	0.0	1.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.6	0.0	0.7	0.0	14.9	0.2	0.6	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	0.0	0.0	36.2	0.0	36.8	0.0	21.0	7.9	39.8	0.0	7.8
LnGrp LOS	D	A	A	D	A	D	A	C	A	D	A	A
Approach Vol, veh/h		4			67			1005			876	
Approach Delay, s/veh		47.3			36.5			20.6			8.9	
Approach LOS		D			D			C			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	57.4		5.7	0.0	67.9		13.5				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 11	76.0		* 16	* 11	76.0		16.0				
Max Q Clear Time (g_c+I1), s	3.4	41.8		2.2	0.0	23.6		3.9				
Green Ext Time (p_c), s	0.0	8.7		0.0	0.0	6.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	15.9	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	25	5	55	10	965	70	40	570	5
Future Volume (veh/h)	5	5	5	25	5	55	10	965	70	40	570	5
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	5	5	5	25	5	55	10	965	70	40	570	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	20	20	20	129	26	136	45	1029	75	118	1182	10
Arrive On Green	0.04	0.04	0.04	0.09	0.09	0.09	0.03	0.62	0.62	0.07	0.66	0.66
Sat Flow, veh/h	556	556	556	1437	287	1522	1711	1655	120	1711	1778	16
Grp Volume(v), veh/h	15	0	0	30	0	55	10	0	1035	40	0	575
Grp Sat Flow(s),veh/h/ln	1668	0	0	1724	0	1522	1711	0	1775	1711	0	1793
Q Serve(g_s), s	1.0	0.0	0.0	1.8	0.0	3.9	0.7	0.0	60.7	2.6	0.0	18.1
Cycle Q Clear(g_c), s	1.0	0.0	0.0	1.8	0.0	3.9	0.7	0.0	60.7	2.6	0.0	18.1
Prop In Lane	0.33		0.33	0.83		1.00	1.00		0.07	1.00		0.01
Lane Grp Cap(c), veh/h	61	0	0	154	0	136	45	0	1103	118	0	1192
V/C Ratio(X)	0.25	0.00	0.00	0.19	0.00	0.40	0.22	0.00	0.94	0.34	0.00	0.48
Avail Cap(c_a), veh/h	233	0	0	241	0	213	164	0	1332	164	0	1346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.7	0.0	0.0	48.3	0.0	49.3	54.7	0.0	19.7	50.8	0.0	9.5
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.6	0.0	1.9	2.5	0.0	11.4	1.7	0.0	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	0.5	0.0	0.0	0.8	0.0	1.6	0.3	0.0	24.6	1.1	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	0.0	48.9	0.0	51.2	57.1	0.0	31.1	52.5	0.0	9.8
LnGrp LOS	E	A	A	D	A	D	E	A	C	D	A	A
Approach Vol, veh/h		15			85			1045			615	
Approach Delay, s/veh		55.8			50.4			31.4			12.6	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	78.1		8.9	7.7	83.1		15.0				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 11	86.0		* 16	* 11	86.0		16.0				
Max Q Clear Time (g_c+I1), s	4.6	62.7		3.0	2.7	20.1		5.9				
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	3.9		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		25.9
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

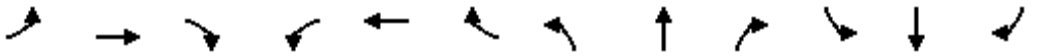
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	5	5	25	5	25	10	1115	65	40	520	5
Future Volume (veh/h)	15	5	5	25	5	25	10	1115	65	40	520	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	15	5	5	25	5	25	10	1115	65	40	520	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	25	8	8	55	11	58	45	1181	1001	124	1249	12
Arrive On Green	0.02	0.02	0.02	0.04	0.04	0.04	0.03	0.66	0.66	0.07	0.71	0.71
Sat Flow, veh/h	1003	334	334	1425	285	1510	1697	1781	1510	1697	1761	17
Grp Volume(v), veh/h	25	0	0	30	0	25	10	1115	65	40	0	525
Grp Sat Flow(s),veh/h/ln	1671	0	0	1710	0	1510	1697	1781	1510	1697	0	1778
Q Serve(g_s), s	1.5	0.0	0.0	1.8	0.0	1.7	0.6	57.9	1.6	2.3	0.0	12.5
Cycle Q Clear(g_c), s	1.5	0.0	0.0	1.8	0.0	1.7	0.6	57.9	1.6	2.3	0.0	12.5
Prop In Lane	0.60		0.20	0.83		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	42	0	0	66	0	58	45	1181	1001	124	0	1261
V/C Ratio(X)	0.60	0.00	0.00	0.45	0.00	0.43	0.22	0.94	0.06	0.32	0.00	0.42
Avail Cap(c_a), veh/h	427	0	0	270	0	238	182	1320	1118	182	0	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	0.0	48.3	0.0	48.2	48.9	15.6	6.1	45.1	0.0	6.2
Incr Delay (d2), s/veh	13.2	0.0	0.0	4.8	0.0	4.9	2.4	12.9	0.0	1.5	0.0	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	0.8	0.0	0.0	0.8	0.0	0.7	0.3	22.3	0.4	1.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	0.0	53.1	0.0	53.1	51.3	28.5	6.1	46.6	0.0	6.4
LnGrp LOS	E	A	A	D	A	D	D	C	A	D	A	A
Approach Vol, veh/h		25			55			1190			565	
Approach Delay, s/veh		62.7			53.1			27.5			9.2	
Approach LOS		E			D			C			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	74.9		7.0	7.4	79.7		8.5
Change Period (Y+Rc), s	* 4.7	6.9		4.5	* 4.7	6.9		4.5
Max Green Setting (Gmax), s	* 11	76.0		26.2	* 11	76.0		16.2
Max Q Clear Time (g_c+I1), s	14.3	59.9		3.5	2.6	14.5		3.8
Green Ext Time (p_c), s	0.0	8.1		0.1	0.0	3.4		0.1

Intersection Summary		
HCM 6th Ctrl Delay	23.1	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	15	65	5	55	5	670	85	75	1015	5
Future Volume (veh/h)	10	5	15	65	5	55	5	670	85	75	1015	5
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	10	5	15	65	5	55	5	670	85	75	1015	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	35	17	52	176	14	168	25	833	106	170	1103	5
Arrive On Green	0.06	0.06	0.06	0.11	0.11	0.11	0.01	0.52	0.52	0.10	0.60	0.60
Sat Flow, veh/h	554	277	832	1633	126	1560	1753	1601	203	1753	1830	9
Grp Volume(v), veh/h	30	0	0	70	0	55	5	0	755	75	0	1020
Grp Sat Flow(s),veh/h/ln	1663	0	0	1759	0	1560	1753	0	1804	1753	0	1839
Q Serve(g_s), s	1.7	0.0	0.0	3.7	0.0	3.2	0.3	0.0	34.1	4.0	0.0	48.8
Cycle Q Clear(g_c), s	1.7	0.0	0.0	3.7	0.0	3.2	0.3	0.0	34.1	4.0	0.0	48.8
Prop In Lane	0.33		0.50	0.93		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	104	0	0	190	0	168	25	0	938	170	0	1109
V/C Ratio(X)	0.29	0.00	0.00	0.37	0.00	0.33	0.20	0.00	0.80	0.44	0.00	0.92
Avail Cap(c_a), veh/h	269	0	0	285	0	253	254	0	1419	254	0	1447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.2	0.0	0.0	40.9	0.0	40.8	48.1	0.0	19.6	42.1	0.0	17.5
Incr Delay (d2), s/veh	1.5	0.0	0.0	1.2	0.0	1.1	3.8	0.0	2.1	1.8	0.0	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.6	0.0	1.3	0.1	0.0	13.0	1.7	0.0	19.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	0.0	0.0	42.1	0.0	41.9	52.0	0.0	21.6	43.8	0.0	25.7
LnGrp LOS	D	A	A	D	A	D	D	A	C	D	A	C
Approach Vol, veh/h		30			125			760			1095	
Approach Delay, s/veh		45.7			42.0			21.8			26.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	58.3		10.9	6.1	66.5		15.3				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 14	77.7		16.0				
Max Q Clear Time (g_c+I1), s	6.0	36.1		3.7	2.3	50.8		5.7				
Green Ext Time (p_c), s	0.1	5.8		0.1	0.0	8.7		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		26.2
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	15	75	5	40	5	685	35	40	1125	5
Future Volume (veh/h)	10	5	15	75	5	40	5	685	35	40	1125	5
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	10	5	15	75	5	40	5	685	35	40	1125	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	33	16	49	156	10	147	25	1090	924	122	1186	5
Arrive On Green	0.06	0.06	0.06	0.09	0.09	0.09	0.01	0.59	0.59	0.07	0.65	0.65
Sat Flow, veh/h	554	277	832	1648	110	1560	1753	1841	1560	1753	1831	8
Grp Volume(v), veh/h	30	0	0	80	0	40	5	685	35	40	0	1130
Grp Sat Flow(s),veh/h/ln	1663	0	0	1758	0	1560	1753	1841	1560	1753	0	1839
Q Serve(g_s), s	2.0	0.0	0.0	4.9	0.0	2.7	0.3	27.5	1.1	2.5	0.0	63.9
Cycle Q Clear(g_c), s	2.0	0.0	0.0	4.9	0.0	2.7	0.3	27.5	1.1	2.5	0.0	63.9
Prop In Lane	0.33		0.50	0.94		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	99	0	0	166	0	147	25	1090	924	122	0	1191
V/C Ratio(X)	0.30	0.00	0.00	0.48	0.00	0.27	0.20	0.63	0.04	0.33	0.00	0.95
Avail Cap(c_a), veh/h	234	0	0	247	0	219	170	1311	1111	170	0	1310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	48.9	0.0	47.9	55.4	15.1	9.7	50.4	0.0	18.3
Incr Delay (d2), s/veh	1.7	0.0	0.0	2.2	0.0	1.0	3.9	0.7	0.0	1.6	0.0	13.8
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	0.0	0.0	2.3	0.0	1.1	0.2	10.4	0.3	1.1	0.0	26.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	0.0	0.0	51.0	0.0	48.8	59.4	15.8	9.7	52.0	0.0	32.1
LnGrp LOS	D	A	A	D	A	D	E	B	A	D	A	C
Approach Vol, veh/h		30			120			725			1170	
Approach Delay, s/veh		53.0			50.3			15.8			32.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	74.3		11.4	6.3	80.6		15.5
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7
Max Green Setting (Gmax), s	* 11	81.0		* 16	* 11	81.0		16.0
Max Q Clear Time (g_c+I1), s	4.5	29.5		4.0	2.3	65.9		6.9
Green Ext Time (p_c), s	0.0	5.0		0.1	0.0	7.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	70	5	50	10	940	80	60	860	10
Future Volume (veh/h)	5	5	15	70	5	50	10	940	80	60	860	10
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	5	5	15	70	5	50	10	940	80	60	860	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	18	53	157	11	149	47	1001	85	145	1189	14
Arrive On Green	0.05	0.05	0.05	0.09	0.09	0.09	0.03	0.59	0.59	0.08	0.64	0.64
Sat Flow, veh/h	335	335	1004	1668	119	1585	1781	1700	145	1781	1845	21
Grp Volume(v), veh/h	25	0	0	75	0	50	10	0	1020	60	0	870
Grp Sat Flow(s),veh/h/ln	1673	0	0	1787	0	1585	1781	0	1844	1781	0	1866
Q Serve(g_s), s	1.7	0.0	0.0	4.6	0.0	3.4	0.6	0.0	58.4	3.7	0.0	35.7
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.6	0.0	3.4	0.6	0.0	58.4	3.7	0.0	35.7
Prop In Lane	0.20		0.60	0.93		1.00	1.00		0.08	1.00		0.01
Lane Grp Cap(c), veh/h	88	0	0	168	0	149	47	0	1086	145	0	1203
V/C Ratio(X)	0.28	0.00	0.00	0.45	0.00	0.34	0.21	0.00	0.94	0.41	0.00	0.72
Avail Cap(c_a), veh/h	233	0	0	249	0	221	171	0	1248	222	0	1316
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.3	0.0	0.0	49.2	0.0	48.7	54.8	0.0	21.7	50.1	0.0	13.6
Incr Delay (d2), s/veh	1.7	0.0	0.0	1.9	0.0	1.3	2.3	0.0	12.5	1.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	2.1	0.0	1.4	0.3	0.0	25.6	1.7	0.0	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	0.0	51.1	0.0	50.0	57.0	0.0	34.2	52.0	0.0	15.4
LnGrp LOS	D	A	A	D	A	D	E	A	C	D	A	B
Approach Vol, veh/h		25			125			1030			930	
Approach Delay, s/veh		54.1			50.6			34.5			17.8	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	74.5		10.7	7.7	80.9		15.5				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 11	81.0		16.0				
Max Q Clear Time (g_c+I1), s	5.7	60.4		3.7	2.6	37.7		6.6				
Green Ext Time (p_c), s	0.1	7.2		0.0	0.0	7.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		28.3	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	35	5	40	5	990	35	30	950	5
Future Volume (veh/h)	5	5	5	35	5	40	5	990	35	30	950	5
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	5	5	5	35	5	40	5	990	35	30	950	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	22	22	158	23	160	25	1086	920	112	1170	6
Arrive On Green	0.04	0.04	0.04	0.10	0.10	0.10	0.01	0.58	0.58	0.06	0.63	0.63
Sat Flow, veh/h	579	579	579	1568	224	1585	1781	1870	1585	1781	1859	10
Grp Volume(v), veh/h	15	0	0	40	0	40	5	990	35	30	0	955
Grp Sat Flow(s),veh/h/ln	1737	0	0	1792	0	1585	1781	1870	1585	1781	0	1869
Q Serve(g_s), s	0.8	0.0	0.0	2.0	0.0	2.2	0.3	45.5	0.9	1.5	0.0	37.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	2.0	0.0	2.2	0.3	45.5	0.9	1.5	0.0	37.3
Prop In Lane	0.33		0.33	0.87		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	66	0	0	180	0	160	25	1086	920	112	0	1176
V/C Ratio(X)	0.23	0.00	0.00	0.22	0.00	0.25	0.20	0.91	0.04	0.27	0.00	0.81
Avail Cap(c_a), veh/h	288	0	0	297	0	263	203	1475	1250	203	0	1473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	39.9	0.0	40.0	47.0	18.0	8.7	43.0	0.0	13.5
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.6	0.0	0.8	3.7	7.0	0.0	1.3	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.9	0.0	0.9	0.1	18.3	0.3	0.7	0.0	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	0.0	40.5	0.0	40.8	50.7	25.0	8.7	44.3	0.0	16.4
LnGrp LOS	D	A	A	D	A	D	D	C	A	D	A	B
Approach Vol, veh/h		15			80			1030			985	
Approach Delay, s/veh		46.8			40.6			24.6			17.3	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	62.9		8.3	6.1	67.6		14.4
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7
Max Green Setting (Gmax), s	* 11	76.0		* 16	* 11	76.0		16.0
Max Q Clear Time (g_c+I1), s	3.5	47.5		2.8	2.3	39.3		4.2
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	8.4		0.2

Intersection Summary		
HCM 6th Ctrl Delay	21.9	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	30	5	65	10	1070	80	45	630	10
Future Volume (veh/h)	5	5	5	30	5	65	10	1070	80	45	630	10
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	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796	1796
Adj Flow Rate, veh/h	5	5	5	30	5	65	10	1070	80	45	630	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	20	20	20	121	20	124	44	1081	81	116	1229	20
Arrive On Green	0.04	0.04	0.04	0.08	0.08	0.08	0.03	0.66	0.66	0.07	0.70	0.70
Sat Flow, veh/h	556	556	556	1476	246	1522	1711	1651	123	1711	1763	28
Grp Volume(v), veh/h	15	0	0	35	0	65	10	0	1150	45	0	640
Grp Sat Flow(s),veh/h/ln	1668	0	0	1722	0	1522	1711	0	1774	1711	0	1791
Q Serve(g_s), s	1.1	0.0	0.0	2.5	0.0	5.4	0.8	0.0	83.3	3.3	0.0	22.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	2.5	0.0	5.4	0.8	0.0	83.3	3.3	0.0	22.1
Prop In Lane	0.33		0.33	0.86		1.00	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	59	0	0	141	0	124	44	0	1162	116	0	1249
V/C Ratio(X)	0.25	0.00	0.00	0.25	0.00	0.52	0.23	0.00	0.99	0.39	0.00	0.51
Avail Cap(c_a), veh/h	204	0	0	210	0	186	144	0	1164	144	0	1249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.5	0.0	0.0	56.4	0.0	57.7	62.6	0.0	22.2	58.5	0.0	9.4
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.9	0.0	3.4	2.6	0.0	23.8	2.1	0.0	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	0.5	0.0	0.0	1.1	0.0	2.2	0.4	0.0	37.1	1.5	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.8	0.0	0.0	57.3	0.0	61.1	65.2	0.0	45.9	60.6	0.0	9.7
LnGrp LOS	E	A	A	E	A	E	E	A	D	E	A	A
Approach Vol, veh/h		15			100			1160			685	
Approach Delay, s/veh		63.8			59.8			46.1			13.1	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	92.7		9.3	8.1	98.2		15.4				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 11	86.0		* 16	* 11	86.0		16.0				
Max Q Clear Time (g_c+I1), s	5.3	85.3		3.1	2.8	24.1		7.4				
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	4.5		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		35.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

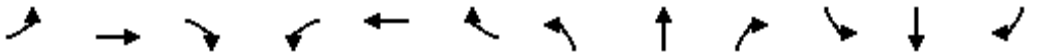
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	5	5	25	5	30	10	1230	70	45	575	5
Future Volume (veh/h)	15	5	5	25	5	30	10	1230	70	45	575	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781	1781
Adj Flow Rate, veh/h	15	5	5	25	5	30	10	1230	70	45	575	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	24	8	8	54	11	57	45	1211	1026	126	1283	11
Arrive On Green	0.02	0.02	0.02	0.04	0.04	0.04	0.03	0.68	0.68	0.07	0.73	0.73
Sat Flow, veh/h	1003	334	334	1425	285	1510	1697	1781	1510	1697	1763	15
Grp Volume(v), veh/h	25	0	0	30	0	30	10	1230	70	45	0	580
Grp Sat Flow(s),veh/h/ln	1671	0	0	1710	0	1510	1697	1781	1510	1697	0	1779
Q Serve(g_s), s	1.7	0.0	0.0	1.9	0.0	2.2	0.6	76.0	1.7	2.8	0.0	14.7
Cycle Q Clear(g_c), s	1.7	0.0	0.0	1.9	0.0	2.2	0.6	76.0	1.7	2.8	0.0	14.7
Prop In Lane	0.60		0.20	0.83		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	40	0	0	65	0	57	45	1211	1026	126	0	1294
V/C Ratio(X)	0.62	0.00	0.00	0.46	0.00	0.53	0.22	1.02	0.07	0.36	0.00	0.45
Avail Cap(c_a), veh/h	392	0	0	248	0	219	167	1211	1026	167	0	1294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	0.0	52.7	0.0	52.8	53.3	17.9	6.0	49.2	0.0	6.2
Incr Delay (d2), s/veh	14.5	0.0	0.0	5.1	0.0	7.3	2.5	29.8	0.0	1.7	0.0	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	0.9	0.0	0.0	0.9	0.0	0.9	0.3	34.3	0.5	1.2	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	0.0	0.0	57.8	0.0	60.1	55.8	47.7	6.0	51.0	0.0	6.4
LnGrp LOS	E	A	A	E	A	E	E	F	A	D	A	A
Approach Vol, veh/h		25			60			1310			625	
Approach Delay, s/veh		68.5			59.0			45.6			9.6	
Approach LOS		E			E			D			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	82.9		7.2	7.6	88.2		8.7
Change Period (Y+Rc), s	* 4.7	6.9		4.5	* 4.7	6.9		4.5
Max Green Setting (Gmax), s	* 11	76.0		26.2	* 11	76.0		16.2
Max Q Clear Time (g_c+I1), s	4.8	78.0		3.7	2.6	16.7		4.2
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	3.9		0.1

Intersection Summary		
HCM 6th Ctrl Delay	35.1	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	20	75	5	65	5	740	95	85	1125	5
Future Volume (veh/h)	10	5	20	75	5	65	5	740	95	85	1125	5
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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	10	5	20	75	5	65	5	740	95	85	1125	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	30	15	61	157	10	149	25	905	116	158	1175	5
Arrive On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.01	0.57	0.57	0.09	0.64	0.64
Sat Flow, veh/h	471	235	942	1648	110	1560	1753	1599	205	1753	1831	8
Grp Volume(v), veh/h	35	0	0	80	0	65	5	0	835	85	0	1130
Grp Sat Flow(s),veh/h/ln	1648	0	0	1758	0	1560	1753	0	1804	1753	0	1839
Q Serve(g_s), s	2.3	0.0	0.0	4.9	0.0	4.5	0.3	0.0	42.7	5.3	0.0	65.1
Cycle Q Clear(g_c), s	2.3	0.0	0.0	4.9	0.0	4.5	0.3	0.0	42.7	5.3	0.0	65.1
Prop In Lane	0.29		0.57	0.94		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	106	0	0	168	0	149	25	0	1021	158	0	1180
V/C Ratio(X)	0.33	0.00	0.00	0.48	0.00	0.44	0.20	0.00	0.82	0.54	0.00	0.96
Avail Cap(c_a), veh/h	231	0	0	247	0	219	220	0	1229	220	0	1253
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	0.0	48.9	0.0	48.7	55.6	0.0	20.0	49.7	0.0	19.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	2.1	0.0	2.0	3.9	0.0	3.8	2.8	0.0	15.9
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	1.0	0.0	0.0	2.3	0.0	1.8	0.2	0.0	17.0	2.4	0.0	28.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	0.0	0.0	51.0	0.0	50.7	59.5	0.0	23.8	52.5	0.0	34.9
LnGrp LOS	D	A	A	D	A	D	E	A	C	D	A	C
Approach Vol, veh/h		35			145			840			1215	
Approach Delay, s/veh		52.8			50.9			24.0			36.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	71.5		12.1	6.3	80.1		15.6				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 14	77.7		16.0				
Max Q Clear Time (g_c+I1), s	7.3	44.7		4.3	2.3	67.1		6.9				
Green Ext Time (p_c), s	0.1	6.6		0.1	0.0	6.1		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		32.8	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

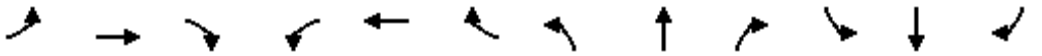
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	20	90	5	45	5	760	40	40	1245	5
Future Volume (veh/h)	10	5	20	90	5	45	5	760	40	40	1245	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	10	5	20	90	5	45	5	760	40	40	1245	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	29	15	59	148	8	139	25	1122	951	117	1214	5
Arrive On Green	0.06	0.06	0.06	0.09	0.09	0.09	0.01	0.61	0.61	0.07	0.66	0.66
Sat Flow, veh/h	471	235	942	1665	93	1560	1753	1841	1560	1753	1832	7
Grp Volume(v), veh/h	35	0	0	95	0	45	5	760	40	40	0	1250
Grp Sat Flow(s),veh/h/ln	1648	0	0	1757	0	1560	1753	1841	1560	1753	0	1839
Q Serve(g_s), s	2.5	0.0	0.0	6.4	0.0	3.3	0.3	33.6	1.3	2.7	0.0	81.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	6.4	0.0	3.3	0.3	33.6	1.3	2.7	0.0	81.0
Prop In Lane	0.29		0.57	0.95		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	103	0	0	157	0	139	25	1122	951	117	0	1219
V/C Ratio(X)	0.34	0.00	0.00	0.61	0.00	0.32	0.20	0.68	0.04	0.34	0.00	1.03
Avail Cap(c_a), veh/h	216	0	0	230	0	204	158	1219	1033	158	0	1219
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	0.0	53.6	0.0	52.2	59.6	15.9	9.6	54.5	0.0	20.6
Incr Delay (d2), s/veh	1.9	0.0	0.0	3.7	0.0	1.3	4.0	1.4	0.0	1.7	0.0	32.6
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	1.1	0.0	0.0	3.0	0.0	1.4	0.2	13.0	0.4	1.2	0.0	39.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	0.0	0.0	57.4	0.0	53.6	63.6	17.2	9.6	56.2	0.0	53.2
LnGrp LOS	E	A	A	E	A	D	E	B	A	E	A	F
Approach Vol, veh/h		35			140			805			1290	
Approach Delay, s/veh		56.8			56.1			17.1			53.3	
Approach LOS		E			E			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	81.4		12.3	6.4	87.9		15.6				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 11	81.0		* 16	* 11	81.0		16.0				
Max Q Clear Time (g_c+I1), s	4.7	35.6		4.5	2.3	83.0		8.4				
Green Ext Time (p_c), s	0.0	5.9		0.1	0.0	0.0		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	80	5	60	10	1040	85	65	955	10
Future Volume (veh/h)	5	5	15	80	5	60	10	1040	85	65	955	10
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	5	5	15	80	5	60	10	1040	85	65	955	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	17	51	146	9	138	46	1052	86	140	1237	13
Arrive On Green	0.05	0.05	0.05	0.09	0.09	0.09	0.03	0.62	0.62	0.08	0.67	0.67
Sat Flow, veh/h	335	335	1004	1681	105	1585	1781	1706	139	1781	1848	19
Grp Volume(v), veh/h	25	0	0	85	0	60	10	0	1125	65	0	965
Grp Sat Flow(s),veh/h/ln	1673	0	0	1786	0	1585	1781	0	1845	1781	0	1867
Q Serve(g_s), s	1.8	0.0	0.0	5.7	0.0	4.5	0.7	0.0	75.3	4.4	0.0	44.5
Cycle Q Clear(g_c), s	1.8	0.0	0.0	5.7	0.0	4.5	0.7	0.0	75.3	4.4	0.0	44.5
Prop In Lane	0.20		0.60	0.94		1.00	1.00		0.08	1.00		0.01
Lane Grp Cap(c), veh/h	85	0	0	155	0	138	46	0	1138	140	0	1250
V/C Ratio(X)	0.29	0.00	0.00	0.55	0.00	0.44	0.22	0.00	0.99	0.47	0.00	0.77
Avail Cap(c_a), veh/h	213	0	0	227	0	202	156	0	1140	202	0	1250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.5	0.0	0.0	55.1	0.0	54.5	60.0	0.0	23.7	55.4	0.0	14.2
Incr Delay (d2), s/veh	1.9	0.0	0.0	3.0	0.0	2.2	2.3	0.0	23.8	2.4	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	2.7	0.0	1.9	0.3	0.0	35.9	2.0	0.0	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	0.0	58.1	0.0	56.7	62.4	0.0	47.4	57.8	0.0	17.3
LnGrp LOS	E	A	A	E	A	E	E	A	D	E	A	B
Approach Vol, veh/h		25			145			1135			1030	
Approach Delay, s/veh		59.4			57.5			47.6			19.8	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	84.5		11.1	7.9	91.1		15.6				
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7				
Max Green Setting (Gmax), s	* 14	77.7		* 16	* 11	81.0		16.0				
Max Q Clear Time (g_c+I1), s	6.4	77.3		3.8	2.7	46.5		7.7				
Green Ext Time (p_c), s	0.1	0.3		0.0	0.0	8.4		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		36.1
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	10	40	5	45	5	1100	40	30	1050	5
Future Volume (veh/h)	5	5	10	40	5	45	5	1100	40	30	1050	5
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	5	5	10	40	5	45	5	1100	40	30	1050	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	19	38	142	18	141	25	1174	995	104	1250	6
Arrive On Green	0.04	0.04	0.04	0.09	0.09	0.09	0.01	0.63	0.63	0.06	0.67	0.67
Sat Flow, veh/h	424	424	848	1592	199	1585	1781	1870	1585	1781	1860	9
Grp Volume(v), veh/h	20	0	0	45	0	45	5	1100	40	30	0	1055
Grp Sat Flow(s),veh/h/ln	1696	0	0	1791	0	1585	1781	1870	1585	1781	0	1869
Q Serve(g_s), s	1.3	0.0	0.0	2.7	0.0	3.1	0.3	62.1	1.1	1.9	0.0	49.7
Cycle Q Clear(g_c), s	1.3	0.0	0.0	2.7	0.0	3.1	0.3	62.1	1.1	1.9	0.0	49.7
Prop In Lane	0.25		0.50	0.89		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	76	0	0	159	0	141	25	1174	995	104	0	1256
V/C Ratio(X)	0.26	0.00	0.00	0.28	0.00	0.32	0.20	0.94	0.04	0.29	0.00	0.84
Avail Cap(c_a), veh/h	232	0	0	245	0	217	168	1376	1166	168	0	1375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	0.0	49.8	0.0	49.9	57.0	19.7	8.3	52.7	0.0	14.4
Incr Delay (d2), s/veh	1.8	0.0	0.0	1.0	0.0	1.3	3.8	11.2	0.0	1.5	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.3	0.0	1.3	0.2	26.5	0.4	0.9	0.0	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	0.0	50.7	0.0	51.2	60.8	30.8	8.3	54.2	0.0	18.9
LnGrp LOS	E	A	A	D	A	D	E	C	A	D	A	B
Approach Vol, veh/h		20			90			1145			1085	
Approach Delay, s/veh		55.8			51.0			30.2			19.9	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.5	80.3		10.0	6.3	85.5		15.1
Change Period (Y+Rc), s	* 4.7	6.9		* 4.7	* 4.7	6.9		4.7
Max Green Setting (Gmax), s	* 11	86.0		* 16	* 11	86.0		16.0
Max Q Clear Time (g_c+I1), s	3.3	64.1		3.3	2.3	51.7		5.1
Green Ext Time (p_c), s	0.0	9.3		0.0	0.0	10.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix C – SimTraffic Queue Reports

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1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	1	3	18	39	3	489	30	34	493	3	1113
Vehicles Exited	1	3	19	39	3	490	29	34	488	3	1109
Hourly Exit Rate	1	3	19	39	3	490	29	34	488	3	1109
Input Volume	1	1	21	47	5	977	63	36	519	4	1674
% of Volume	100	300	89	83	60	50	46	95	94	75	66

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	9	2	20	2	23	2	500	28	35	476	3	1100
Vehicles Exited	9	2	20	2	23	3	490	28	35	474	3	1089
Hourly Exit Rate	9	2	20	2	23	3	490	28	35	474	3	1089
Input Volume	9	2	18	2	21	5	1015	56	36	506	3	1672
% of Volume	97	100	113	100	111	60	48	50	97	94	100	65

Total Network Performance

Vehicles Entered	1181
Vehicles Exited	1173
Hourly Exit Rate	1173
Input Volume	4973
% of Volume	24

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	30	68	60	23	17	51	11
Average Queue (ft)	3	18	29	2	1	12	2
95th Queue (ft)	18	54	61	12	11	36	18
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		6	4			0	
Queuing Penalty (veh)		3	1			0	

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB
Directions Served	LTR	LT	R	L	T	R	L
Maximum Queue (ft)	50	82	70	18	68	49	53
Average Queue (ft)	11	19	16	1	6	11	15
95th Queue (ft)	37	58	48	9	35	37	38
Link Distance (ft)	519	1400			7093		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50	100		25	100
Storage Blk Time (%)		4	0		0	0	
Queuing Penalty (veh)		1	0		0	1	

Network Summary

Network wide Queuing Penalty: 6

1: SR 29 & Rutherford Road Performance by movement

Movement	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	12	68	1	46	2	467	68	34	465	1	1164
Vehicles Exited	12	63	1	45	2	454	65	33	450	1	1126
Hourly Exit Rate	12	63	1	45	2	454	65	33	450	1	1126
Input Volume	10	68	1	52	2	642	87	68	925	2	1857
% of Volume	117	92	100	87	100	71	75	48	49	50	61

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	5	2	16	68	37	0	509	17	19	520	2	1195
Vehicles Exited	5	2	16	56	31	0	493	17	18	505	2	1145
Hourly Exit Rate	5	2	16	56	31	0	493	17	18	505	2	1145
Input Volume	5	2	13	65	35	1	661	22	35	1023	3	1865
% of Volume	100	100	121	86	89	0	75	76	52	49	67	61

Total Network Performance

Vehicles Entered	1305
Vehicles Exited	1216
Hourly Exit Rate	1216
Input Volume	5740
% of Volume	21

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	45	245	56	30	43	52	84
Average Queue (ft)	11	102	37	1	7	13	44
95th Queue (ft)	37	234	68	12	28	38	87
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		57	6			0	0
Queuing Penalty (veh)		29	4			0	0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	T	R	L	TR
Maximum Queue (ft)	72	629	75	68	48	31	57
Average Queue (ft)	21	256	37	15	9	11	4
95th Queue (ft)	55	650	93	54	33	33	26
Link Distance (ft)	519	1400		7093			9777
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50		25	100	
Storage Blk Time (%)		75	1	1	0		
Queuing Penalty (veh)		26	0	0	0		

Network Summary

Network wide Queuing Penalty: 61

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	3	1	9	59	0	36	4	489	38	31	469	5
Vehicles Exited	3	1	9	59	0	37	5	486	38	30	464	5
Hourly Exit Rate	3	1	9	59	0	37	5	486	38	30	464	5
Input Volume	3	1	9	58	1	42	6	908	69	51	786	6
% of Volume	100	100	100	102	0	89	83	54	55	59	59	83

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1144
Vehicles Exited	1137
Hourly Exit Rate	1137
Input Volume	1940
% of Volume	59

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	1	2	2	27	1	39	508	19	19	514	1	1133
Vehicles Exited	1	2	2	26	1	40	491	19	19	512	1	1114
Hourly Exit Rate	1	2	2	26	1	40	491	19	19	512	1	1114
Input Volume	2	1	1	28	1	36	945	30	30	824	1	1900
% of Volume	50	200	200	92	100	110	52	63	63	62	100	59

Total Network Performance

Vehicles Entered	1214
Vehicles Exited	1186
Hourly Exit Rate	1186
Input Volume	5787
% of Volume	20

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	53	161	60	30	28	29	72
Average Queue (ft)	13	59	32	4	5	12	35
95th Queue (ft)	41	134	67	22	21	33	80
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		45	4				0
Queuing Penalty (veh)		19	3				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	T	R	L
Maximum Queue (ft)	30	108	73	54	33	33
Average Queue (ft)	5	31	24	14	8	11
95th Queue (ft)	22	85	60	48	28	33
Link Distance (ft)	519	1400		7093		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50		25	100
Storage Blk Time (%)		18	1	1	0	
Queuing Penalty (veh)		6	0	0	0	

Network Summary

Network wide Queuing Penalty: 29

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	5	6	24	6	46	6	486	28	36	489	3
Vehicles Exited	6	5	6	24	6	47	5	489	26	37	484	3
Hourly Exit Rate	6	5	6	24	6	47	5	489	26	37	484	3
Input Volume	5	5	5	25	5	55	10	1075	70	40	570	5
% of Volume	120	100	120	95	120	85	49	45	37	93	85	60

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1141
Vehicles Exited	1138
Hourly Exit Rate	1138
Input Volume	1870
% of Volume	61

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	13	5	6	27	4	24	4	493	32	36	478	5
Vehicles Exited	13	5	6	27	4	24	4	484	30	36	475	5
Hourly Exit Rate	13	5	6	27	4	24	4	484	30	36	475	5
Input Volume	15	5	5	25	5	25	10	1115	65	40	558	5
% of Volume	85	100	120	109	80	97	39	43	46	90	85	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1127
Vehicles Exited	1113
Hourly Exit Rate	1113
Input Volume	1873
% of Volume	59

Total Network Performance

Vehicles Entered	1232
Vehicles Exited	1215
Hourly Exit Rate	1215
Input Volume	5584
% of Volume	22

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	45	86	63	24	16	40	49
Average Queue (ft)	14	26	33	2	1	12	5
95th Queue (ft)	40	66	64	15	8	34	34
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		9	6				0
Queuing Penalty (veh)		5	2				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	59	97	69	18	74	49	46	3
Average Queue (ft)	20	27	18	1	12	13	16	0
95th Queue (ft)	50	71	54	12	52	40	40	3
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		11	1		0	0		
Queuing Penalty (veh)		3	0		0	2		

Network Summary

Network wide Queuing Penalty: 12

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	10	5	13	64	5	52	3	471	62	38	462	3
Vehicles Exited	9	5	13	58	5	49	3	458	59	36	453	3
Hourly Exit Rate	9	5	13	58	5	49	3	458	59	36	453	3
Input Volume	10	5	15	65	5	55	5	670	85	75	1015	5
% of Volume	88	100	85	89	100	89	60	68	70	48	45	60

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1188
Vehicles Exited	1151
Hourly Exit Rate	1151
Input Volume	2010
% of Volume	57

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	10	5	15	63	6	34	3	503	21	17	519	2
Vehicles Exited	10	5	15	41	4	23	3	492	20	16	509	2
Hourly Exit Rate	10	5	15	41	4	23	3	492	20	16	509	2
Input Volume	10	5	15	75	5	40	5	685	35	40	1125	5
% of Volume	98	100	98	54	80	58	60	72	58	40	45	40

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1198
Vehicles Exited	1140
Hourly Exit Rate	1140
Input Volume	2045
% of Volume	56

Total Network Performance

Vehicles Entered	1338
Vehicles Exited	1241
Hourly Exit Rate	1241
Input Volume	6280
% of Volume	20

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	116	416	58	30	41	32	80
Average Queue (ft)	37	152	36	4	9	13	42
95th Queue (ft)	96	361	70	19	29	34	85
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		68	8				0
Queuing Penalty (veh)		37	5				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	79	1017	66	29	47	42	41	44
Average Queue (ft)	27	594	40	2	13	9	11	2
95th Queue (ft)	67	1430	87	13	48	31	34	19
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)		17						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		81	32		1	0		
Queuing Penalty (veh)		32	26		0	1		

Network Summary

Network wide Queuing Penalty: 102

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	5	4	13	71	6	42	6	492	39	29	463	7
Vehicles Exited	5	4	13	66	5	37	5	483	38	29	450	7
Hourly Exit Rate	5	4	13	66	5	37	5	483	38	29	450	7
Input Volume	5	5	15	70	5	50	10	949	80	60	860	10
% of Volume	100	80	85	94	100	74	49	51	47	48	52	68

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1177
Vehicles Exited	1142
Hourly Exit Rate	1142
Input Volume	2120
% of Volume	54

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	4	6	9	36	5	45	2	505	19	15	526	4
Vehicles Exited	4	5	9	34	5	44	2	485	18	15	512	4
Hourly Exit Rate	4	5	9	34	5	44	2	485	18	15	512	4
Input Volume	5	5	5	35	5	40	5	990	35	30	950	5
% of Volume	80	100	180	96	100	109	40	49	51	50	54	80

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1176
Vehicles Exited	1137
Hourly Exit Rate	1137
Input Volume	2111
% of Volume	54

Total Network Performance

Vehicles Entered	1291
Vehicles Exited	1217
Hourly Exit Rate	1217
Input Volume	6473
% of Volume	19

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	100	460	54	31	35	31	77
Average Queue (ft)	27	196	31	4	7	11	43
95th Queue (ft)	73	571	68	21	25	31	84
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		73	6				0
Queuing Penalty (veh)		36	4				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	69	206	75	24	66	47	43	26
Average Queue (ft)	18	94	41	1	21	9	10	1
95th Queue (ft)	54	220	91	12	63	33	32	14
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		53	4		1	0		
Queuing Penalty (veh)		21	1		1	1		

Network Summary

Network wide Queuing Penalty: 66

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	4	7	28	4	59	5	489	30	32	486	8
Vehicles Exited	6	4	7	29	4	59	5	488	30	31	482	7
Hourly Exit Rate	6	4	7	29	4	59	5	488	30	31	482	7
Input Volume	5	5	5	30	5	65	10	1184	80	45	630	10
% of Volume	120	80	140	97	80	91	49	41	37	69	77	68

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1158
Vehicles Exited	1152
Hourly Exit Rate	1152
Input Volume	2075
% of Volume	56

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	14	4	5	30	5	33	5	491	30	36	482	5
Vehicles Exited	14	4	5	29	5	30	5	480	29	36	479	5
Hourly Exit Rate	14	4	5	29	5	30	5	480	29	36	479	5
Input Volume	15	5	5	25	5	30	10	1230	70	45	619	5
% of Volume	92	80	100	117	100	100	49	39	41	80	77	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1140
Vehicles Exited	1121
Hourly Exit Rate	1121
Input Volume	2064
% of Volume	54

Total Network Performance

Vehicles Entered	1257
Vehicles Exited	1231
Hourly Exit Rate	1231
Input Volume	6179
% of Volume	20

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	49	105	64	30	31	49	45
Average Queue (ft)	14	30	38	2	2	10	6
95th Queue (ft)	41	76	63	16	17	34	34
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		14	7			0	0
Queuing Penalty (veh)		9	2			0	0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	73	216	72	27	67	45	52	9
Average Queue (ft)	21	56	25	2	14	12	16	0
95th Queue (ft)	55	195	64	15	53	38	40	5
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		13	9		1	0		
Queuing Penalty (veh)		4	3		1	1		

Network Summary

Network wide Queuing Penalty: 21

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	9	5	18	66	7	66	3	472	60	38	456	2
Vehicles Exited	9	4	17	63	7	63	3	458	59	37	445	2
Hourly Exit Rate	9	4	17	63	7	63	3	458	59	37	445	2
Input Volume	10	5	20	75	5	65	5	740	95	85	1125	5
% of Volume	88	80	84	84	140	97	60	62	62	44	40	40

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1202
Vehicles Exited	1167
Hourly Exit Rate	1167
Input Volume	2235
% of Volume	52

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	12	5	17	77	5	36	3	496	29	16	517	3
Vehicles Exited	12	5	17	56	4	28	4	482	28	16	506	3
Hourly Exit Rate	12	5	17	56	4	28	4	482	28	16	506	3
Input Volume	10	5	20	90	5	45	5	760	40	40	1245	5
% of Volume	117	100	84	62	80	63	80	63	70	40	41	60

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1216
Vehicles Exited	1161
Hourly Exit Rate	1161
Input Volume	2270
% of Volume	51

Total Network Performance

Vehicles Entered	1370
Vehicles Exited	1280
Hourly Exit Rate	1280
Input Volume	6974
% of Volume	18

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	116	552	59	30	40	50	94
Average Queue (ft)	37	269	40	3	8	15	53
95th Queue (ft)	92	599	71	17	29	40	90
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		84	11				1
Queuing Penalty (veh)		55	9				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	75	866	62	30	62	42	45	33
Average Queue (ft)	28	558	36	2	18	12	10	3
95th Queue (ft)	60	1346	91	16	58	35	34	24
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)		0						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		88	2		1	0		
Queuing Penalty (veh)		40	2		0	1		

Network Summary

Network wide Queuing Penalty: 107

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	4	4	14	76	5	56	5	491	39	27	453	6
Vehicles Exited	4	4	14	70	5	50	5	482	38	27	443	6
Hourly Exit Rate	4	4	14	70	5	50	5	482	38	27	443	6
Input Volume	5	5	15	80	5	60	10	1058	85	65	955	10
% of Volume	80	80	92	87	100	83	49	46	45	42	46	59

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1180
Vehicles Exited	1148
Hourly Exit Rate	1148
Input Volume	2354
% of Volume	49

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	5	11	44	4	47	2	505	19	13	525	3
Vehicles Exited	6	5	11	41	3	44	2	482	19	13	513	3
Hourly Exit Rate	6	5	11	41	3	44	2	482	19	13	513	3
Input Volume	5	5	10	40	5	45	5	1100	40	30	1050	5
% of Volume	120	100	110	102	60	97	40	44	47	43	49	60

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1184
Vehicles Exited	1142
Hourly Exit Rate	1142
Input Volume	2341
% of Volume	49

Total Network Performance

Vehicles Entered	1305
Vehicles Exited	1231
Hourly Exit Rate	1231
Input Volume	7171
% of Volume	17

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	61	516	56	31	42	60	108
Average Queue (ft)	21	259	35	5	8	11	54
95th Queue (ft)	52	595	72	24	27	39	86
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25	100		80	
Storage Blk Time (%)		86	7				0
Queuing Penalty (veh)		52	6				0

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	68	275	75	17	66	46	30	37
Average Queue (ft)	19	107	39	1	25	8	9	3
95th Queue (ft)	52	267	90	8	68	30	29	20
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		57	4		2	0		
Queuing Penalty (veh)		26	2		1	1		

Network Summary

Network wide Queuing Penalty: 88

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	1	3	18	39	4	956	54	37	529	3	1644
Vehicles Exited	1	3	19	39	4	961	55	38	528	3	1651
Hourly Exit Rate	1	3	19	39	4	961	55	38	528	3	1651
Input Volume	1	1	21	47	5	977	63	36	519	4	1674
% of Volume	100	300	89	83	80	98	87	106	102	75	99

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	9	2	20	2	23	4	983	54	37	513	3	1650
Vehicles Exited	9	2	21	2	23	4	983	53	37	510	3	1647
Hourly Exit Rate	9	2	21	2	23	4	983	53	37	510	3	1647
Input Volume	9	2	18	2	21	5	1015	56	36	506	3	1672
% of Volume	97	100	118	100	111	80	97	95	103	101	100	98

Total Network Performance

Vehicles Entered	1731
Vehicles Exited	1736
Hourly Exit Rate	1736
Input Volume	4973
% of Volume	35

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	30	59	82	68	496	85	215
Average Queue (ft)	3	17	29	6	199	26	55
95th Queue (ft)	18	49	65	35	420	65	146
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)			0		12	1	3
Queuing Penalty (veh)			0		1	4	1

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	58	74	70	49	547	63	84	213
Average Queue (ft)	13	19	17	5	221	25	28	50
95th Queue (ft)	41	53	51	27	463	57	68	148
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		4	1		20	1	0	2
Queuing Penalty (veh)		1	0		12	9	0	1

Network Summary

Network wide Queuing Penalty: 30

1: SR 29 & Rutherford Road Performance by movement

Movement	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	12	68	1	46	2	623	90	63	905	2	1812
Vehicles Exited	12	68	1	47	2	625	91	64	905	2	1817
Hourly Exit Rate	12	68	1	47	2	625	91	64	905	2	1817
Input Volume	10	68	1	52	2	642	87	68	925	2	1857
% of Volume	117	100	100	90	100	97	105	94	98	100	98

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	5	2	16	68	37	0	648	22	33	999	3	1833
Vehicles Exited	5	2	16	68	37	0	643	23	34	987	3	1818
Hourly Exit Rate	5	2	16	68	37	0	643	23	34	987	3	1818
Input Volume	5	2	13	65	35	1	661	22	35	1023	3	1865
% of Volume	100	100	121	105	106	0	97	103	98	96	100	97

Total Network Performance

Vehicles Entered	1974
Vehicles Exited	1972
Hourly Exit Rate	1972
Input Volume	5740
% of Volume	34

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	39	145	101	30	458	104	384
Average Queue (ft)	10	53	30	2	188	46	137
95th Queue (ft)	34	116	73	16	371	93	294
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		2	0		14	3	9
Queuing Penalty (veh)		1	0		0	25	6

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	63	130	75	6	414	51	124	416
Average Queue (ft)	20	44	25	0	158	13	30	178
95th Queue (ft)	52	98	65	5	309	41	81	343
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		14	0		24	0	0	11
Queuing Penalty (veh)		5	0		6	3	0	4

Network Summary

Network wide Queuing Penalty: 49

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	3	1	9	59	0	36	6	894	67	51	766	7
Vehicles Exited	3	1	9	59	0	37	7	906	70	52	765	7
Hourly Exit Rate	3	1	9	59	0	37	7	906	70	52	765	7
Input Volume	3	1	9	58	1	42	6	908	69	51	786	6
% of Volume	100	100	100	102	0	89	117	100	101	102	97	117

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1899
Vehicles Exited	1916
Hourly Exit Rate	1916
Input Volume	1940
% of Volume	99

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	All
Vehicles Entered	1	2	2	27	1	39	932	32	32	802	2	1872
Vehicles Exited	1	2	2	27	1	40	926	32	32	802	2	1867
Hourly Exit Rate	1	2	2	27	1	40	926	32	32	802	2	1867
Input Volume	2	1	1	28	1	36	945	30	30	824	1	1900
% of Volume	50	200	200	96	100	110	98	106	106	97	200	98

Total Network Performance

Vehicles Entered	1970
Vehicles Exited	1981
Hourly Exit Rate	1981
Input Volume	5787
% of Volume	34

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	44	138	112	43	572	104	358
Average Queue (ft)	12	47	31	8	262	39	125
95th Queue (ft)	37	101	79	31	474	87	263
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		2	0		20	1	9
Queuing Penalty (veh)		1	0		1	9	5

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	T	R	L	TR
Maximum Queue (ft)	30	72	65	486	52	90	327
Average Queue (ft)	5	20	18	193	17	24	103
95th Queue (ft)	22	50	45	390	47	56	247
Link Distance (ft)	519	1400		7093			9777
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			50		25	100	
Storage Blk Time (%)		2	1	23	0		5
Queuing Penalty (veh)		1	0	7	4		1

Network Summary

Network wide Queuing Penalty: 29

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	5	6	24	6	46	9	1065	64	40	573	3
Vehicles Exited	6	5	6	24	6	47	10	1066	64	41	572	3
Hourly Exit Rate	6	5	6	24	6	47	10	1066	64	41	572	3
Input Volume	5	5	5	25	5	55	10	1075	70	40	570	5
% of Volume	120	100	120	95	120	85	98	99	91	103	100	60

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1847
Vehicles Exited	1850
Hourly Exit Rate	1850
Input Volume	1870
% of Volume	99

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	13	5	6	27	4	24	9	1099	67	43	558	5
Vehicles Exited	13	5	6	27	4	23	9	1103	66	41	559	5
Hourly Exit Rate	13	5	6	27	4	23	9	1103	66	41	559	5
Input Volume	15	5	5	25	5	25	10	1115	65	40	558	5
% of Volume	85	100	120	109	80	93	88	99	102	102	100	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	1860
Vehicles Exited	1861
Hourly Exit Rate	1861
Input Volume	1873
% of Volume	99

Total Network Performance

Vehicles Entered	1966
Vehicles Exited	1975
Hourly Exit Rate	1975
Input Volume	5584
% of Volume	35

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	56	81	104	94	745	101	314
Average Queue (ft)	17	27	38	14	364	32	95
95th Queue (ft)	45	66	86	53	671	78	230
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		0	1		22	2	7
Queuing Penalty (veh)		0	0		2	9	3

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	69	111	71	80	1797	55	113	256
Average Queue (ft)	24	28	19	13	953	27	34	75
95th Queue (ft)	59	78	57	52	1905	56	79	203
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		10	1		26	1	0	4
Queuing Penalty (veh)		3	0		20	10	1	1

Network Summary

Network wide Queuing Penalty: 49

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	10	5	13	64	5	52	5	682	88	76	993	6
Vehicles Exited	10	5	13	63	5	51	4	689	89	77	997	6
Hourly Exit Rate	10	5	13	63	5	51	4	689	89	77	997	6
Input Volume	10	5	15	65	5	55	5	670	85	75	1015	5
% of Volume	98	100	85	97	100	92	80	103	105	103	98	120

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1999
Vehicles Exited	2009
Hourly Exit Rate	2009
Input Volume	2010
% of Volume	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	10	5	15	77	6	42	5	690	30	39	1095	5
Vehicles Exited	10	5	15	75	6	42	5	694	30	38	1091	5
Hourly Exit Rate	10	5	15	75	6	42	5	694	30	38	1091	5
Input Volume	10	5	15	75	5	40	5	685	35	40	1125	5
% of Volume	98	100	98	100	120	106	100	101	86	96	97	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	2019
Vehicles Exited	2016
Hourly Exit Rate	2016
Input Volume	2045
% of Volume	99

Total Network Performance

Vehicles Entered	2199
Vehicles Exited	2201
Hourly Exit Rate	2201
Input Volume	6280
% of Volume	35

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	62	158	121	86	616	104	877
Average Queue (ft)	25	58	36	7	265	60	267
95th Queue (ft)	58	116	85	39	517	111	620
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		3	0		20	8	16
Queuing Penalty (veh)		2	0		1	77	12

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	95	155	75	30	406	56	124	738
Average Queue (ft)	26	58	32	5	204	16	38	328
95th Queue (ft)	63	116	77	22	376	47	93	652
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		24	1		27	1	1	19
Queuing Penalty (veh)		9	1		11	4	8	8

Network Summary

Network wide Queuing Penalty: 133

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	5	4	13	71	6	42	10	945	78	55	857	12
Vehicles Exited	5	4	13	70	5	41	10	956	78	55	854	11
Hourly Exit Rate	5	4	13	70	5	41	10	956	78	55	854	11
Input Volume	5	5	15	70	5	50	10	949	80	60	860	10
% of Volume	100	80	85	100	100	82	98	101	97	92	99	107

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	2098
Vehicles Exited	2102
Hourly Exit Rate	2102
Input Volume	2120
% of Volume	99

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	4	6	9	36	5	45	3	978	35	30	937	6
Vehicles Exited	4	5	9	36	5	46	3	980	35	31	929	6
Hourly Exit Rate	4	5	9	36	5	46	3	980	35	31	929	6
Input Volume	5	5	5	35	5	40	5	990	35	30	950	5
% of Volume	80	100	180	102	100	114	60	99	99	102	98	120

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	2094
Vehicles Exited	2089
Hourly Exit Rate	2089
Input Volume	2111
% of Volume	99

Total Network Performance

Vehicles Entered	2224
Vehicles Exited	2221
Hourly Exit Rate	2221
Input Volume	6473
% of Volume	34

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	69	137	111	90	902	104	527
Average Queue (ft)	20	60	35	14	447	46	178
95th Queue (ft)	51	112	88	55	854	99	393
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		4	1		26	4	13
Queuing Penalty (veh)		2	1		3	39	8

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	55	97	73	49	642	56	97	439
Average Queue (ft)	16	31	29	4	285	19	28	152
95th Queue (ft)	46	73	66	26	521	51	74	331
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		9	2		27	1		9
Queuing Penalty (veh)		4	1		11	7		3

Network Summary

Network wide Queuing Penalty: 76

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	4	7	28	4	59	8	1109	71	39	623	10
Vehicles Exited	6	4	7	29	4	59	8	1112	69	40	620	10
Hourly Exit Rate	6	4	7	29	4	59	8	1112	69	40	620	10
Input Volume	5	5	5	30	5	65	10	1184	80	45	630	10
% of Volume	120	80	140	97	80	91	78	94	86	89	98	98

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	1968
Vehicles Exited	1968
Hourly Exit Rate	1968
Input Volume	2075
% of Volume	95

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	14	4	5	30	5	33	10	1212	70	45	610	6
Vehicles Exited	15	4	5	30	5	33	10	1141	65	45	611	6
Hourly Exit Rate	15	4	5	30	5	33	10	1141	65	45	611	6
Input Volume	15	5	5	25	5	30	10	1230	70	45	619	5
% of Volume	98	80	100	121	100	110	98	93	93	99	99	120

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	2044
Vehicles Exited	1970
Hourly Exit Rate	1970
Input Volume	2064
% of Volume	95

Total Network Performance

Vehicles Entered	2169
Vehicles Exited	2095
Hourly Exit Rate	2095
Input Volume	6179
% of Volume	34

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	60	120	110	90	836	100	381
Average Queue (ft)	17	34	47	11	418	36	111
95th Queue (ft)	47	83	92	48	769	80	262
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		0	2		24	1	8
Queuing Penalty (veh)		0	1		2	8	4

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	77	106	70	76	4654	50	124	324
Average Queue (ft)	23	30	24	12	2882	25	39	93
95th Queue (ft)	58	77	61	47	5103	53	96	251
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		10	2	0	27	1	1	5
Queuing Penalty (veh)		3	1	0	22	9	6	2

Network Summary

Network wide Queuing Penalty: 58

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	9	5	18	66	7	66	5	745	100	91	1104	5
Vehicles Exited	9	5	17	67	7	66	5	749	101	91	1111	5
Hourly Exit Rate	9	5	17	67	7	66	5	749	101	91	1111	5
Input Volume	10	5	20	75	5	65	5	740	95	85	1125	5
% of Volume	88	100	84	90	140	101	100	101	106	107	99	100

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	2221
Vehicles Exited	2233
Hourly Exit Rate	2233
Input Volume	2235
% of Volume	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	12	5	17	91	6	44	5	768	46	40	1216	6
Vehicles Exited	12	5	17	90	6	43	5	770	44	38	1200	5
Hourly Exit Rate	12	5	17	90	6	43	5	770	44	38	1200	5
Input Volume	10	5	20	90	5	45	5	760	40	40	1245	5
% of Volume	117	100	84	100	120	96	100	101	111	96	96	100

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	2256
Vehicles Exited	2235
Hourly Exit Rate	2235
Input Volume	2270
% of Volume	98

Total Network Performance

Vehicles Entered	2454
Vehicles Exited	2438
Hourly Exit Rate	2438
Input Volume	6974
% of Volume	35

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	94	160	122	109	795	104	1054
Average Queue (ft)	27	59	48	9	315	68	466
95th Queue (ft)	69	118	100	50	636	120	961
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		4	1		25	14	20
Queuing Penalty (veh)		3	1		1	154	17

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	76	199	75	68	575	52	124	2130
Average Queue (ft)	33	82	33	6	253	21	38	1108
95th Queue (ft)	68	160	81	30	479	50	93	2319
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		33	2		28	1	1	27
Queuing Penalty (veh)		15	2		13	6	9	11

Network Summary

Network wide Queuing Penalty: 230

1: SR 29 & Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	4	4	16	70	6	56	10	1048	84	60	946	12
Vehicles Exited	4	4	16	72	6	56	9	1027	79	60	948	12
Hourly Exit Rate	4	4	16	72	6	56	9	1027	79	60	948	12
Input Volume	5	5	15	80	5	60	10	1058	85	65	955	10
% of Volume	80	80	105	90	120	93	88	97	93	92	99	117

1: SR 29 & Rutherford Road Performance by movement

Movement	All
Vehicles Entered	2316
Vehicles Exited	2293
Hourly Exit Rate	2293
Input Volume	2354
% of Volume	97

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicles Entered	6	6	11	46	4	49	5	1076	40	31	1026	7
Vehicles Exited	6	5	11	45	3	49	4	1083	40	31	1021	7
Hourly Exit Rate	6	5	11	45	3	49	4	1083	40	31	1021	7
Input Volume	5	5	10	40	5	45	5	1100	40	30	1050	5
% of Volume	120	100	110	112	60	108	80	98	99	102	97	140

2: SR 29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Vehicles Entered	2307
Vehicles Exited	2305
Hourly Exit Rate	2305
Input Volume	2341
% of Volume	98

Total Network Performance

Vehicles Entered	2447
Vehicles Exited	2423
Hourly Exit Rate	2423
Input Volume	7171
% of Volume	34

Intersection: 1: SR 29 & Rutherford Road

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	53	193	122	101	1535	104	556
Average Queue (ft)	21	65	46	15	807	52	218
95th Queue (ft)	49	129	97	59	1565	99	463
Link Distance (ft)	1461	3068			9777		3608
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			100	100		80	
Storage Blk Time (%)		4	0		31	5	15
Queuing Penalty (veh)		2	0		3	46	10

Intersection: 2: SR 29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	T	R	L	TR
Maximum Queue (ft)	72	116	74	34	921	50	106	491
Average Queue (ft)	19	40	33	5	409	18	28	198
95th Queue (ft)	53	93	74	24	786	46	75	414
Link Distance (ft)	519	1400			7093			9777
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50	100		25	100	
Storage Blk Time (%)		14	4		27	1	0	12
Queuing Penalty (veh)		7	2		12	6	2	4

Network Summary

Network wide Queuing Penalty: 94

Appendix D – Sidra LOS Reports

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

LANE SUMMARY

Site: 101 [Existing AM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	997	7.0	1235	0.807	100	4.9	LOS A	14.1	372.9	Full	1600	0.0	0.0
Approach	997	7.0		0.807		4.9	LOS A	14.1	372.9				
East: WB Rutherford Rd													
Lane 1[d]	73	7.0	458	0.159	100	14.2	LOS B	1.1	27.8	Full	1600	0.0	0.0
Approach	73	7.0		0.159		14.2	LOS B	1.1	27.8				
North: SB SR 29													
Lane 1[d]	588	7.0	1245	0.473	100	4.5	LOS A	4.4	115.2	Full	1600	0.0	0.0
Approach	588	7.0		0.473		4.5	LOS A	4.4	115.2				
West: EB Rutherford Rd													
Lane 1[d]	3	7.0	739	0.004	100	9.5	LOS A	0.0	0.6	Full	1600	0.0	0.0
Approach	3	7.0		0.004		9.5	LOS A	0.0	0.6				
Intersection	1661	7.0		0.807		5.2	LOS A	14.1	372.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	925	66	997	7.0	1235	0.807	100	NA	NA
Approach	5	925	66	997	7.0		0.807			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	22	1	49	73	7.0	458	0.159	100	NA	NA
Approach	22	1	49	73	7.0		0.159			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	38	546	4	588	7.0	1245	0.473	100	NA	NA
Approach	38	546	4	588	7.0		0.473			

West: EB Rutherford Rd

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	1	3	7.0	739	0.004	100	NA	NA
Approach	1	1	1	3	7.0		0.004			

	Total	%HV	Deg.Satn (v/c)
Intersection	1661	7.0	0.807

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing PM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	778	4.0	1210	0.643	100	4.8	LOS A	7.7	199.1	Full	1600	0.0	0.0
Approach	778	4.0		0.643		4.8	LOS A	7.7	199.1				
East: WB Rutherford Rd													
Lane 1[d]	129	4.0	674	0.191	100	11.9	LOS B	1.2	31.0	Full	1600	0.0	0.0
Approach	129	4.0		0.191		11.9	LOS B	1.2	31.0				
North: SB SR 29													
Lane 1[d]	1059	4.0	1214	0.872	100	6.1	LOS A	18.7	482.6	Full	1600	0.0	0.0
Approach	1059	4.0		0.872		6.1	LOS A	18.7	482.6				
West: EB Rutherford Rd													
Lane 1[d]	13	4.0	297	0.043	100	16.3	LOS B	0.3	8.0	Full	1600	0.0	0.0
Approach	13	4.0		0.043		16.3	LOS B	0.3	8.0				
Intersection	1978	4.0		0.872		6.0	LOS A	18.7	482.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	2	683	93	778	4.0	1210	0.643	100	NA	NA
Approach	2	683	93	778	4.0		0.643			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	72	1	55	129	4.0	674	0.191	100	NA	NA
Approach	72	1	55	129	4.0		0.191			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	72	984	2	1059	4.0	1214	0.872	100	NA	NA
Approach	72	984	2	1059	4.0		0.872			

West: EB Rutherford Rd

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1	11	13	4.0	297	0.043	100	NA	NA
Approach	1	1	11	13	4.0		0.043			

	Total	%HV	Deg.Satn (v/c)
Intersection	1978	4.0	0.872

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing Weekend (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	980	2.0	1272	0.771	100	4.9	LOS A	12.1	307.8	Full	1600	0.0	0.0
Approach	980	2.0		0.771		4.9	LOS A	12.1	307.8				
East: WB Rutherford Rd													
Lane 1[d]	106	2.0	532	0.200	100	14.4	LOS B	1.4	34.8	Full	1600	0.0	0.0
Approach	106	2.0		0.200		14.4	LOS B	1.4	34.8				
North: SB SR 29													
Lane 1[d]	887	2.0	1250	0.710	100	5.1	LOS A	9.8	248.9	Full	1600	0.0	0.0
Approach	887	2.0		0.710		5.1	LOS A	9.8	248.9				
West: EB Rutherford Rd													
Lane 1[d]	14	2.0	522	0.026	100	12.1	LOS B	0.2	4.3	Full	1600	0.0	0.0
Approach	14	2.0		0.026		12.1	LOS B	0.2	4.3				
Intersection	1987	2.0		0.771		5.5	LOS A	12.1	307.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	901	73	980	2.0	1272	0.771	100	NA	NA
Approach	6	901	73	980	2.0		0.771			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	61	1	44	106	2.0	532	0.200	100	NA	NA
Approach	61	1	44	106	2.0		0.200			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	54	827	6	887	2.0	1250	0.710	100	NA	NA
Approach	54	827	6	887	2.0		0.710			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	3	1	9	14	2.0	522	0.026	100	NA	NA
Approach	3	1	9	14	2.0		0.026			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1987	2.0		0.771						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 AM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1045	7.0	1314	0.795	100	4.9	LOS A	12.8	338.2	Full	1600	0.0	0.0
Approach	1045	7.0		0.795		4.9	LOS A	12.8	338.2				
East: WB Rutherford Rd													
Lane 1[d]	85	7.0	427	0.199	100	15.3	LOS B	1.3	35.6	Full	1600	0.0	0.0
Approach	85	7.0		0.199		15.3	LOS B	1.3	35.6				
North: SB SR 29													
Lane 1[d]	615	7.0	1311	0.469	100	4.6	LOS A	4.2	111.9	Full	1600	0.0	0.0
Approach	615	7.0		0.469		4.6	LOS A	4.2	111.9				
West: EB Rutherford Rd													
Lane 1[d]	15	7.0	714	0.021	100	9.9	LOS A	0.1	3.0	Full	1600	0.0	0.0
Approach	15	7.0		0.021		9.9	LOS A	0.1	3.0				
Intersection	1760	7.0		0.795		5.3	LOS A	12.8	338.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	965	70	1045	7.0	1314	0.795	100	NA	NA
Approach	10	965	70	1045	7.0		0.795			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	25	5	55	85	7.0	427	0.199	100	NA	NA
Approach	25	5	55	85	7.0		0.199			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	40	570	5	615	7.0	1311	0.469	100	NA	NA
Approach	40	570	5	615	7.0		0.469			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	5	15	7.0	714	0.021	100	NA	NA
Approach	5	5	5	15	7.0		0.021			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1760	7.0		0.795						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 PM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	760	4.0	1258	0.604	100	4.8	LOS A	6.4	164.0	Full	1600	0.0	0.0
Approach	760	4.0		0.604		4.8	LOS A	6.4	164.0				
East: WB Rutherford Rd													
Lane 1[d]	125	4.0	681	0.184	100	11.6	LOS B	1.1	29.5	Full	1600	0.0	0.0
Approach	125	4.0		0.184		11.6	LOS B	1.1	29.5				
North: SB SR 29													
Lane 1[d]	1095	4.0	1296	0.845	100	5.8	LOS A	16.5	425.5	Full	1600	0.0	0.0
Approach	1095	4.0		0.845		5.8	LOS A	16.5	425.5				
West: EB Rutherford Rd													
Lane 1[d]	30	4.0	305	0.098	100	18.5	LOS B	0.7	18.2	Full	1600	0.0	0.0
Approach	30	4.0		0.098		18.5	LOS B	0.7	18.2				
Intersection	2010	4.0		0.845		6.0	LOS A	16.5	425.5				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	670	85	760	4.0	1258	0.604	100	NA	NA
Approach	5	670	85	760	4.0		0.604			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	65	5	55	125	4.0	681	0.184	100	NA	NA
Approach	65	5	55	125	4.0		0.184			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	75	1015	5	1095	4.0	1296	0.845	100	NA	NA
Approach	75	1015	5	1095	4.0		0.845			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	5	15	30	4.0	305	0.098	100	NA	NA
Approach	10	5	15	30	4.0		0.098			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2010	4.0		0.845						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 Weekend (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1030	2.0	1338	0.770	100	4.9	LOS A	11.7	296.8	Full	1600	0.0	0.0
Approach	1030	2.0		0.770		4.9	LOS A	11.7	296.8				
East: WB Rutherford Rd													
Lane 1[d]	125	2.0	495	0.253	100	15.2	LOS B	1.8	45.1	Full	1600	0.0	0.0
Approach	125	2.0		0.253		15.2	LOS B	1.8	45.1				
North: SB SR 29													
Lane 1[d]	930	2.0	1298	0.716	100	5.3	LOS A	9.8	247.9	Full	1600	0.0	0.0
Approach	930	2.0		0.716		5.3	LOS A	9.8	247.9				
West: EB Rutherford Rd													
Lane 1[d]	25	2.0	479	0.052	100	12.8	LOS B	0.3	8.8	Full	1600	0.0	0.0
Approach	25	2.0		0.052		12.8	LOS B	0.3	8.8				
Intersection	2110	2.0		0.770		5.8	LOS A	11.7	296.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	940	80	1030	2.0	1338	0.770	100	NA	NA
Approach	10	940	80	1030	2.0		0.770			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	70	5	50	125	2.0	495	0.253	100	NA	NA
Approach	70	5	50	125	2.0		0.253			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	60	860	10	930	2.0	1298	0.716	100	NA	NA
Approach	60	860	10	930	2.0		0.716			

West: EB Rutherford Rd										
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL	Ov. Lane
From W To Exit:	N	E	S			veh/h	v/c	%	Ov. %	No.
Lane 1	5	5	15	25	2.0	479	0.052	100	NA	NA
Approach	5	5	15	25	2.0		0.052			

	Total	%HV	Deg.Satn (v/c)
Intersection	2110	2.0	0.770

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 AM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1160	7.0	1470	0.789	100	4.8	LOS A	12.4	326.1	Full	1600	0.0	0.0
Approach	1160	7.0		0.789		4.8	LOS A	12.4	326.1				
East: WB Rutherford Rd													
Lane 1[d]	100	7.0	401	0.249	100	17.6	LOS B	1.8	47.5	Full	1600	0.0	0.0
Approach	100	7.0		0.249		17.6	LOS B	1.8	47.5				
North: SB SR 29													
Lane 1[d]	685	7.0	1451	0.472	100	4.6	LOS A	4.4	116.1	Full	1600	0.0	0.0
Approach	685	7.0		0.472		4.6	LOS A	4.4	116.1				
West: EB Rutherford Rd													
Lane 1[d]	15	7.0	719	0.021	100	10.2	LOS B	0.1	3.1	Full	1600	0.0	0.0
Approach	15	7.0		0.021		10.2	LOS B	0.1	3.1				
Intersection	1960	7.0		0.789		5.4	LOS A	12.4	326.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1070	80	1160	7.0	1470	0.789	100	NA	NA
Approach	10	1070	80	1160	7.0		0.789			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	30	5	65	100	7.0	401	0.249	100	NA	NA
Approach	30	5	65	100	7.0		0.249			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	45	630	10	685	7.0	1451	0.472	100	NA	NA
Approach	45	630	10	685	7.0		0.472			

West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	5	15	7.0	719	0.021	100	NA	NA
Approach	5	5	5	15	7.0		0.021			

	Total	%HV	Deg.Satn (v/c)
Intersection	1960	7.0	0.789

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 PM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	840	4.0	1375	0.611	100	4.7	LOS A	6.5	168.4	Full	1600	0.0	0.0
Approach	840	4.0		0.611		4.7	LOS A	6.5	168.4				
East: WB Rutherford Rd													
Lane 1[d]	145	4.0	680	0.213	100	12.1	LOS B	1.4	36.5	Full	1600	0.0	0.0
Approach	145	4.0		0.213		12.1	LOS B	1.4	36.5				
North: SB SR 29													
Lane 1[d]	1215	4.0	1429	0.850	100	5.7	LOS A	17.1	440.5	Full	1600	0.0	0.0
Approach	1215	4.0		0.850		5.7	LOS A	17.1	440.5				
West: EB Rutherford Rd													
Lane 1[d]	35	4.0	259	0.135	100	22.9	LOS C	1.0	27.0	Full	1600	0.0	0.0
Approach	35	4.0		0.135		22.9	LOS C	1.0	27.0				
Intersection	2235	4.0		0.850		6.0	LOS A	17.1	440.5				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	740	95	840	4.0	1375	0.611	100	NA	NA
Approach	5	740	95	840	4.0		0.611			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	75	5	65	145	4.0	680	0.213	100	NA	NA
Approach	75	5	65	145	4.0		0.213			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	85	1125	5	1215	4.0	1429	0.850	100	NA	NA
Approach	85	1125	5	1215	4.0		0.850			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	5	20	35	4.0	259	0.135	100	NA	NA
Approach	10	5	20	35	4.0		0.135			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2235	4.0		0.850						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 Weekend (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1135	2.0	1489	0.762	100	4.8	LOS A	11.3	287.1	Full	1600	0.0	0.0
Approach	1135	2.0		0.762		4.8	LOS A	11.3	287.1				
East: WB Rutherford Rd													
Lane 1[d]	145	2.0	476	0.305	100	16.7	LOS B	2.3	58.1	Full	1600	0.0	0.0
Approach	145	2.0		0.305		16.7	LOS B	2.3	58.1				
North: SB SR 29													
Lane 1[d]	1030	2.0	1424	0.723	100	5.2	LOS A	10.1	255.4	Full	1600	0.0	0.0
Approach	1030	2.0		0.723		5.2	LOS A	10.1	255.4				
West: EB Rutherford Rd													
Lane 1[d]	25	2.0	443	0.056	100	14.5	LOS B	0.4	10.3	Full	1600	0.0	0.0
Approach	25	2.0		0.056		14.5	LOS B	0.4	10.3				
Intersection	2335	2.0		0.762		5.8	LOS A	11.3	287.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1040	85	1135	2.0	1489	0.762	100	NA	NA
Approach	10	1040	85	1135	2.0		0.762			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	80	5	60	145	2.0	476	0.305	100	NA	NA
Approach	80	5	60	145	2.0		0.305			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	65	955	10	1030	2.0	1424	0.723	100	NA	NA
Approach	65	955	10	1030	2.0		0.723			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	15	25	2.0	443	0.056	100	NA	NA
Approach	5	5	15	25	2.0		0.056			

	Total	%HV	Deg.Satn (v/c)
Intersection	2335	2.0	0.762

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing AM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1170	8.0	1210	0.967	100	8.2	LOS A	42.4	1128.5	Full	1600	0.0	0.0
Approach	1170	8.0		0.967		8.2	LOS A	42.4	1128.5				
East: WB Oakville Cross Rd													
Lane 1[d]	45	8.0	240	0.186	100	22.1	LOS C	1.4	36.2	Full	1600	0.0	0.0
Approach	45	8.0		0.186		22.1	LOS C	1.4	36.2				
North: SB SR 29													
Lane 1[d]	554	8.0	1233	0.450	100	4.5	LOS A	4.1	108.6	Full	1600	0.0	0.0
Approach	554	8.0		0.450		4.5	LOS A	4.1	108.6				
West: EB Walnut Ln													
Lane 1[d]	13	8.0	749	0.017	100	11.9	LOS B	0.1	2.4	Full	1600	0.0	0.0
Approach	13	8.0		0.017		11.9	LOS B	0.1	2.4				
Intersection	1782	8.0		0.967		7.5	LOS A	42.4	1128.5				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1103	61	1170	8.0	1210	0.967	100	NA	NA
Approach	5	1103	61	1170	8.0		0.967			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	20	2	23	45	8.0	240	0.186	100	NA	NA
Approach	20	2	23	45	8.0		0.186			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	39	512	3	554	8.0	1233	0.450	100	NA	NA
Approach	39	512	3	554	8.0		0.450			
West: EB Walnut Ln										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1	2	13	8.0	749	0.017	100	NA	NA
Approach	10	1	2	13	8.0		0.017			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1782	8.0		0.967						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	720	4.0	1257	0.573	100	4.3	LOS A	6.3	162.5	Full	1600	0.0	0.0
Approach	720	4.0		0.573		4.3	LOS A	6.3	162.5				
East: WB Oakville Cross Rd													
Lane 1[d]	106	4.0	692	0.154	100	12.5	LOS B	0.9	23.8	Full	1600	0.0	0.0
Approach	106	4.0		0.154		12.5	LOS B	0.9	23.8				
North: SB SR 29													
Lane 1[d]	1120	4.0	1221	0.917	100	6.3	LOS A	24.6	634.8	Full	1600	0.0	0.0
Approach	1120	4.0		0.917		6.3	LOS A	24.6	634.8				
West: EB Walnut Ln													
Lane 1[d]	21	4.0	252	0.083	100	20.3	LOS C	0.6	15.9	Full	1600	0.0	0.0
Approach	21	4.0		0.083		20.3	LOS C	0.6	15.9				
Intersection	1967	4.0		0.917		6.1	LOS A	24.6	634.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	696	23	720	4.0	1257	0.573	100	NA	NA
Approach	1	696	23	720	4.0		0.573			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	68	1	37	106	4.0	692	0.154	100	NA	NA
Approach	68	1	37	106	4.0		0.154			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	37	1080	3	1120	4.0	1221	0.917	100	NA	NA
Approach	37	1080	3	1120	4.0		0.917			
West: EB Walnut Ln										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	2	14	21	4.0	252	0.083	100	NA	NA
Approach	5	2	14	21	4.0		0.083			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1967	4.0		0.917						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing Weekend (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1006	2.0	1307	0.770	100	4.5	LOS A	12.4	314.9	Full	1600	0.0	0.0
Approach	1006	2.0		0.770		4.5	LOS A	12.4	314.9				
East: WB Rutherford Rd													
Lane 1[d]	67	2.0	518	0.129	100	14.4	LOS B	0.9	21.7	Full	1600	0.0	0.0
Approach	67	2.0		0.129		14.4	LOS B	0.9	21.7				
North: SB SR 29													
Lane 1[d]	876	2.0	1304	0.672	100	4.4	LOS A	9.4	238.4	Full	1600	0.0	0.0
Approach	876	2.0		0.672		4.4	LOS A	9.4	238.4				
West: EB Rutherford Rd													
Lane 1[d]	4	2.0	586	0.007	100	12.9	LOS B	0.0	1.1	Full	1600	0.0	0.0
Approach	4	2.0		0.007		12.9	LOS B	0.0	1.1				
Intersection	1954	2.0		0.770		4.8	LOS A	12.4	314.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	974	31	1006	2.0	1307	0.770	100	NA	NA
Approach	1	974	31	1006	2.0		0.770			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	29	1	37	67	2.0	518	0.129	100	NA	NA
Approach	29	1	37	67	2.0		0.129			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	31	844	1	876	2.0	1304	0.672	100	NA	NA
Approach	31	844	1	876	2.0		0.672			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	2	1	1	4	2.0	586	0.007	100	NA	NA
Approach	2	1	1	4	2.0		0.007			
	Total	%HV	Deg.Satn (v/c)							
Intersection	1954	2.0		0.770						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 AM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1190	8.0	1285	0.926	100	6.2	LOS A	26.3	699.0	Full	1600	0.0	0.0
Approach	1190	8.0		0.926		6.2	LOS A	26.3	699.0				
East: WB Oakville Cross Rd													
Lane 1[d]	55	8.0	230	0.239	100	23.2	LOS C	1.8	47.0	Full	1600	0.0	0.0
Approach	55	8.0		0.239		23.2	LOS C	1.8	47.0				
North: SB SR 29													
Lane 1[d]	565	8.0	1294	0.437	100	4.6	LOS A	3.8	101.5	Full	1600	0.0	0.0
Approach	565	8.0		0.437		4.6	LOS A	3.8	101.5				
West: EB Walnut Ln													
Lane 1[d]	25	8.0	735	0.034	100	11.2	LOS B	0.2	4.8	Full	1600	0.0	0.0
Approach	25	8.0		0.034		11.2	LOS B	0.2	4.8				
Intersection	1835	8.0		0.926		6.3	LOS A	26.3	699.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1115	65	1190	8.0	1285	0.926	100	NA	NA
Approach	10	1115	65	1190	8.0		0.926			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	25	5	25	55	8.0	230	0.239	100	NA	NA
Approach	25	5	25	55	8.0		0.239			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	40	520	5	565	8.0	1294	0.437	100	NA	NA
Approach	40	520	5	565	8.0		0.437			

West: EB Walnut Ln										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	15	5	5	25	8.0	735	0.034	100	NA	NA
Approach	15	5	5	25	8.0		0.034			

	Total	%HV	Deg.Satn (v/c)
Intersection	1835	8.0	0.926

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	725	4.0	1322	0.548	100	4.4	LOS A	5.6	144.1	Full	1600	0.0	0.0
Approach	725	4.0		0.548		4.4	LOS A	5.6	144.1				
East: WB Oakville Cross Rd													
Lane 1[d]	120	4.0	693	0.173	100	12.4	LOS B	1.0	27.0	Full	1600	0.0	0.0
Approach	120	4.0		0.173		12.4	LOS B	1.0	27.0				
North: SB SR 29													
Lane 1[d]	1170	4.0	1279	0.915	100	6.3	LOS A	22.8	589.1	Full	1600	0.0	0.0
Approach	1170	4.0		0.915		6.3	LOS A	22.8	589.1				
West: EB Walnut Ln													
Lane 1[d]	30	4.0	225	0.133	100	23.2	LOS C	1.0	25.8	Full	1600	0.0	0.0
Approach	30	4.0		0.133		23.2	LOS C	1.0	25.8				
Intersection	2045	4.0		0.915		6.2	LOS A	22.8	589.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	685	35	725	4.0	1322	0.548	100	NA	NA
Approach	5	685	35	725	4.0		0.548			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	75	5	40	120	4.0	693	0.173	100	NA	NA
Approach	75	5	40	120	4.0		0.173			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	40	1125	5	1170	4.0	1279	0.915	100	NA	NA
Approach	40	1125	5	1170	4.0		0.915			
West: EB Walnut Ln										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	5	15	30	4.0	225	0.133	100	NA	NA
Approach	10	5	15	30	4.0		0.133			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2045	4.0		0.915						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2025 Weekend (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1030	2.0	1404	0.734	100	4.4	LOS A	10.4	263.7	Full	1600	0.0	0.0
Approach	1030	2.0		0.734		4.4	LOS A	10.4	263.7				
East: WB Rutherford Rd													
Lane 1[d]	80	2.0	511	0.157	100	14.9	LOS B	1.0	26.5	Full	1600	0.0	0.0
Approach	80	2.0		0.157		14.9	LOS B	1.0	26.5				
North: SB SR 29													
Lane 1[d]	985	2.0	1383	0.712	100	4.6	LOS A	10.5	267.1	Full	1600	0.0	0.0
Approach	985	2.0		0.712		4.6	LOS A	10.5	267.1				
West: EB Rutherford Rd													
Lane 1[d]	15	2.0	493	0.030	100	13.9	LOS B	0.2	5.0	Full	1600	0.0	0.0
Approach	15	2.0		0.030		13.9	LOS B	0.2	5.0				
Intersection	2110	2.0		0.734		5.0	LOS A	10.5	267.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	990	35	1030	2.0	1404	0.734	100	NA	NA
Approach	5	990	35	1030	2.0		0.734			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	35	5	40	80	2.0	511	0.157	100	NA	NA
Approach	35	5	40	80	2.0		0.157			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	30	950	5	985	2.0	1383	0.712	100	NA	NA
Approach	30	950	5	985	2.0		0.712			

West: EB Rutherford Rd

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	5	15	2.0	493	0.030	100	NA	NA
Approach	5	5	5	15	2.0		0.030			

	Total	%HV	Deg.Satn (v/c)
Intersection	2110	2.0	0.734

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 AM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1310	8.0	1438	0.911	100	5.7	LOS A	23.9	636.2	Full	1600	0.0	0.0
Approach	1310	8.0		0.911		5.7	LOS A	23.9	636.2				
East: WB Oakville Cross Rd													
Lane 1[d]	60	8.0	212	0.284	100	26.0	LOS C	2.2	58.8	Full	1600	0.0	0.0
Approach	60	8.0		0.284		26.0	LOS C	2.2	58.8				
North: SB SR 29													
Lane 1[d]	625	8.0	1446	0.432	100	4.6	LOS A	3.8	101.5	Full	1600	0.0	0.0
Approach	625	8.0		0.432		4.6	LOS A	3.8	101.5				
West: EB Walnut Ln													
Lane 1[d]	25	8.0	752	0.033	100	11.4	LOS B	0.2	4.9	Full	1600	0.0	0.0
Approach	25	8.0		0.033		11.4	LOS B	0.2	4.9				
Intersection	2020	8.0		0.911		6.0	LOS A	23.9	636.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1230	70	1310	8.0	1438	0.911	100	NA	NA
Approach	10	1230	70	1310	8.0		0.911			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	25	5	30	60	8.0	212	0.284	100	NA	NA
Approach	25	5	30	60	8.0		0.284			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	45	575	5	625	8.0	1446	0.432	100	NA	NA
Approach	45	575	5	625	8.0		0.432			
West: EB Walnut Ln										
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL	Ov. Lane
From W To Exit:	N	E	S			veh/h	v/c	%	Ov. %	No.
Lane 1	15	5	5	25	8.0	752	0.033	100	NA	NA
Approach	15	5	5	25	8.0		0.033			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2020	8.0	0.911							

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	805	4.0	1478	0.545	100	4.3	LOS A	5.6	144.3	Full	1600	0.0	0.0
Approach	805	4.0		0.545		4.3	LOS A	5.6	144.3				
East: WB Oakville Cross Rd													
Lane 1[d]	140	4.0	699	0.200	100	13.0	LOS B	1.3	33.1	Full	1600	0.0	0.0
Approach	140	4.0		0.200		13.0	LOS B	1.3	33.1				
North: SB SR 29													
Lane 1[d]	1290	4.0	1401	0.921	100	6.2	LOS A	23.4	605.0	Full	1600	0.0	0.0
Approach	1290	4.0		0.921		6.2	LOS A	23.4	605.0				
West: EB Walnut Ln													
Lane 1[d]	35	4.0	179	0.196	100	30.1	LOS C	1.6	40.8	Full	1600	0.0	0.0
Approach	35	4.0		0.196		30.1	LOS C	1.6	40.8				
Intersection	2270	4.0		0.921		6.3	LOS A	23.4	605.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	760	40	805	4.0	1478	0.545	100	NA	NA
Approach	5	760	40	805	4.0		0.545			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	90	5	45	140	4.0	699	0.200	100	NA	NA
Approach	90	5	45	140	4.0		0.200			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	40	1245	5	1290	4.0	1401	0.921	100	NA	NA
Approach	40	1245	5	1290	4.0		0.921			
West: EB Walnut Ln										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	5	20	35	4.0	179	0.196	100	NA	NA
Approach	10	5	20	35	4.0		0.196			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2270	4.0		0.921						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [2035 Weekend (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1145	2.0	1589	0.721	100	4.3	LOS A	9.7	247.5	Full	1600	0.0	0.0
Approach	1145	2.0		0.721		4.3	LOS A	9.7	247.5				
East: WB Rutherford Rd													
Lane 1[d]	90	2.0	492	0.183	100	16.9	LOS B	1.3	33.0	Full	1600	0.0	0.0
Approach	90	2.0		0.183		16.9	LOS B	1.3	33.0				
North: SB SR 29													
Lane 1[d]	1085	2.0	1543	0.703	100	4.5	LOS A	10.2	259.2	Full	1600	0.0	0.0
Approach	1085	2.0		0.703		4.5	LOS A	10.2	259.2				
West: EB Rutherford Rd													
Lane 1[d]	20	2.0	468	0.043	100	15.2	LOS B	0.3	7.6	Full	1600	0.0	0.0
Approach	20	2.0		0.043		15.2	LOS B	0.3	7.6				
Intersection	2340	2.0		0.721		5.0	LOS A	10.2	259.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	1100	40	1145	2.0	1589	0.721	100	NA	NA
Approach	5	1100	40	1145	2.0		0.721			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	40	5	45	90	2.0	492	0.183	100	NA	NA
Approach	40	5	45	90	2.0		0.183			

North: SB SR 29

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.

Lane 1	30	1050	5	1085	2.0	1543	0.703	100	NA	NA
Approach	30	1050	5	1085	2.0		0.703			
West: EB Rutherford Rd										
Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	5	5	10	20	2.0	468	0.043	100	NA	NA
Approach	5	5	10	20	2.0		0.043			
	Total	%HV	Deg.Satn (v/c)							
Intersection	2340	2.0		0.721						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing AM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Practical Capacity): Results for 12 years

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1235	8.0	1466	0.842	100	5.0	LOS A	16.2	429.6	Full	1600	0.0	0.0
Approach	1235	8.0		0.842		5.0	LOS A	16.2	429.6				
East: WB Oakville Cross Rd													
Lane 1[d]	47	8.0	311	0.151	100	21.9	LOS C	1.1	29.4	Full	1600	0.0	0.0
Approach	47	8.0		0.151		21.9	LOS C	1.1	29.4				
North: SB SR 29													
Lane 1[d]	585	8.0	1483	0.395	100	4.5	LOS A	3.4	90.6	Full	1600	0.0	0.0
Approach	585	8.0		0.395		4.5	LOS A	3.4	90.6				
West: EB Walnut Ln													
Lane 1[d]	14	8.0	790	0.017	100	11.8	LOS B	0.1	2.5	Full	1600	0.0	0.0
Approach	14	8.0		0.017		11.8	LOS B	0.1	2.5				
Intersection	1881	8.0		0.842		5.3	LOS A	16.2	429.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	1165	64	1235	8.0	1466	0.842	100	NA	NA
Approach	6	1165	64	1235	8.0		0.842			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	21	2	24	47	8.0	311	0.151	100	NA	NA
Approach	21	2	24	47	8.0		0.151			

North: SB SR 29

Mov. From N	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	E	S	W			veh/h	v/c	%	%	No.
Lane 1	41	541	3	585	8.0	1483	0.395	100	NA	NA
Approach	41	541	3	585	8.0		0.395			

West: EB Walnut Ln

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	10	1	2	14	8.0	790	0.017	100	NA	NA
Approach	10	1	2	14	8.0		0.017			

	Total	%HV	Deg.Satn (v/c)
Intersection	1881	8.0	0.842

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Practical Capacity): Results for 12 years

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	785	4.0	1499	0.524	100	4.2	LOS A	5.1	132.3	Full	1600	0.0	0.0
Approach	785	4.0		0.524		4.2	LOS A	5.1	132.3				
East: WB Oakville Cross Rd													
Lane 1[d]	116	4.0	714	0.162	100	12.8	LOS B	1.0	26.1	Full	1600	0.0	0.0
Approach	116	4.0		0.162		12.8	LOS B	1.0	26.1				
North: SB SR 29													
Lane 1[d]	1221	4.0	1449	0.843	100	5.3	LOS A	17.0	438.4	Full	1600	0.0	0.0
Approach	1221	4.0		0.843		5.3	LOS A	17.0	438.4				
West: EB Walnut Ln													
Lane 1[d]	23	4.0	263	0.087	100	22.8	LOS C	0.7	17.2	Full	1600	0.0	0.0
Approach	23	4.0		0.087		22.8	LOS C	0.7	17.2				
Intersection	2145	4.0		0.843		5.5	LOS A	17.0	438.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	759	25	785	4.0	1499	0.524	100	NA	NA
Approach	1	759	25	785	4.0		0.524			

East: WB Oakville Cross Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	75	1	40	116	4.0	714	0.162	100	NA	NA
Approach	75	1	40	116	4.0		0.162			

North: SB SR 29

Mov. From N	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	E	S	W			veh/h	v/c	%	%	No.
Lane 1	40	1177	3	1221	4.0	1449	0.843	100	NA	NA
Approach	40	1177	3	1221	4.0		0.843			

West: EB Walnut Ln

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	6	2	15	23	4.0	263	0.087	100	NA	NA
Approach	6	2	15	23	4.0		0.087			

	Total	%HV	Deg.Satn (v/c)
Intersection	2145	4.0	0.843

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Oakville Cross Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Walnut Ln Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

LANE SUMMARY

Site: 101 [Existing Weekend (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Practical Capacity): Results for 15 years

Lane Use and Performance

	DEMAND FLOWS [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB SR 29													
Lane 1[d]	1192	2.0	1591	0.749	100	4.3	LOS A	11.1	281.2	Full	1600	0.0	0.0
Approach	1192	2.0		0.749		4.3	LOS A	11.1	281.2				
East: WB Rutherford Rd													
Lane 1[d]	79	2.0	453	0.175	100	18.0	LOS B	1.3	32.2	Full	1600	0.0	0.0
Approach	79	2.0		0.175		18.0	LOS B	1.3	32.2				
North: SB SR 29													
Lane 1[d]	1038	2.0	1582	0.656	100	4.3	LOS A	9.0	229.4	Full	1600	0.0	0.0
Approach	1038	2.0		0.656		4.3	LOS A	9.0	229.4				
West: EB Rutherford Rd													
Lane 1[d]	5	2.0	523	0.009	100	15.2	LOS B	0.1	1.6	Full	1600	0.0	0.0
Approach	5	2.0		0.009		15.2	LOS B	0.1	1.6				
Intersection	2314	2.0		0.749		4.8	LOS A	11.1	281.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: NB SR 29

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	1154	37	1192	2.0	1591	0.749	100	NA	NA
Approach	1	1154	37	1192	2.0		0.749			

East: WB Rutherford Rd

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	34	1	44	79	2.0	453	0.175	100	NA	NA
Approach	34	1	44	79	2.0		0.175			

North: SB SR 29

Mov. From N	L2	T1	R2	Total	%HV	Cap.	Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane

To Exit:	E	S	W			veh/h	v/c	%	%	No.
Lane 1	37	1000	1	1038	2.0	1582	0.656	100	NA	NA
Approach	37	1000	1	1038	2.0		0.656			

West: EB Rutherford Rd

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL %	Ov. Lane No.
Lane 1	2	1	1	5	2.0	523	0.009	100	NA	NA
Approach	2	1	1	5	2.0		0.009			

	Total	%HV	Deg.Satn (v/c)
Intersection	2314	2.0	0.749

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
South Exit: NB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
East Exit: WB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
North Exit: SB SR 29 Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										
West Exit: EB Rutherford Rd Merge Type: **Not Applied**												
Full Length Lane	1	Merge Analysis not applied.										

Appendix E – Signal Warrant Worksheets

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Warrant 1 Results

Existing Weekday Volumes

Hour	Condition A - 100%					Condition B - 100%				
	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?
	Measured (vph)	Required (vph)	Measured (vph)	Required (vph)		Measured (vph)	Required (vph)	Measured (vph)	Required (vph)	
1	1506	500	68	150	No	1506	750	68	75	No
2	1572	500	66	150	No	1572	750	66	75	No
3	1502	500	70	150	No	1502	750	70	75	No
4	1601	500	75	150	No	1601	750	75	75	Yes
5	1680	500	79	150	No	1680	750	79	75	Yes
6	1609	500	75	150	No	1609	750	75	75	Yes
7	1601	500	89	150	No	1601	750	89	75	Yes
8	1692	500	96	150	No	1692	750	96	75	Yes
9	1562	500	98	150	No	1562	750	98	75	Yes
10	1432	500	99	150	No	1432	750	99	75	Yes
11	997	500	51	150	No	997	750	51	75	No
12	799	500	41	150	No	799	750	41	75	No
				Met for at least 8 hours?	**No**				Met for at least 8 hours?	**No**
									Warrant Met?	**No**

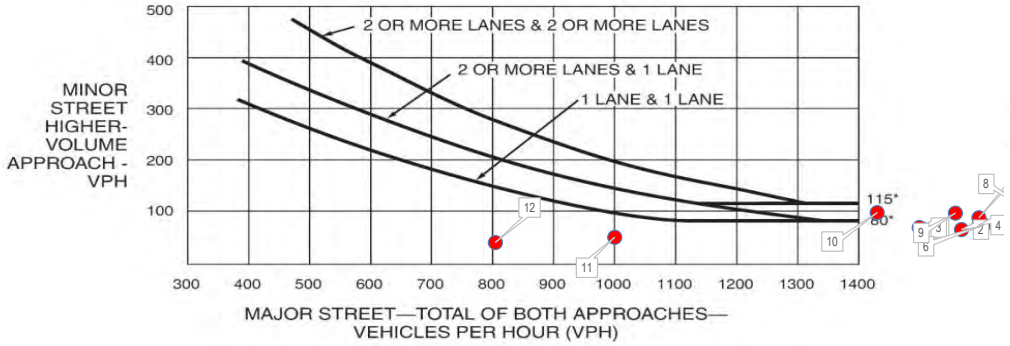
Hour	Condition A - 70%					Condition B - 70%				
	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?
	Measured (vph)	Required (vph)	Measured (vph)	Required (vph)		Measured (vph)	Required (vph)	Measured (vph)	Required (vph)	
1	1506	350	68	105	No	1506	525	68	52.5	Yes
2	1572	350	66	105	No	1572	525	66	52.5	Yes
3	1502	350	70	105	No	1502	525	70	52.5	Yes
4	1601	350	75	105	No	1601	525	75	52.5	Yes
5	1680	350	79	105	No	1680	525	79	52.5	Yes
6	1609	350	75	105	No	1609	525	75	52.5	Yes
7	1601	350	89	105	No	1601	525	89	52.5	Yes
8	1692	350	96	105	No	1692	525	96	52.5	Yes
9	1562	350	98	105	No	1562	525	98	52.5	Yes
10	1432	350	99	105	No	1432	525	99	52.5	Yes
11	997	350	51	105	No	997	525	51	52.5	No
12	799	350	41	105	No	799	525	41	52.5	No
				Met for at least 8 hours?	**No**				Met for at least 8 hours?	**Yes**
									Warrant Met?	**Yes**

Hour	Condition A - 56%					Condition B - 56%				
	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?	Major Street Volume (both approaches)		Higher-Volume Minor Street Approach (one direction only)		Met?
	Measured (vph)	Required (vph)	Measured (vph)	Required (vph)		Measured (vph)	Required (vph)	Measured (vph)	Required (vph)	
1	1506	280	68	84	No	1506	420	68	42	Yes
2	1572	280	66	58.8	Yes	1572	420	66	42	Yes
3	1502	280	70	58.8	Yes	1502	420	70	42	Yes
4	1601	280	75	58.8	Yes	1601	420	75	42	Yes
5	1680	280	79	58.8	Yes	1680	420	79	42	Yes
6	1609	280	75	58.8	Yes	1609	420	75	42	Yes
7	1601	280	89	58.8	Yes	1601	420	89	42	Yes
8	1692	280	96	58.8	Yes	1692	420	96	42	Yes
9	1562	280	98	58.8	Yes	1562	420	98	42	Yes
10	1432	280	99	58.8	Yes	1432	420	99	42	Yes
11	997	280	51	58.8	No	997	420	51	42	Yes
12	799	280	41	58.8	No	799	420	41	42	No
				Met for at least 8 hours?	**Yes**				Met for at least 8 hours?	**Yes**
									Warrant Met?	**Yes**

Hour	Measured Volume (vph)		Above Threshold Volume?	
	Major Street (Total of Both Approaches) X Axis	Minor Street Higher-Volume Approach Y Axis	100%	70%
1	1506	68	No	**Yes**
2	1572	66	No	**Yes**
3	1502	70	No	**Yes**
4	1601	75	No	**Yes**
5	1680	79	No	**Yes**
6	1609	75	No	**Yes**
7	1601	89	**Yes**	**Yes**
8	1692	96	**Yes**	**Yes**
9	1562	98	**Yes**	**Yes**
10	1432	99	**Yes**	**Yes**
11	997	51	No	No
12	799	41	No	No
		Warrant Met?	**Yes**	**Yes**

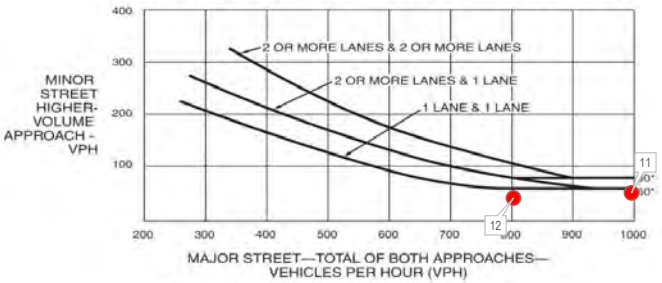
Major Street 1 lane
Minor Street 1 lane

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

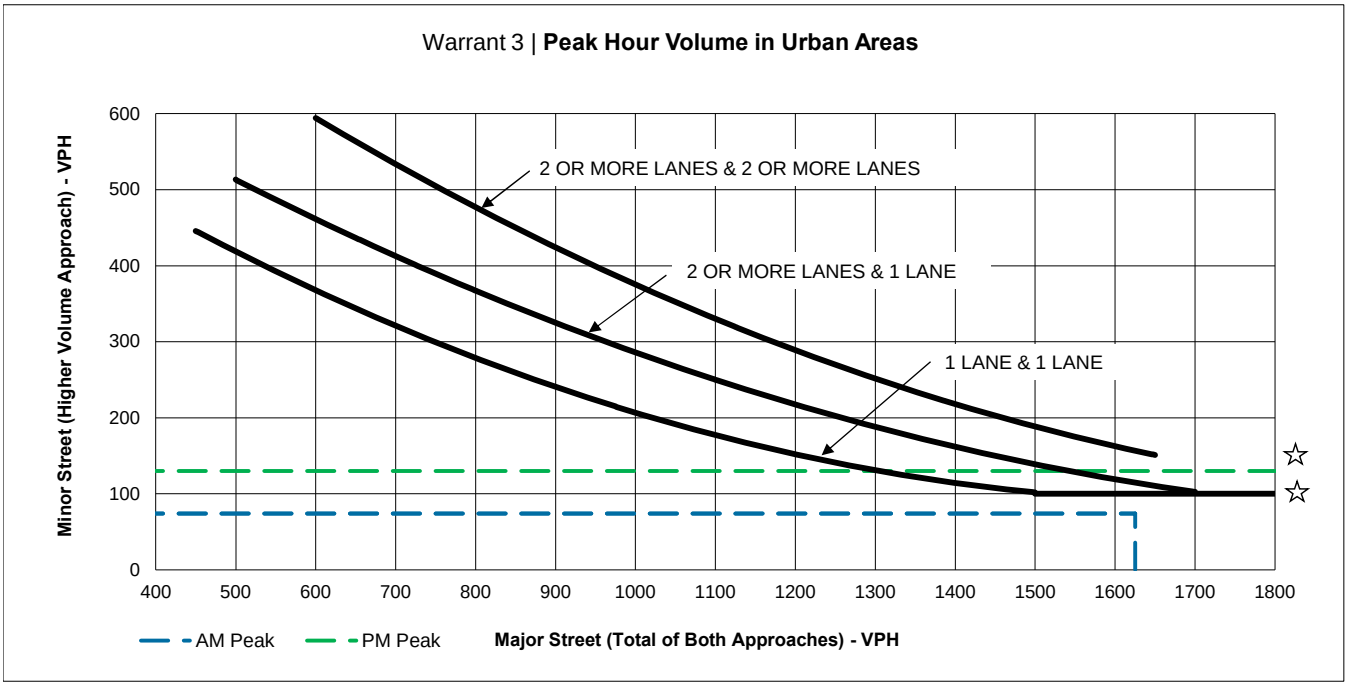
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
500	420	500	505	500	N/A
600	360	600	460	600	590
700	325	700	420	700	540
800	285	800	360	800	475
900	245	900	325	900	425
1000	200	1000	285	1000	370
1100	175	1100	250	1100	340
1200	150	1200	220	1200	285
1300	130	1300	190	1300	250
1400	120	1400	155	1400	220
1500	100	1500	145	1500	180
1600	100	1600	120	1600	170
1700	100	1700	100	1650	150
1800	100	1800	100	1800	150

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



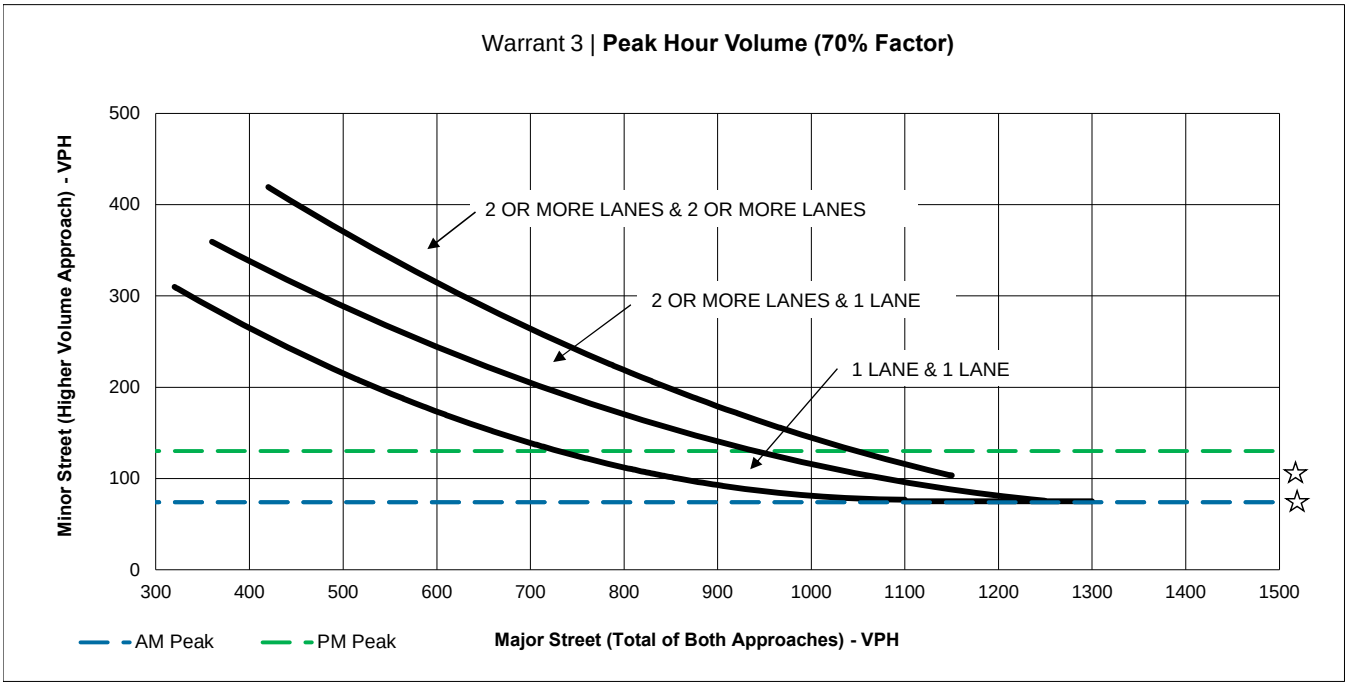
☆ **NOTE:**

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

SCENARIO (AM/PM)				
		Number of Lanes		
Major Approach	SR 29	1		
Minor Approach	Rutherford Road	1		
	AM Peak	PM Peak	Volumes for higher minor street	Typical Peak Hour AM Peak
Major St. Volume (both approaches):	1,625	1,862		0
Minor St. Volume (higher volume approach):	74	130		0
Warrant Met?:	**No**	**Yes**		

Both 1 Lane Approaches		2 or more Lane and One Lane Approaches		Both 2 or more Lane Approaches	
Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach	Major Street Total of Both Approaches	Minor Street High Volume Approach
400	265	400	340	400	N/A
500	210	500	290	500	375
600	180	600	240	600	310
700	150	700	200	700	260
800	90	800	175	800	220
900	100	900	140	900	180
1000	85	1000	120	1000	150
1100	75	1100	95	1150	100
1200	75	1200	80	1200	100
1300	75	1250	75	1300	100

** Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation*



☆ NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Existing (AM/PM)

		Number of Lanes
Major Approach	SR 29	1
Minor Approach	Rutherford Road	1

	AM Peak	PM Peak
Major St. Volume (both approaches):	1,625	1,862
Minor St. Volume (higher volume approach):	74	130
Warrant Met?:	**No**	**Yes**

Volumes for higher minor street

AM Peak
0
0

Appendix F – 2025 and 2035 Traffic Forecasts Memorandum

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Memorandum

December 19, 2022

To	Ingrid Supit, MTC; Pamela Kwan, MTC		
Copy to	James Zandian, GHD; Stephanie Ledbetter, GHD		
From	Kamesh Vedula, GHD; Paige Thornton, GHD; Zach Stinger, GHD	**Project No.**	11227647
Project Name	*Napa Valley Forward SR 29 Safety & Operational Intersection Improvements at PM 22.520 and PM 24.595*		
Subject	2025 and 2035 Forecasts		

1. Introduction

GHD was retained by the Metropolitan Transportation Commission (MTC) to assist in the planning and design of potential improvements at the project's two study intersections along State Route (SR) 29 at Rutherford Road *(PM 24.595)* and Oakville Cross Road (PM 22.520), in the Napa County communities of Rutherford and Oakville (hereinafter referred to as the "study intersections"). SR 29 is a key route providing north/south connectivity to residential and commercial land use destinations within the Napa Valley and beyond to adjacent Solano and Lake Counties. The section of the SR 29 corridor in which the study intersections are located regularly experiences heavy traffic congestion during peak periods, resulting in safety, delay, and queueing issues at minor approaches of Rutherford Road and Oakville Cross Road. Figure 1-1 presents the study area vicinity map.

This memorandum was prepared by GHD to summarize the methodologies utilized for validating a small sub-area in the Napa Valley of the Napa-Solano Travel Demand Model and deriving traffic forecasts for the study intersections within Napa County. The purpose of obtaining these traffic forecasts is to assist in the design of potential improvements of the study intersections. The PDT established that forecasts would need to be derived for the Year 2025 (opening year) and be adequate through 2035 (sensitivity/design year).

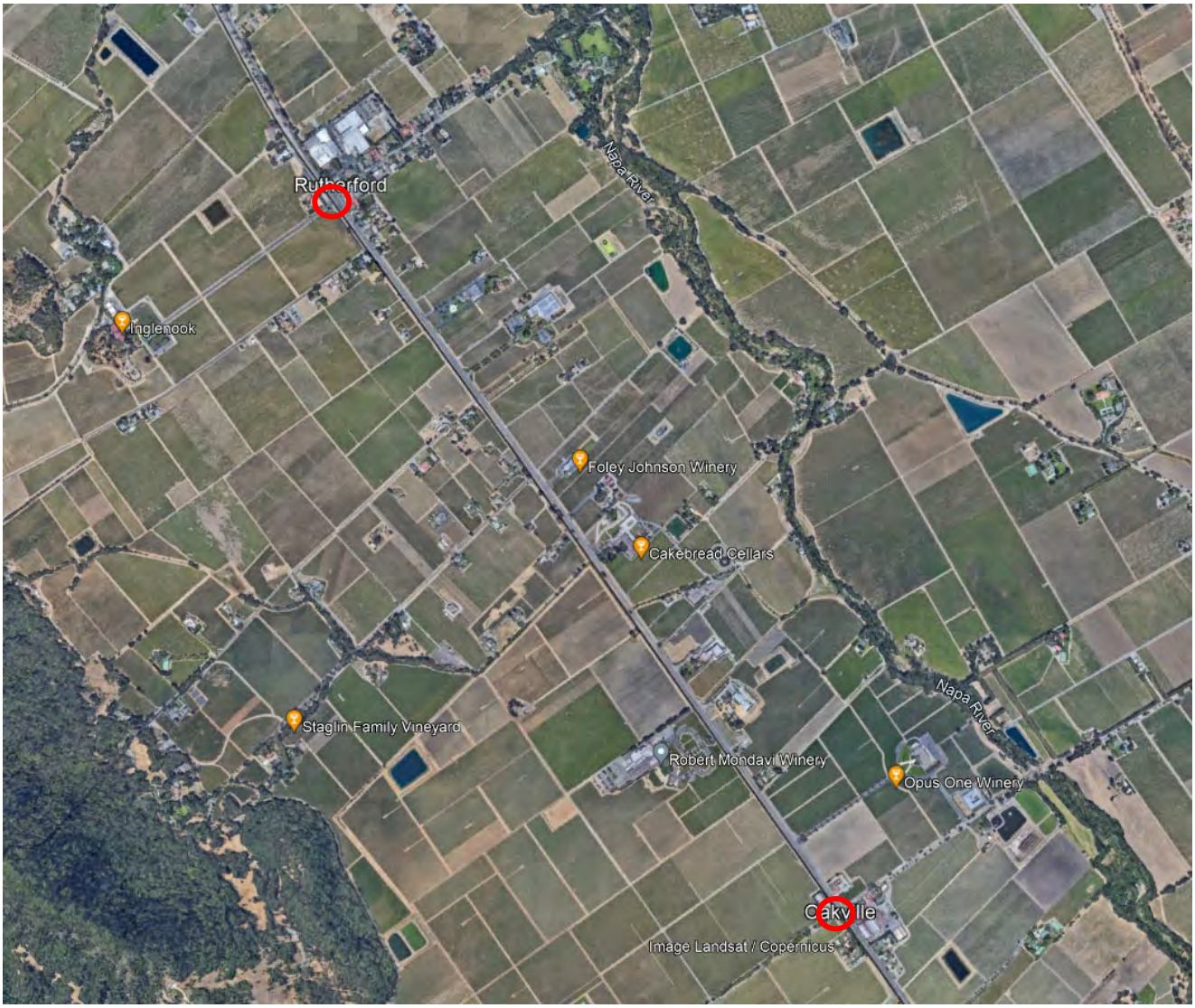
Purpose and Need

This project is needed to address operational and safety issues associated with high traffic volume and aggressive merging along SR 29 in the study area, specifically at the study intersections. The purpose of this project is to identify intersection improvements most appropriate to address the following project objectives at the study intersections:

- Provide a plan of near-term operational improvements that will improve intersection operations at the study intersections
- Develop intersection improvements to reduce excessive delays and queueing at minor approaches
- Improve safety for all modes, including vehicles, bicycles, and pedestrians

This Technical Memorandum is provided as an interim output under our agreement with MTC SF Bay Area. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

Figure 1-1: Study Area Vicinity Map



Study Intersections

This Technical Memorandum is provided as an interim output under our agreement with MTC SF Bay Area. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

2. Travel Demand Model

The Napa-Solano Travel Demand Model provides forecasts for the study area. Napa Valley Transportation Authority (NVTA) together with the Solano Transportation Authority (STA) maintain and utilize the Solano-Napa Activity Based Model (SNABM). The quote from Napa County Model Validation Report is provided here: "*SNABM is based on the regional travel demand model, Travel Model One, developed and maintained by the Metropolitan Transportation Commission (MTC). The SNABM is required to be consistent with Travel Model One and hence uses the same land use and model scripts as Travel Model one. The main difference between the models lies in the more refined travel analysis zone (TAZ) and roadway/transit network structure in the SNABM. Travel Model One includes 1,454 TAZs while the SNABM includes 2,334, including 987 TAZs in Napa and Solano counties*". Model plots are included in Appendix A.

2.1 Objective

The purpose of this memorandum is to obtain the approval of the traffic forecasts for the study intersections from Caltrans District 4 Division of Traffic Forecasting for the Opening Year (2025) and Sensitivity/ Design Year (2035). These forecasts will be utilized to evaluate traffic operations for all feasible and viable alternatives which will improve operations at the study intersection. This memorandum presents methodology and results for the following:

- Validation of the SNABM Year 2015 Model network using a link level analysis.
- Traffic Volume Forecasting for Opening Year (2025) and Sensitivity/ Design Year (2035).

2.2 Project Study Area

SR 29

SR 29 is a two-lane, north-south conventional highway with discontinuous two-way-left-turn lanes (TWLTL) between the study intersections. The highway serves residential, commercial, and agricultural land uses within the County of Napa. North of Rutherford Road, SR 29 and SR 129 are contiguous. Further south of the study intersection locations, SR 29, and SR 121, as well as SR 29 and SR 12 are contiguous. The posted speed limit along SR 29 within the study area ranges from 40 to 50 miles per hour (mph) between Rutherford Road and just north of Madison Street. Just south of Madison Street, SR 29 becomes a four-lane divided highway, and the speed limit increases to 55 mph.

Rutherford Road/SR 128

Rutherford Road, contiguous with SR 128, is a two-lane, east-west highway located in the community of Rutherford that serves residential and commercial land uses. It connects to SR 29 to the west, forming the east leg of the study intersection, and becomes Conn Creek Road/SR 128 to the east. The posted speed limit on Rutherford Road near the study intersection is 30 mph.

Oakville Cross Road

Oakville Cross Road is a two-lane, east-west collector roadway located in the community of Oakville that serves commercial and agricultural uses. It connects to SR 29 forming the east leg of the study intersection and connects to Silverado Trail to the east. There is no posted speed limit on Oakville Cross Road other than a 25-mph zone near the bridge over the Napa River, about 0.5 miles to the east of SR 29. There are 30 mph advisory signs along the eastern segment of the roadway.

This Technical Memorandum is provided as an interim output under our agreement with MTC SF Bay Area. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

3. Existing Data Summary

3.1 Traffic Data

Intersection turning movement counts were collected for the study intersections and daily traffic counts were collected for roadway segments on SR 29 between Rutherford Road and Oakville Cross Road. These counts were collected between May 5th, 2022, and May 8th, 2022. Counts at the study intersections were collected for the weekday AM peak period (between 6:00 AM to 9:00 AM), the weekday PM peak period (between 3:00 PM to 7:00 PM), and for the weekend mid-day peak period (between 11:00 AM to 3:00 PM). The total weekday daily traffic for the SR 29 segment between Oakville Cross Road and Rutherford Road was found to be 20,500, of which the NB traffic was 10,900 and the SB traffic was 9,620. Appendix B contains this data.

3.2 Caltrans provided Traffic Data

Caltrans publishes ADT data in a count book annually for all the facilities on the State Highway System. As noted in the count book, few locations are counted continuously, and the resulting counts are adjusted to derive an estimate of ADT.

More recent pre-pandemic data for 2019 was reviewed from the Caltrans count book in the project vicinity. The 2019 ADT data in the project vicinity (around PM 22.52 and 24.595) was found to be around 24,600 to 26,400.

Caltrans Highway Operations unit collected ADT counts in 2017 on the SR 29 segment north of the Oakville Cross Road in the northbound direction only. The actual data in 2017 was collected over a one-week period beginning April 12, 2017, thru April 19, 2017. The weekday average daily traffic over this period was found to be 10,900 NB only (Appendix B contains this data). A comparison of 2017 Caltrans count in the NB direction and the 2022 May count indicates that the volume was almost identical and no growth in traffic was observed. Based on the data obtained in 2022, the combined NB and SB ADT can be estimated to 20,500.

For 2017, the ADT data from the count book in the project vicinity (around PM 22.52 and 24.595) was found to be around 26,000 to 28,000, which is higher than the 20,500 ADT based on the actual count data. As the data from count book are estimates, for the purposes of this forecast memorandum, the 2017 data obtained by Caltrans Highway Operations through actual in-field counts was utilized for model validation.

4. SNABM Regional Model

The SNABM Regional Travel Demand Model provides a network that includes the entire Bay Area region (comprised of nine counties) including Napa County and provides 2015 and 2040 traffic volumes at the study intersections. This regional model is based on land use and socio-economic data and uses the trip generation characteristics of various land uses to predict the travel interaction. The model outputs Year 2015 (as Model Baseline Year) and Year 2040 (as Model Horizon Year) volumes in the form of directional daily volumes.

4.1.1 Model Validation Methodology, Guidelines and Considerations

The validation of the SNABM Regional TDM was conducted using the link level static model validation techniques recommended within the *Analytical Travel Forecasting Approaches for Project-Level Planning and Design* produced by the National Cooperative Highway Research Program Report 765 (NCHRP 765) in 2014.

The following sections present the methodology and validation standards for the techniques listed above:

Figure 2 – Maximum Desirable Deviation as obtained from Figure 4-13 of the NCHRP 765

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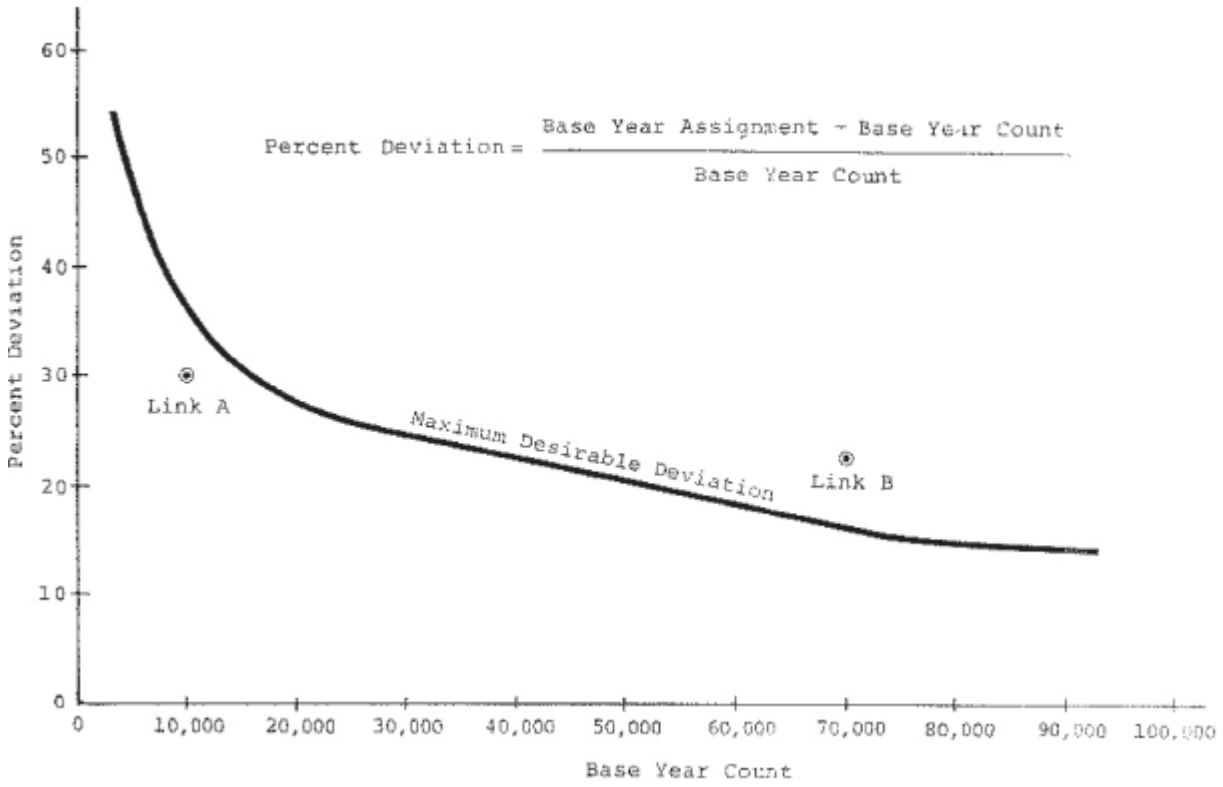

Some of the considerations for model validation as agreed with PDT are provided below:

- Roundabout is being considered for the intersection of SR 29/Oakville Cross
- Roundabout is not being considered for the intersection of SR 29/Rutherford
- Rutherford and Oakville Cross are very minor streets carrying a total daily volume of 4,000 or less
- As such, we checked model validation on the SR 29 segment in the study area

4.1.2 Link Level Validation

Since the model data was 2015 and daily count data for SR 29 in the NB direction north of Oakville Cross Road was 2017 (10,900 – from actual Caltrans counts), the model data was scaled up using interpolation between 2015 (8,794 – model volume) and 2040 (10,969 – model volume) to derive year 2017 model estimate. The 2017 model estimate for the SR 29 segment north of Oakville Cross Road was calculated to be approximately 9,000.

The percent difference in the actual count (10,900) to the model estimate (9,000) was found to be approximately 21%. Given the regional nature of the model and the guidelines provided within the NCHRP 765 as shown in Figure 2 above, it is concluded that the SNABM Model forecasts reasonably replicate existing conditions within the model limitations. Based on the validation analysis, it can be concluded that the SNABM Model can be used to forecast future volumes at this study intersection.

The 2022 data and 2017 traffic count data were found to be almost identical. Therefore, for the purposes of this memorandum, the 2022 TMC data was treated as the 2017 data. Figure 4-1 and 4-3 show existing Turning Movement Counts (TMC) at the Oakville Cross Road intersection the Rutherford intersection. Figure 4-12 and 4-4 show existing Turning Movement Counts (TMC) expressed as percentage of the approach volume at the Oakville Cross Road intersection the Rutherford intersection.

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Figure 4-1: 2017 Peak Hour Turning Movement Counts @ Oakville Cross Road

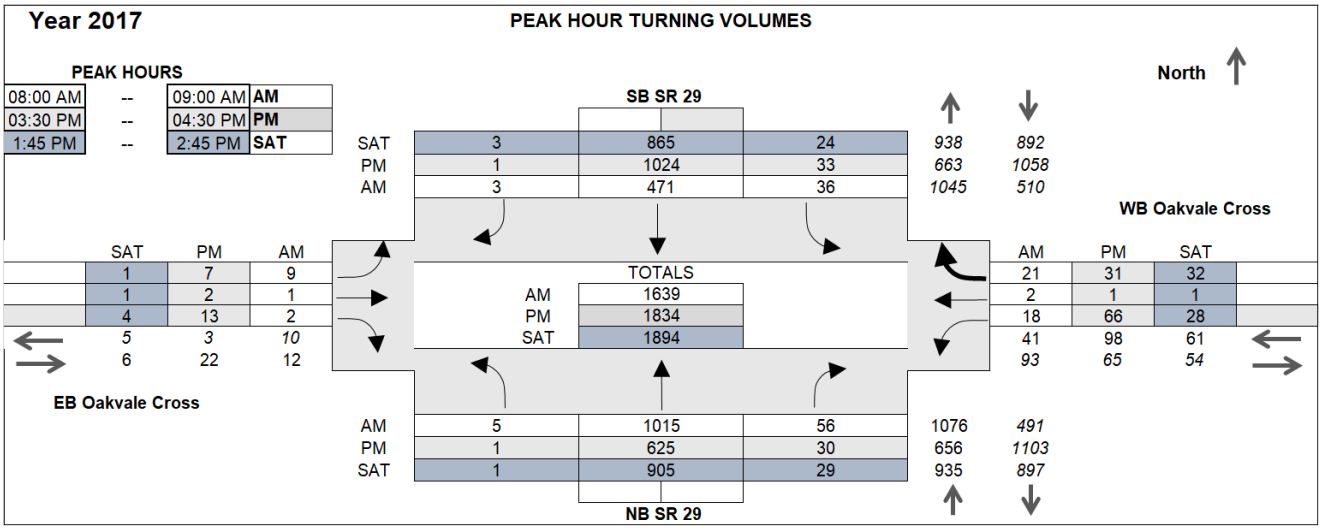

Figure 4-2: 2017 Peak Hour Turning Movement Percentages @ Oakville Cross

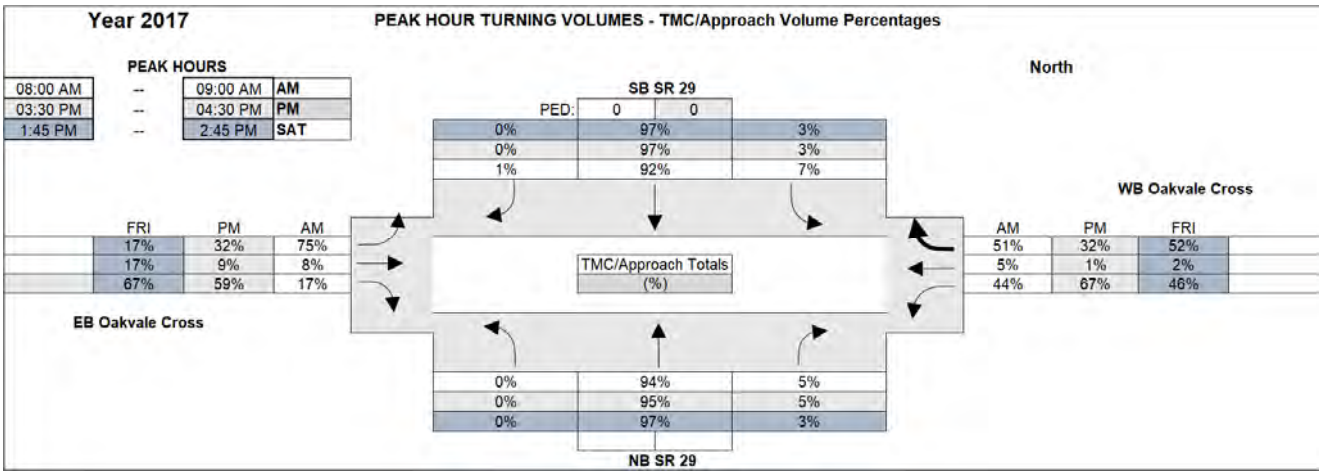

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Figure 4-3: 2017 Peak Hour Turning Movement Counts @ Rutherford

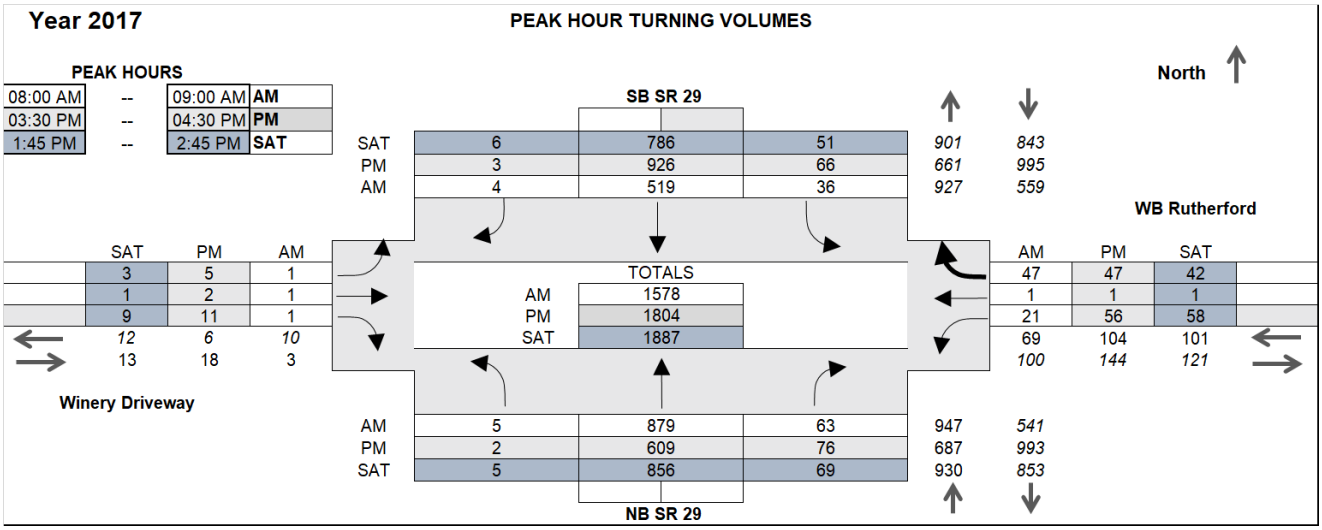
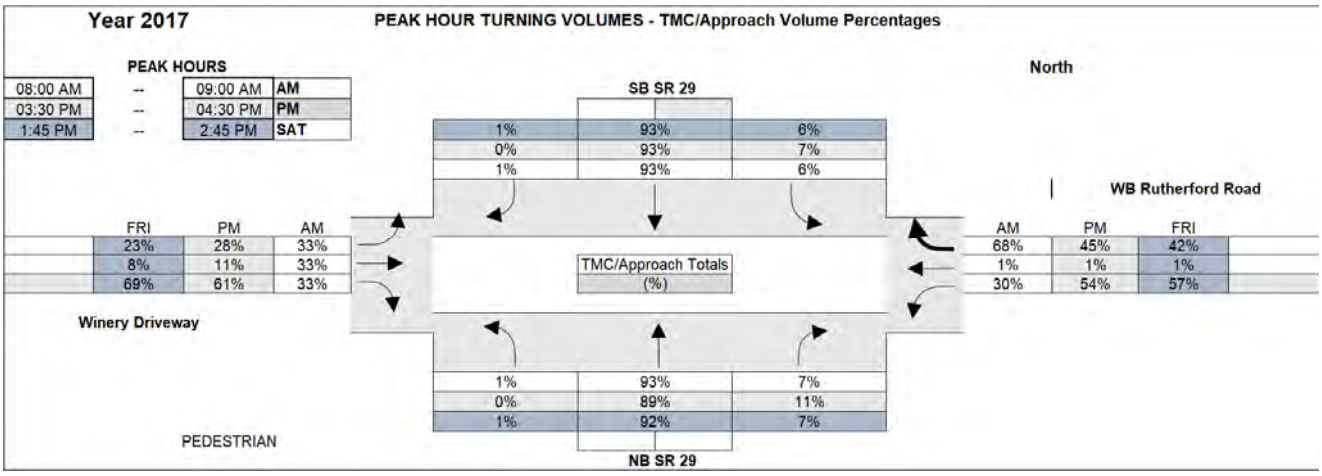


Figure 4-4: 2017 Peak Hour Turning Movement Percentages @ Rutherford



5. Forecasting Methodology for Year 2035 Conditions

The SNABM Model can provide traffic volume projections up to (and including) Year 2040 (which is the Model Horizon Year). The following sections present the core methodology used in forecasting turning movement volumes for the AM, PM, and Weekend peak hours of Year 2025 and 2035 Conditions.

5.1 Volume Forecasting

Two methods are typically used for forecasting: 1. Delta Method and Growth Rate Method. Based on a sensitivity testing with the two methods, the Growth Rate method provided conservative forecasts at this study location. As such, the Growth Rate was used for forecasting in this memorandum.

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5.2 Growth Rate

An annual growth rate was derived for the SR 29, Oakville Cross Road, and Rutherford Road segment in the study area. The annual growth rate was be derived through a comparison of the Year 2015 model volumes to the Year 2040 model volumes. The annual growth rate was then utilized to obtain an 8-year cumulative growth rate to derive 2025 forecasts and 18-year growth rate to derive 2035 forecasts. Figure 5-1 contains the growth rates derived from the model.

Figure 5-1: Growth Rates in the Study Area

Segment	2105 Model ADT	2040 Model ADT	Annual Growth Rate	25 Year Cumulative Growth Rate	8 Year Cumulative Growth Rate	18 Year Cumulative Growth Rate
SR 29 South of Oakvale	18382	23502	1.11%	27.85%	8.91%	20.05%
SR 29 North of Oakvale	16789	21496	1.12%	28.04%	8.97%	20.19%
SR 29 South of Rutherford	16035	21026	1.25%	31.13%	9.96%	22.41%
SR 29 North of Rutherford	15377	20084	1.22%	30.61%	9.80%	22.04%
Average Growth Rate	**16646**	**21527**	**1.17%**	**29.32%**	**9.38%**	**21.11%**
Oakvale Cross east of SR 29	1372	1943	1.66%	41.62%	13.32%	29.97%
Rutherford east of SR 29	774	1084	1.60%	40.05%	12.82%	28.84%

For SR 29, the average annual growth rate in the study was found to be 1.17%; the 8-year cumulative growth rate was found to be 9.38% and the 18-year cumulative growth rate was found to be 21.11%.

For Oakville Cross Road east of SR 29, the average annual growth rate in the study was found to be 1.66%; the 8-year cumulative growth rate was found to be 13.32% and the 18-year cumulative growth rate was found to be 29.97%. The road segment to the west of SR 29 carries insignificant traffic. As such, the same growth rate will be used for the road segment to the west of SR 29.

For Rutherford Road east of SR 29, the average annual growth rate in the study was found to be 1.60%; the 8-year cumulative growth rate was found to be 12.82% and the 18-year cumulative growth rate was found to be 28.84%. The road segment to the west of SR 29 carries insignificant traffic. As such, the same growth rate will be used for the road segment to the west of SR 29.

6. Year 2035 Turning Movement Volumes

Future Year 2035 intersection turning movements were derived by applying the growth factor to the existing TMC percentages and the resulting growth this derived were added to the existing TMC.

Figures 6.1 and 6.2 present the Year 2035 turning movement volumes and the Turning Movement Counts (TMC) expressed as percentage of the approach volume at the Oakville Cross Road intersection while Figures 6.3 and 6.4 present the Year 2035 turning movement volumes and the Turning Movement Counts (TMC) expressed as percentage of the approach volume at the Rutherford Road intersection.

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Figure 6.1 – Year 2035 Turning Movement Volumes – Oakville Cross Road Intersection

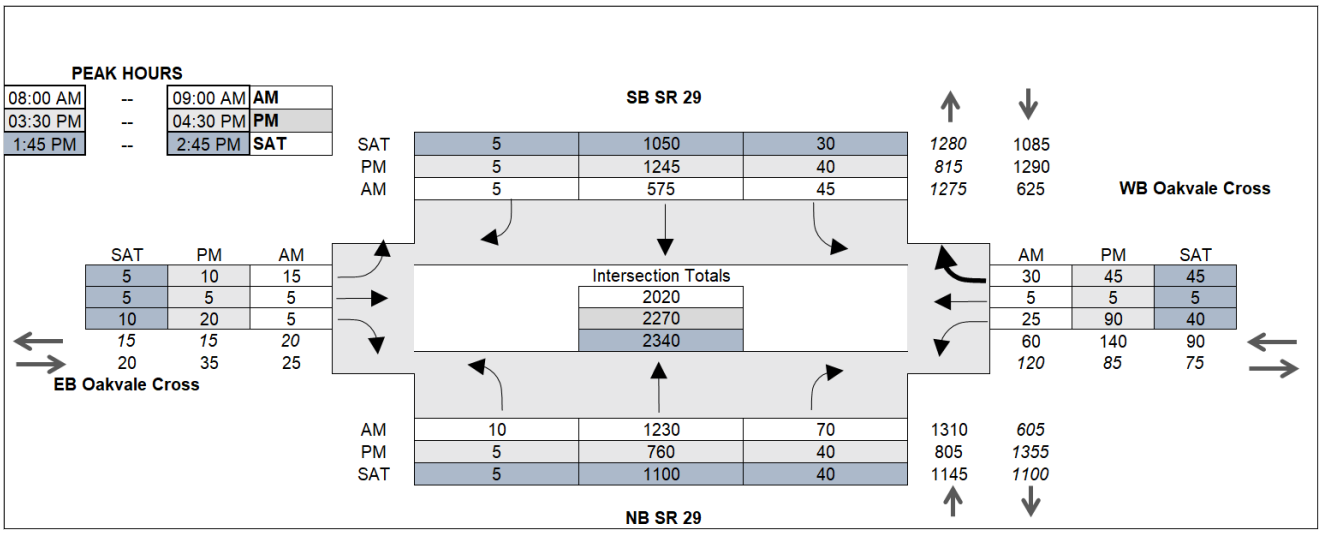

Figure 6.2 – Year 2035 Turning Movement Volumes in % of approach volumes– Oakville Cross Road Intersection

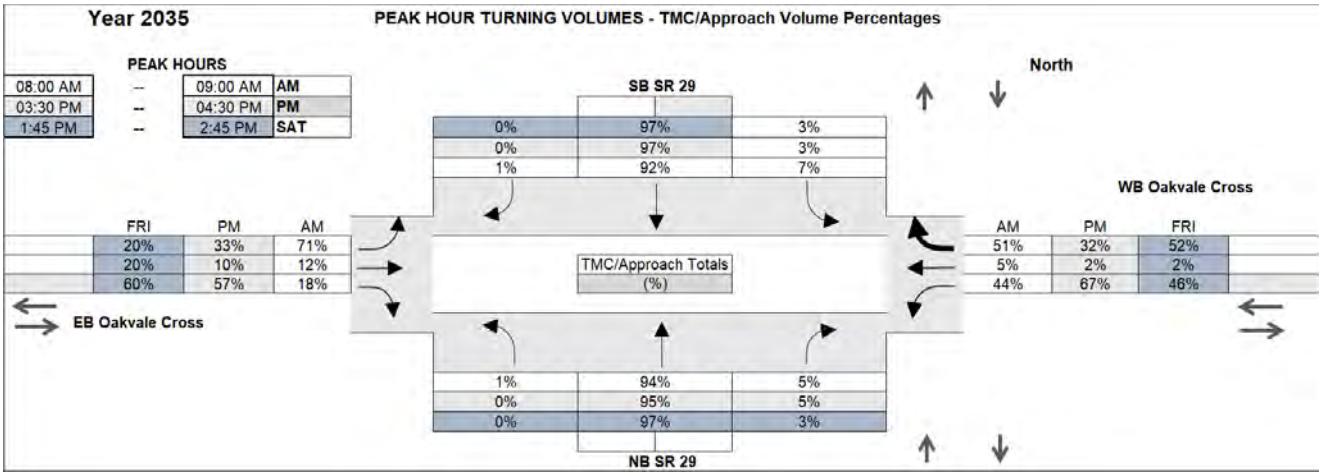

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Figure 6.3 – Year 2035 Turning Movement Volumes – Rutherford Cross Road Intersection

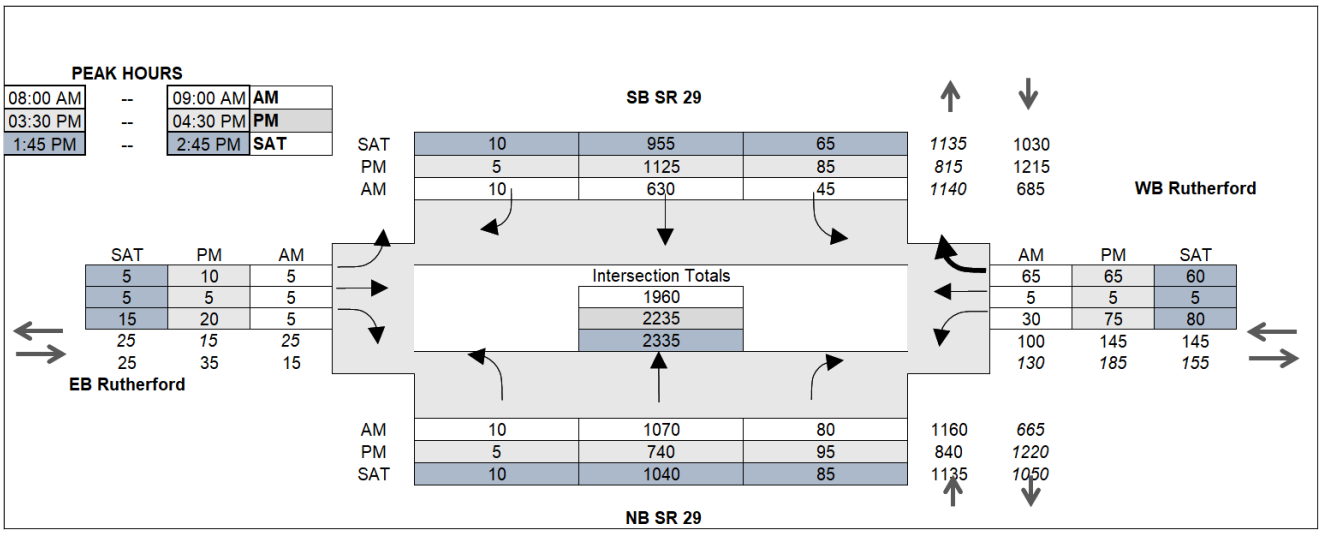
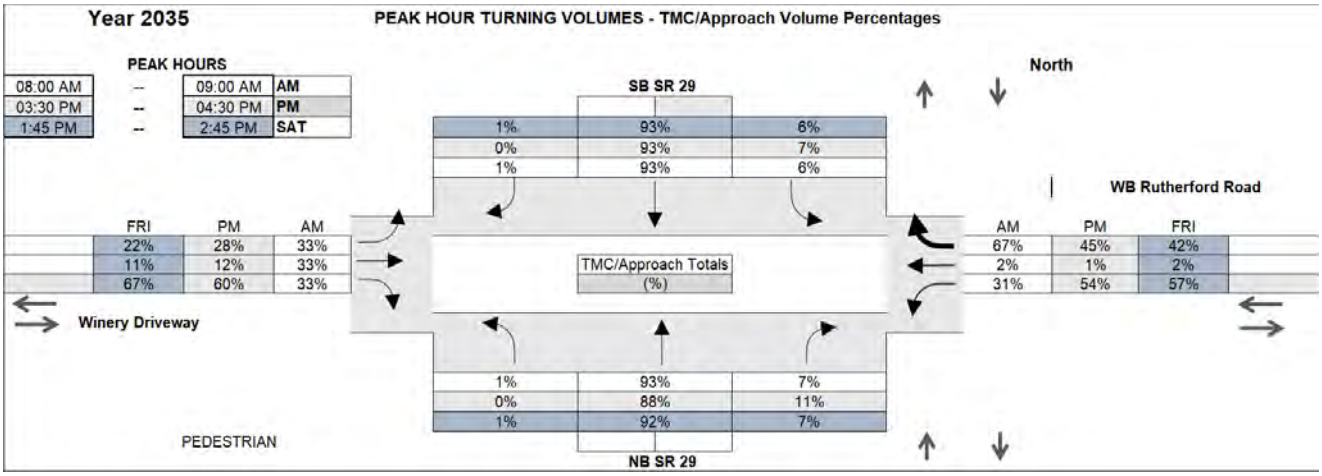


Figure 6.4 – Year 2035 Turning Movement Volumes in % of approach volumes– Rutherford Road Intersection



6.1 Year 2025 Volume Forecasts

Per input received from the Project Development Team (PDT), it was determined that an Opening Year was to be analyzed for any proposed intersection improvements. The Opening Year for intersection improvements was determined to be Year 2025.

Future Year 2035 intersection turning movements were derived by applying the growth factor to the existing TMC percentages and the resulting growth this derived were added to the existing TMC.

Figures 6.5 and 6.6 present the Year 2025 turning movement volumes and the Turning Movement Counts (TMC) expressed as percentage of the approach volume at the Oakville Cross Road intersection while Figures 6.7 and 6.8 present the Year 2025 turning movement volumes and the Turning Movement Counts (TMC) expressed as percentage of the approach volume at the Rutherford Road intersection.

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Figure 6.5 – Year 2025 Turning Movement Volumes – Oakville Cross Road Intersection

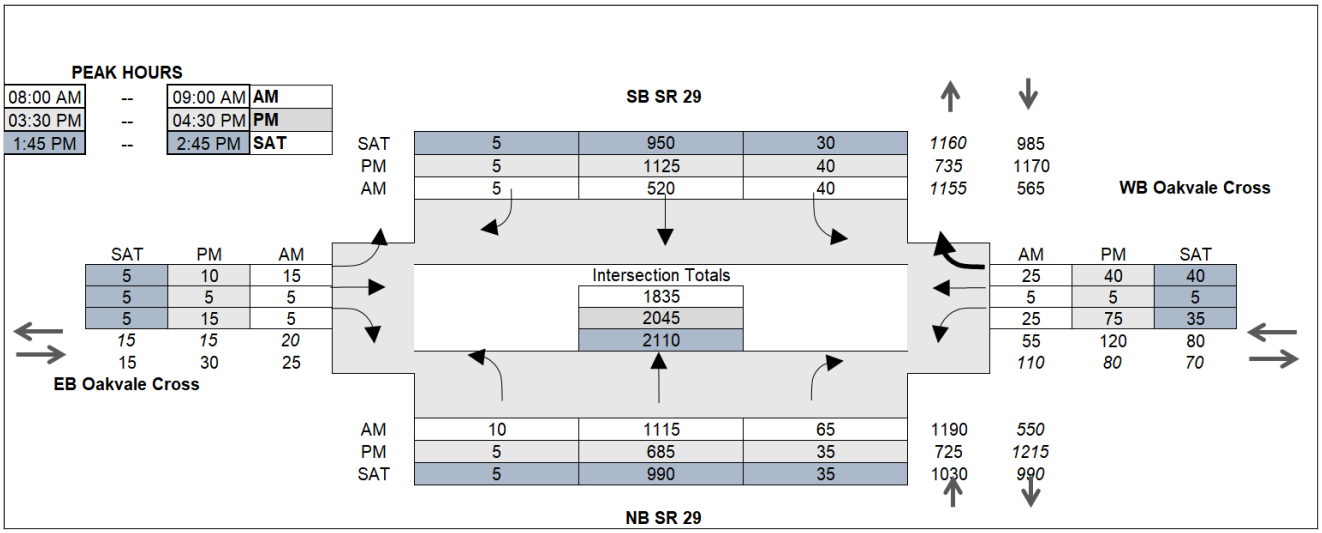

Figure 6.6 – Year 2025 Turning Movement Volumes in % of approach volumes– Oakville Cross Intersection

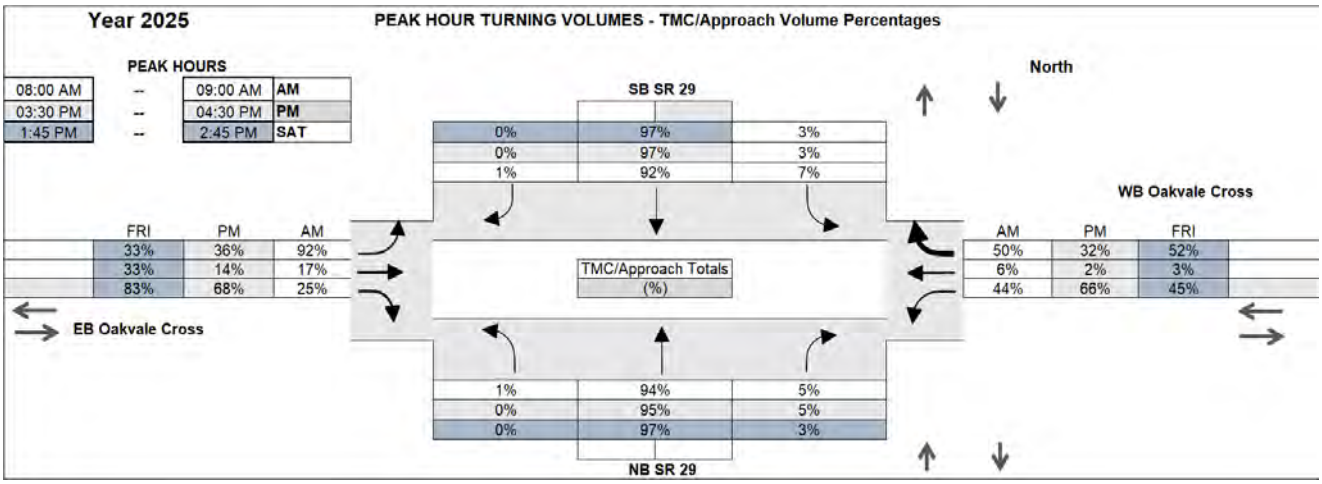

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Figure 6.7 – Year 2025 Turning Movement Volumes – Rutherford Intersection

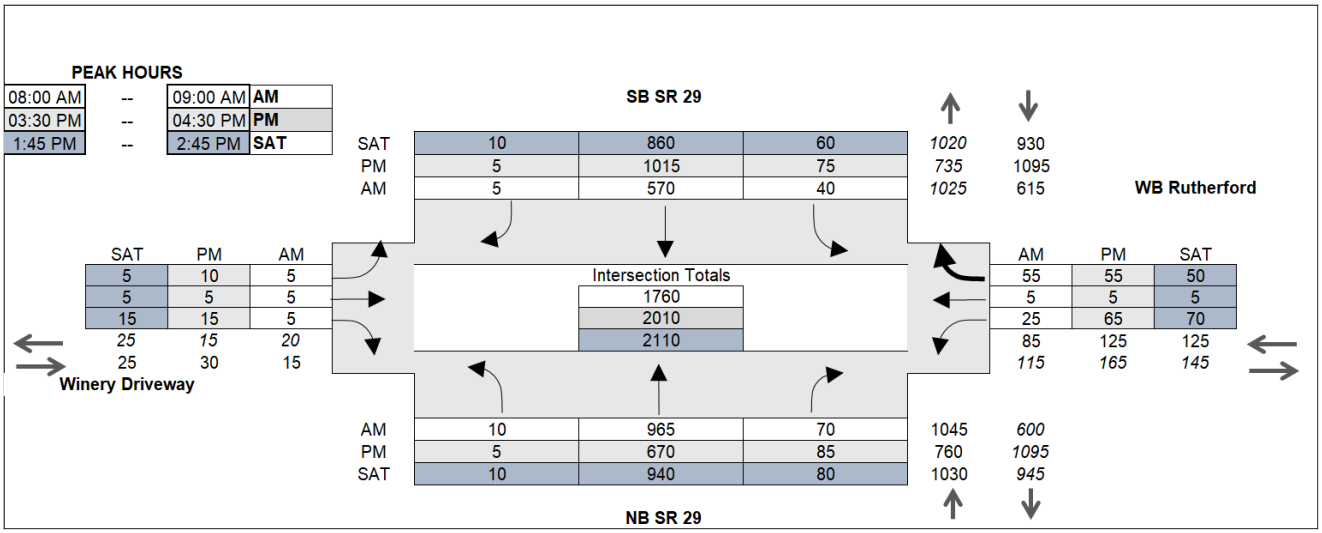
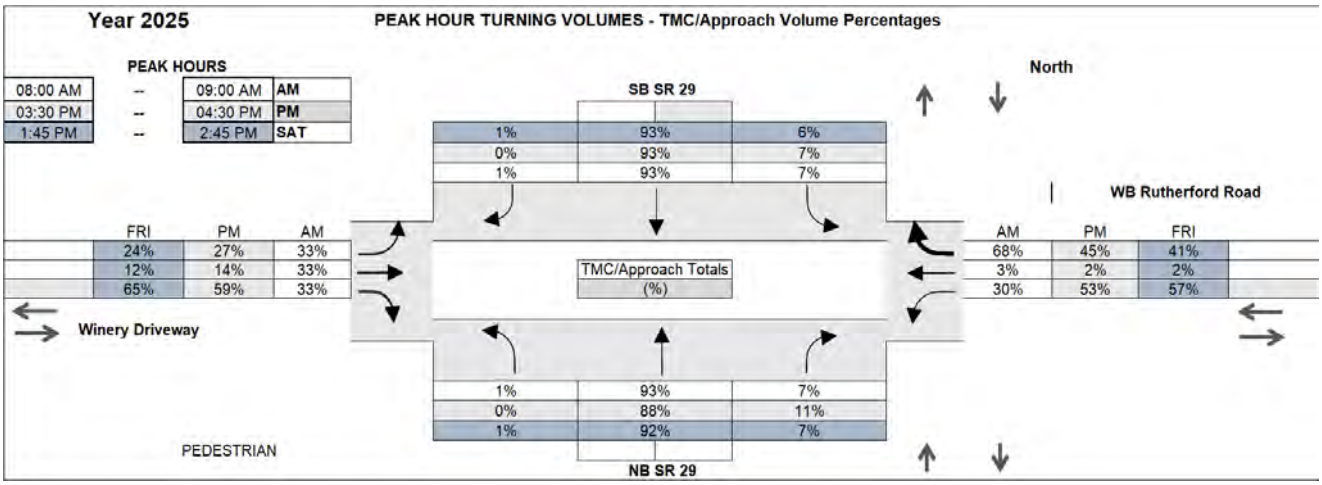


Figure 6.8 – Year 2025 Turning Movement Volumes in % of approach volumes– Rutherford Road Intersection



This Technical Memorandum is provided as an interim output under our agreement with MTC SF Bay Area. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

From: Patel, Mahendra N@DOT
To: Kamesh Vedula
Cc: Cox, Phillip@DOT; Ingrid Supit; James Zandian; Henry Hammel; Cabangangan, Anthony@DOT
Subject: Re: Discuss Forecasts->Approved by Forecasting Division
Date: Tuesday, December 20, 2022 3:27:23 PM

You don't often get email from mahendra.patel@dot.ca.gov. Learn why this is important

All looks good and Forecast Division is approving the Forecast memo. Thanks for your prompt response.

Thanks,

Mahendra Patel, P.E.

Office of Project Initiation & Travel Forecasting
California Department of Transportation - District 4
111 Grand Ave
Oakland, CA 94612
e-mail: mahendra.patel@dot.ca.gov
Mobile: 510-407-7458

> On Dec 19, 2022, at 11:47 AM, Kamesh Vedula <Kamesh.Vedula@ghd.com> wrote:
>
> **EXTERNAL EMAIL.** Links/attachments may not be safe.
> Hello Mahendra.
> Thank you for taking the time last week to discuss the comments and responses/approach. Below are the comments and draft responses. To Attached also is the revised Traffic Forecast. Revisions are highlighted in yellow for ease of review.
> Comment: Pl put post miles at both the intersections in the subject line as well as in the body as a useful reference
> ***Response: Comment noted. Will update the forecast memorandum to include PM at the intersections.***
>
> 2019 ADT data on CA 29 at Rutherford/CA 128 is 24,600 and at the Oakville Grade Road is 26,400. The ADT used in the report is 20,500 which is about 20% below the 2019 counts, please verify and bring the counts up accordingly. 2018 counts are even higher than the 2019 counts The traffic counts need to represent pre-pandemic levels, because traffic will eventually normalize to those levels as employees return to work and businesses are slowly revamping. Below is a copy-paste of Yr 2019 data, FYI. CT does not rely on just one set of counts, CT looks at what is available and decides what to use based on the engineering judgement - suitable to the facility type and area type.
> ***Response: Comment noted. Section 3.2 was updated to address the comment and the follow on discussion with Caltrans Forecasting Unit.***
>
> Use the model growth factor (bet 2015 & 2040)and apply that growth factor to the link level traffic count data to obtain future years link volumes which can then be used to derive TMCs for future years.

Response: Comment noted. As noted in comment 2 above, anomalies exist between the 2017 count data and the actual counts. To provide for a reasonably conservative forecasts to account for anomalies, the forecasts were derived using the growth rate and the delta method. The growth rate provided slightly conservative forecasts. As such, it was agreed that the growth rate method will be utilized to derive the forecasts. An annual growth rate will be derived for the SR 29, Oakville Cross Road and Rutherford Road segment in the study area. The annual growth rate will be derived through a comparison of the Year 2015 model volumes to the Year 2040 model volumes. This annual growth rate will be applied linearly to derive 2025 and 2035 growth rates, which will then be applied to the existing traffic volumes to obtain forecast volumes.

Similar to figure 6.1 provide another figure that shows the percentages for each turning movement at all four legs to get an idea.
Response: Comment noted. Will update the forecast memorandum to include an exhibit that shows the percentages for each turning movement at the study intersections. intersections.

Isn't the Napa Wine Co project a part of the larger ABAG landuse forecasts for the future year since the SNBAM model is consistent with MTC's. If not, then won't this extra landuse throw the consistency off? Need an explanation.
Response: Comment noted. We added this landuse project to be conservative. However, we do agree with the comment and assessment of the landuses. On further discussion with Caltrans forecasting unit, it was agreed to remove the discussion associated with the Napa Wine Co project.

From: Patel, Mahendra N@DOT <Mahendra.Patel@dot.ca.gov>
Sent: Wednesday, December 14, 2022 10:00 AM
To: Kamesh Vedula <Kamesh.Vedula@ghd.com>
Cc: Cox, Phillip@DOT <phillip.cox@dot.ca.gov>
Subject: RE: Discuss Forecasts->I am available now if you are

OK let me get on line within a minute.

Thanks,
Mahendra Patel, P.E., Range D

Office of Project Initiation & Travel Forecasting
California Department of Transportation - District 4
111 Grand Ave
Oakland, CA 94612
e-mail: mahendra.patel@dot.ca.gov
Mobile: 510-407-7458

From: Kamesh Vedula <Kamesh.Vedula@ghd.com>
Sent: Wednesday, December 14, 2022 9:59 AM
To: Patel, Mahendra N@DOT <Mahendra.Patel@dot.ca.gov>
Subject: RE: Discuss Forecasts->I am available now if you are

EXTERNAL EMAIL. Links/attachments may not be safe.

Great. I'm available. Will be there in a moment.

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: "Patel, Mahendra N@DOT" <Mahendra.Patel@dot.ca.gov>
Date: 12/14/22 9:56 AM (GMT-08:00)
To: Kamesh Vedula <Kamesh.Vedula@ghd.com>
Cc: "Cox, Phillip@DOT" <phillip.cox@dot.ca.gov>
Subject: RE: Discuss Forecasts->I am available now if you are

Hi Kamesh,
Good morning! I am available now, if you are available, we can talk on MS Teams. Let me know.

Thanks,
Mahendra Patel, P.E., Range D

Office of Project Initiation & Travel Forecasting
California Department of Transportation - District 4
111 Grand Ave
Oakland, CA 94612
e-mail: mahendra.patel@dot.ca.gov
Mobile: 510-407-7458

From: Kamesh Vedula <Kamesh.Vedula@ghd.com>
Sent: Wednesday, December 14, 2022 9:14 AM
To: Patel, Mahendra N@DOT <Mahendra.Patel@dot.ca.gov>
Cc: Cox, Phillip@DOT <phillip.cox@dot.ca.gov>
Subject: Re: Discuss Forecasts

EXTERNAL EMAIL. Links/attachments may not be safe.
Got it Mahendra. Looking forward to talking to you this AM.

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

From: Patel, Mahendra N@DOT <Mahendra.Patel@dot.ca.gov>
Sent: Wednesday, December 14, 2022 8:42:33 AM
To: Kamesh Vedula <Kamesh.Vedula@ghd.com>
Cc: Cox, Phillip@DOT <phillip.cox@dot.ca.gov>
Subject: New Time Proposed: Discuss Forecasts

When: Wednesday, December 14, 2022 11:00 AM-11:45 PM.
Where:

> You don't often get email from mahendra.patel@dot.ca.gov. Learn why this is important

You had it up to 11:45 pm and I changed it to AM. Also, we don't need more than half hour.

Thanks.

Mahendra

PS: Phil, I have included you and if you are available please attend
CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.
<11227647_Forecasts Memo - December 19.pdf>

Appendix G – TASAS Data

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EA 04-2W430

Traffic Accident Surveillance and Analysis System (TASAS)

Crash Data Analysis

The contents of these reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409 and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

TASAS Crash Data Analysis

The Table B report identified in Table 1 was generated on December 12, 2021 and it depicts crash rates per million vehicle miles for the most recent 3 year period from 01/01/2018 to 12/31/2020 from the Traffic Accident Surveillance and Analysis System (TASAS).

TABLE 1
TASAS Table B Crash January 01, 2018 – December3, 2020)

Segment	TOTAL No. of Crashes	ACTUAL Rates (per million vehicle miles)			AVERAGE Rates (per million vehicle miles)		
		Fatal Crashes	Fatal + Injury Crashes	Total (1)	Fatal Crashes	Fatal + Injury Crashes	Total (1)
NAP 29 PM 22.520 Oakville Cross Road	26	0.000	0.61	1.38	0.020	0.34	0.79

(1) All reported crashes (includes Property Damage Only (PDO) Crashes)

Table 1 (TASAS Table B Crash Rates (January 01, 2018 – December 31, 2020) summarizes and compares the actual crash rates within the segment of combined directions of NAP 29 at 1500 Ft in either direction of the intersection at Oakville Cross Road, PM 22.520 to the average rates for similar facilities throughout the State. The Total crash rates include all reported crashes: Fatal, Injury, and Property Damage.

Protected by 23 U.S.C. Section 409

TASAS Table B Summary Report

Analysis of the TASAS Table B records show a total of 26 crashes within the segment of combined directions of NAP 29 at 1500 Ft in either direction of the intersection at Oakville Cross Road, PM 22.520 and study periods summarized above, with a total rate of fatal and injury crash that is above the average crash rate for similar facilities statewide, and a total crash rate that is above the average for similar facilities statewide.

TASAS TSAR Summary Report

- 8 (30.8%) Broadside,
- 7 (26.9%) Hit Object,
- 6 (23.1%) Rear End,
- 4 (15.4%) Sideswipe and ,
- 1 (3.8%) Head On.

The primary crash factors were:

- Failure to Yield,
- Improper Turn,
- Speeding,
- Influence of Alcohol and,
- Other Violations.

Protected by 23 U.S.C., Section 409

The Table B report identified in Table 2 was generated on December 13, 2021 and it depicts crash rates per million vehicle miles for the most recent 3 year period from 01-01-2018 to 12-31-2020 from the Traffic Accident Surveillance and Analysis System (TASAS).

TABLE 2

TASAS Table B Crash Rates (January 01, 2018 – December 31, 2020)

Segment	TOTAL No. of Crashes	ACTUAL Rates (per million vehicle miles)			AVERAGE Rates (per million vehicle miles)		
		Fatal Crashes	Fatal + Injury Crashes	Total [(1)]	Fatal Crashes	Fatal + Injury	Total [(1)]
NAP 29 PM 24.595 Rutherford Road	22	0.000	0.40	1.46	0.020	0.34	0.79

[(1)]All reported crashes (includes Property Damage Only (PDO) Crashes)

Table 2 (TASAS Table B Crash Rates (January 1, 2018 – December 31, 2020) summarizes and compares the actual crash rates within the segment of combined directions of NAP 29 at 1500 FT in either direction of the intersection at Rutherford Road to the average rates for similar facilities throughout the State. The Total crash rates include all reported crashes: Fatal, Injury, and Property Damage.

TASAS Table B Summary Report

Analysis of the TASAS Table B records shows a total of 22 crashes within the segment of combined directions of NAP 29 at 1500 FT in either direction of the intersection at Rutherford Road. and study periods summarized above, with a total rate of fatal and injury related crash rate that is above the average crash rate for similar facilities statewide, and a total crash rate that is above the average for similar facilities statewide.

Protected by 23 U.S.C. Section 409

TASAS TSAR Summary Report

Detailed analysis of the types of reported collisions shows that:

- 9 (40.9%) crashes were Rear End,
- 5 (22.7%) crashes were Sideswipe,
- 4 (18.2%) crashes were Hit Object,
- 2 (9.1%) crashes were Head On and,
- 2 (9.1%) crashes were Broadside,

The primary crash factors were:

- Speeding,
- Improper Turn,
- Failure to Yield and,
- Other Violations.

Analysis Conducted By:	Date
Fereshta Mojaddedi	12/8/2021
Fereshta Mojaddedi	
Approved for Release:	Date

cc: SMamoon/BZarechian/Traffic Engineering N/E

Protected by 23 U.S.C., Section 409

Appendix H – Alternative Exhibits

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

LEGEND

- STATE R/W
- PARCEL BOUNDARY
- EASEMENT
- EXISTING RAILROAD
- PROPOSED DESIGN
- NEW TRAFFIC SIGNAL

RIGHT OF WAY ACQUISITION

TEMPORARY CONSTRUCTION EASEMENT

PERMANENT EASEMENT

SCALE 1"=40'

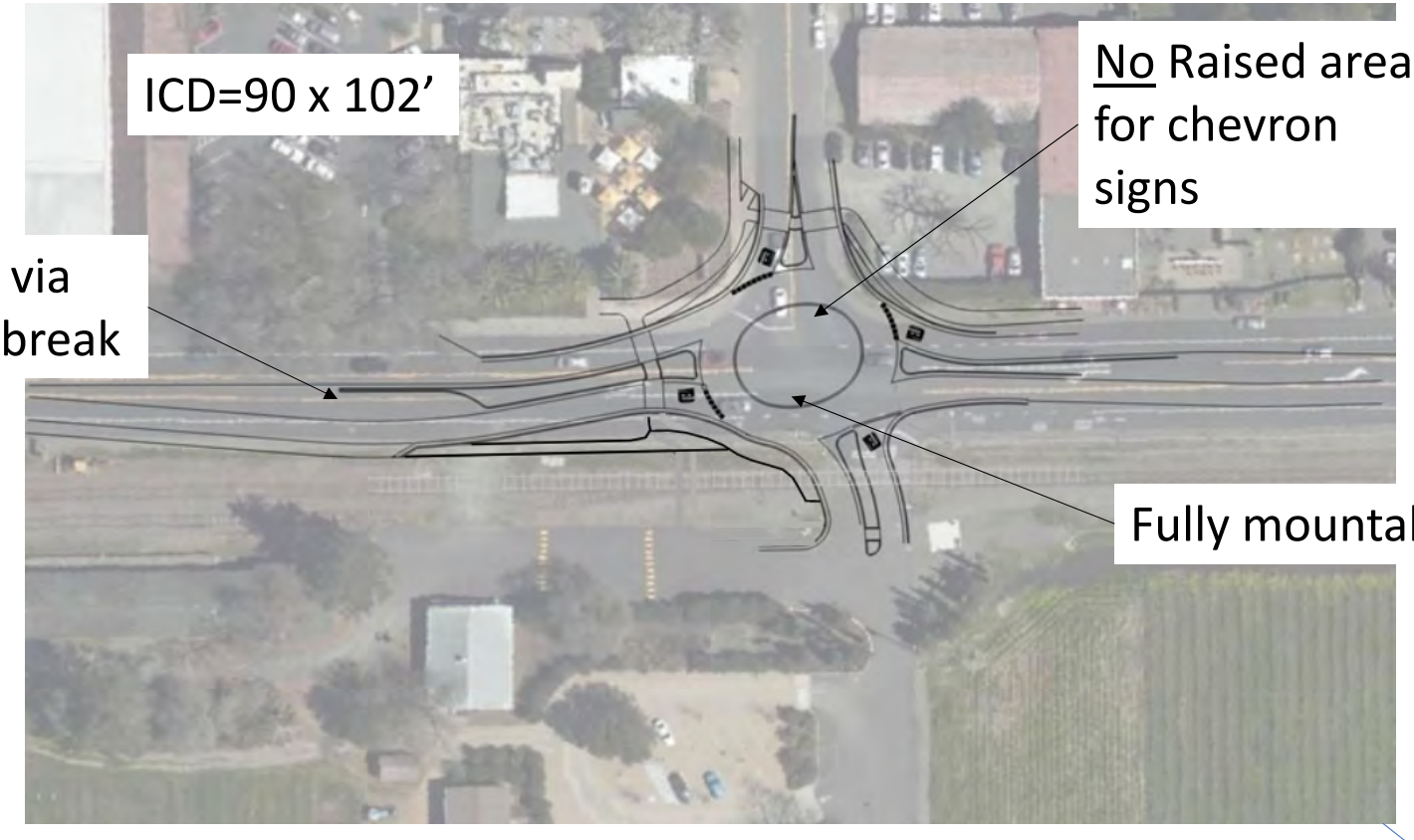
METROPOLITAN TRANSPORTATION COMMISSION

GHD

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT

RUTHERFORD Rd. SIGNAL OPTION
SEPT 2022

Compact Roundabout Alternative



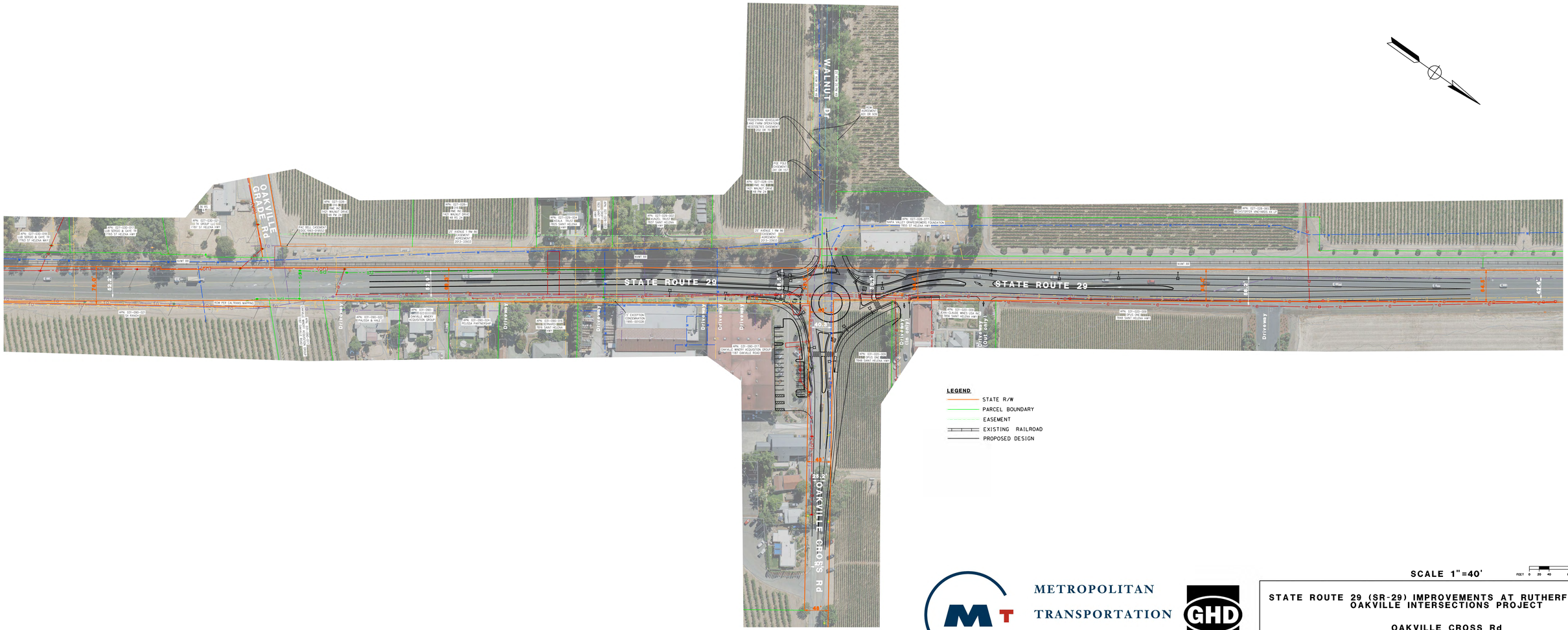
METROPOLITAN
TRANSPORTATION
COMMISSION

GHD

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT

OAKVILLE CROSS Rd, SIGNAL OPTION

SEPT 2022



SCALE 1"=40'

METROPOLITAN TRANSPORTATION COMMISSION

GHD

STATE ROUTE 29 (SR-29) IMPROVEMENTS AT RUTHERFORD AND OAKVILLE INTERSECTIONS PROJECT

OAKVILLE CROSS Rd

SEPT 2022

Appendix I – Cost Estimates

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Rutherford Signal with Mainline Channelization

Item Code	Item	Unit	Unit Price	Intersection		Grade Crossing		Mainline		Total Quan	Total Cost
				Est. Quan	Sub Total	Est. Quan	Sub Total	Est. Quan	Sub Total		
190101	Roadway Excavation	CY	$ 150.00	331	$ 49,579.17	26.99	$ 4,048.61	159.63	$ 23,944.44	517	$ 77,572.22
170103	Clearing & Grubbing	LS	$ 10,000.00	1	$ 10,000.00	-	$ -	-	$ -	1	$ 10,000.00
390132	Hot Mix Asphalt (Type A)	TON	$ 250.00	330	$ 82,575.00	12.92	$ 3,229.69	64.35	$ 16,087.50	408	$ 101,892.19
260203	Class 2 Aggregate Base	CY	$ 150.00	241	$ 36,158.33	20.61	$ 3,091.67	117.48	$ 17,622.22	379	$ 56,872.22
731521	Minor Concrete (Curb, Sidewalk, and Islands)	CY	$ 900.00	47	$ 42,409.79	-	$ -	10.37	$ 9,333.33	57	$ 51,743.12
398200	Cold Plane Asphalt Concrete Pavement	SQYD	$ 23.00	2,006	$ 46,127.78	-	$ -	-	$ -	2,006	$ 46,127.78
870400	Signal and Lighting System	LS	$ 300,000.00	1	$ 300,000.00	-	$ -	-	$ -	1	$ 300,000.00
871400	Radar Speed Feedback Sign Systems (NB/SB SR-29)	LS	TBD	-		-		1.00		1	
870700	Flashing Beacon System (NB/SB SR-29 and Rutherford Rd)	LS	TBD	-		-		1.00		1	
	Reconstruction-Private Property (landscaping repair and wall…)	LS	$ 40,000.00	1	$ 40,000.00	-	$ -	-	$ -	1	$ 40,000.00
	Drainage (18"x xx')	LS	$ 35,000.00	1	$ 35,000.00	-	$ -	-	$ -	1	$ 35,000.00
	Environmental (included in contingency)	LS	$ -	1	$ -	-	$ -	-	$ -	1	$ -
	Signing and Striping (w/flashing beacons)	LS	$ 15,000.00	1	$ 15,000.00	1.00	$ 15,000.00	1.00	$ 15,000.00	3	$ 45,000.00
	Temporary Construction	LS	$ 25,000.00	1	$ 25,000.00	1.00	$ 25,000.00			2	$ 50,000.00
	Traffic Control System (signage, striping, detour, flaggers, 2 months)	LS	$ 30,000.00	1	$ 30,000.00	-	$ -	1.00	$ 70,000.00	2	$ 100,000.00
	Water Quality	LS	$ 25,000.00	1	$ 25,000.00		$ -	1.00	$ 25,000.00	2	$ 50,000.00
	Grade Crossing	LS	$ 75,000.00		$ -	1.00	$ 75,000.00		$ -	1	$ 75,000.00
	Utilities	LS	$ 45,000.00	1	$ 45,000.00						$ 45,000.00
	Misc Work Item (Not included in the above items)	LS	$ -	1	$ -		$ -		$ -	1	$ -
					Subtotal $ 781,850.07		$ 125,369.97		$ 176,987.50		

Sub Total	$ 1,084,207.53
10% Contingency	$ 108,420.75
Total	$ 1,192,628.29

Rutherford Compact Roundabout with Mainline Channelization

Item Code	Item	Unit	Unit Price	Intersection		Grade Crossing		Mainline		Total Quan	Total Cost
				Est. Quan	Sub Total	Est. Quan	Sub Total	Est. Quan	Sub Total		
190101	Roadway Excavation	CY	$ 100.00	390	$ 38,990.74	-	$ -	5,631.53	$ 563,152.59	6,021	$ 602,143.33
170103	Clearing & Grubbing	LS	$ 15,000.00	1	$ 15,000.00	-	$ -	-	$ -	1	$ 15,000.00
390132	Hot Mix Asphalt (Type A)	TON	$ 150.00	259	$ 38,815.88	-	$ -	3,863.57	$ 579,534.75	4,122	$ 618,350.63
260203	Class 2 Aggregate Base	CY	$ 100.00	265	$ 26,483.70	-	$ -	4,225.27	$ 422,527.41	4,490	$ 449,011.11
731521	Minor Concrete (Curb, Sidewalk, and Islands)	CY	$ 830.00	147	$ 121,737.66		$ -	352.94	$ 292,943.77	500	$ 414,681.43
398200	Cold Plane Asphalt Concrete Pavement	SQYD	$ 4.00	2,399	$ 9,597.33		$ -	20,344.00	$ 81,376.00	22,743	$ 90,973.33
870200	Lighting System (assuming 4)	LS	$ 40,000.00	1	$ 40,000.00	-	$ -	-	$ -	1	$ 40,000.00
871400	Radar Speed Feedback Sign Systems (NB/SB SR-29)	LS	TBD	-		-		1.00		1	
870700	Flashing Beacon System (NB/SB SR-29 and Rutherford Rd)	LS	TBD	-		-		1.00		1	
	Reconstruction-Private Property (sign, lanscaping, walls…)	LS	$ 100,000.00	1	$ 100,000.00	-	$ -	-	$ -	1	$ 100,000.00
	Drainage (18"x xx')	LS	$ 50,000.00	1	$ 50,000.00	-	$ -	1.00	$ 50,000.00	2	$ 100,000.00
	Environmental	LS	$ 100,000.00	1	$ 100,000.00	-	$ -	-	$ -	1	$ 100,000.00
	Signing and Striping (w/flashing beacons)	LS	$ 10,000.00	1	$ 10,000.00	1.00	$ 10,000.00	1.00	$ 10,000.00	3	$ 30,000.00
	Temporary Construction (sliver widening 250'x5')	LS	$ 50,000.00	1	$ 50,000.00	-	$ -	1.00	$ 200,000.00	2	$ 250,000.00
	Traffic Control System (signage, striping, detour, flaggers, 2 months)	LS	$ 30,000.00	1	$ 30,000.00	-	$ -	1.00	$ 70,000.00	2	$ 100,000.00
	Water Quality	LS	$ 100,000.00	1	$ 100,000.00		$ -	1.00	$ 200,000.00	2	$ 300,000.00
	Grade Crossing	LS	$ 250,000.00		$ -	1.00	$ 250,000.00		$ -	1	$ 250,000.00
	Utilities	LS	$ 346,015.98	1	$ 346,015.98						$ 346,015.98
	Misc Work Item (Not included in the above items)	LS	$ 519,023.97	1	$ 519,023.97		$ -		$ -	1	$ 519,023.97
					Subtotal $ 1,595,665.27		$ 260,000.00		$ 2,469,534.52		

Sub Total	$ 4,325,199.79
10% Contingency	$ 432,519.98
Total	$ 4,757,719.77

Oakville Compact Roundabout with Mainline Channelization

Item Code	Item	Unit	Unit Price	Intersection		Grade Crossing		Mainline		Total Quan	Total Cost
				Est. Quan	Sub Total	Est. Quan	Sub Total	Est. Quan	Sub Total		
190101	Roadway Excavation	CY	$ 100.00	911.27	$ 91,127.22	-	$ -	1,875.95	$ 187,594.63	2,787	$ 278,721.85
170103	Clearing & Grubbing	LS	$ 15,000.00	1	$ 15,000.00	-	$ -	-	$ -	1	$ 15,000.00
390132	Hot Mix Asphalt (Type A)	TON	$ 150.00	428	$ 64,192.50	-	$ -	1,617.04	$ 242,556.19	2,045	$ 306,748.69
260203	Class 2 Aggregate Base	CY	$ 100.00	643	$ 64,258.89	-	$ -	1,327.47	$ 132,747.04	1,970	$ 197,005.93
731521	Minor Concrete (Curb, Sidewalk, and Curb Ramp)	CY	$ 830.00	643	$ 533,348.78		$ -	415.03	$ 344,478.89	1,058	$ 877,827.67
398200	Cold Plane Asphalt Concrete Pavement	SQYD	$ 4.00	2,033	$ 8,130.67		$ -	14,901.67	$ 59,606.67	16,934	$ 67,737.33
870200	Lighting System (assuming 4)	LS	$ 40,000.00	1	$ 40,000.00	-	$ -	-	$ -	1	$ 40,000.00
871400	Radar Speed Feedback Sign Systems (NB/SB SR-29)	LS	TBD	-		-		1.00		1	
870700	Flashing Beacon System (NB/SB SR-29 and Oakville Cross Rd)	LS	TBD	-		-		1.00		1	
	Reconstruction-Private Property (sign, lanscaping, walls...)	LS	$ 200,000.00	1	$ 200,000.00	-	$ -	-	$ -	1	$ 200,000.00
	Drainage (18"x xx')	LS	$ 50,000.00	1	$ 50,000.00	-	$ -	1.00	$ 50,000.00	2	$ 100,000.00
	Environmental	LS	$ 100,000.00	1	$ 100,000.00	-	$ -	-	$ -	1	$ 100,000.00
	Signing and Striping (w/flashing beacons)	LS	$ 10,000.00	1	$ 10,000.00	1.00	$ 10,000.00	1.00	$ 10,000.00	3	$ 30,000.00
	Temporary Construction (sliver widening 250'x5')	LS	$ 50,000.00	1	$ 50,000.00	-	$ -	1.00	$ 200,000.00	2	$ 250,000.00
	Traffic Control System (signage, striping, detour, flaggers, 2 months)	LS	$ 30,000.00	1	$ 30,000.00	-	$ -	1.00	$ 70,000.00	2	$ 100,000.00
	Water Quality	LS	$ 100,000.00	1	$ 100,000.00		$ -	1.00	$ 200,000.00	2	$ 300,000.00
	Grade Crossing	LS	$ 250,000.00		$ -	1.00	$ 250,000.00		$ -	1	$ 250,000.00
	Utilities	LS	$ 311,304.15	1	$ 311,304.15						$ 311,304.15
	Misc Work Item (Not included in the above items)	LS	$ 466,956.22	1	$ 466,956.22		$ -		$ -	1	$ 466,956.22
					Subtotal $ 2,134,318.42		$ 260,000.00		$ 1,496,983.41		

Sub Total	$ 3,891,301.84
10% Contingency	$ 389,130.18
Total	$ 4,280,432.02

Appendix J – Emissions Reports

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INTERSECTION SUMMARY

Site: 101 [Existing PM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	35.1	mph	35.1	mph
Travel Distance (Total)	1249.1	veh-mi/h	1498.9	pers-mi/h
Travel Time (Total)	35.6	veh-h/h	42.7	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.88			
Travel Time Index	8.64			
Congestion Coefficient	1.14			
Demand Flows (Total)	1978	veh/h	2373	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.872			
Practical Spare Capacity	-2.5	%		
Effective Intersection Capacity	2268	veh/h		
Control Delay (Total)	3.31	veh-h/h	3.98	pers-h/h
Control Delay (Average)	6.0	sec	6.0	sec
Control Delay (Worst Lane)	16.3	sec		
Control Delay (Worst Movement)	21.7	sec	21.7	sec
Geometric Delay (Average)	4.3	sec		
Stop-Line Delay (Average)	1.8	sec		
Idling Time (Average)	0.2	sec		
Intersection Level of Service (LOS)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	18.7	veh		
95% Back of Queue - Distance (Worst Lane)	482.6	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.12			
Total Effective Stops	1017	veh/h	1220	pers/h
Effective Stop Rate	0.51		0.51	
Proportion Queued	0.76		0.76	
Performance Index	107.6		107.6	
Cost (Total)	776.01	$/h	776.01	$/h
Fuel Consumption (Total)	53.5	gal/h		
Carbon Dioxide (Total)	480.3	kg/h		
Hydrocarbons (Total)	0.041	kg/h		
Carbon Monoxide (Total)	0.580	kg/h		
NOx (Total)	0.926	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 6.6 %
Number of Iterations: 9 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.4% 1.2% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	949,277	veh/y	1,139,132	pers/y
Delay	1,590	veh-h/y	1,909	pers-h/y
Effective Stops	488,047	veh/y	585,656	pers/y
Travel Distance	599,565	veh-mi/y	719,478	pers-mi/y
Travel Time	17,080	veh-h/y	20,496	pers-h/y
Cost	372,484	$/y	372,484	$/y
Fuel Consumption	25,663	gal/y		
Carbon Dioxide	230,541	kg/y		
Hydrocarbons	20	kg/y		
Carbon Monoxide	278	kg/y		

NOx	444 kg/y

INTERSECTION SUMMARY

Site: 101 [2035 PM (Site Folder: Rutherford)]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	34.7	mph	34.7	mph
Travel Distance (Total)	1501.8	veh-mi/h	1802.2	pers-mi/h
Travel Time (Total)	43.3	veh-h/h	51.9	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.87			
Travel Time Index	8.53			
Congestion Coefficient	1.15			
Demand Flows (Total)	2378	veh/h	2853	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.911			
Practical Spare Capacity	-6.7	%		
Effective Intersection Capacity	2610	veh/h		
Control Delay (Total)	4.28	veh-h/h	5.14	pers-h/h
Control Delay (Average)	6.5	sec	6.5	sec
Control Delay (Worst Lane)	29.7	sec		
Control Delay (Worst Movement)	34.0	sec	34.0	sec
Geometric Delay (Average)	4.3	sec		
Stop-Line Delay (Average)	2.2	sec		
Idling Time (Average)	0.5	sec		
Intersection Level of Service (LOS)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	23.4	veh		
95% Back of Queue - Distance (Worst Lane)	604.0	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.15			
Total Effective Stops	1287	veh/h	1545	pers/h
Effective Stop Rate	0.54		0.54	
Proportion Queued	0.83		0.83	
Performance Index	132.4		132.4	
Cost (Total)	942.90	$/h	942.90	$/h
Fuel Consumption (Total)	64.9	gal/h		
Carbon Dioxide (Total)	583.2	kg/h		
Hydrocarbons (Total)	0.050	kg/h		
Carbon Monoxide (Total)	0.703	kg/h		
NOx (Total)	1.126	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 8.5 %
Number of Iterations: 9 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.2% 1.6% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,141,277	veh/y	1,369,532	pers/y
Delay	2,055	veh-h/y	2,466	pers-h/y
Effective Stops	617,835	veh/y	741,403	pers/y
Travel Distance	720,876	veh-mi/y	865,052	pers-mi/y
Travel Time	20,761	veh-h/y	24,914	pers-h/y
Cost	452,590	$/y	452,590	$/y
Fuel Consumption	31,161	gal/y		
Carbon Dioxide	279,917	kg/y		
Hydrocarbons	24	kg/y		
Carbon Monoxide	338	kg/y		

NOx	541 kg/y

INTERSECTION SUMMARY

Site: 101 [Existing PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	35.2	mph	35.2	mph
Travel Distance (Total)	1243.2	veh-mi/h	1491.9	pers-mi/h
Travel Time (Total)	35.4	veh-h/h	42.4	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.88			
Travel Time Index	8.65			
Congestion Coefficient	1.14			
Demand Flows (Total)	1967	veh/h	2361	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.917			
Practical Spare Capacity	-7.3	%		
Effective Intersection Capacity	2145	veh/h		
Control Delay (Total)	3.31	veh-h/h	3.97	pers-h/h
Control Delay (Average)	6.1	sec	6.1	sec
Control Delay (Worst Lane)	20.3	sec		
Control Delay (Worst Movement)	24.8	sec	24.8	sec
Geometric Delay (Average)	4.2	sec		
Stop-Line Delay (Average)	1.9	sec		
Idling Time (Average)	0.2	sec		
Intersection Level of Service (LOS)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	24.6	veh		
95% Back of Queue - Distance (Worst Lane)	634.8	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.16			
Total Effective Stops	965	veh/h	1158	pers/h
Effective Stop Rate	0.49		0.49	
Proportion Queued	0.75		0.75	
Performance Index	118.1		118.1	
Cost (Total)	770.43	$/h	770.43	$/h
Fuel Consumption (Total)	53.0	gal/h		
Carbon Dioxide (Total)	476.0	kg/h		
Hydrocarbons (Total)	0.041	kg/h		
Carbon Monoxide (Total)	0.575	kg/h		
NOx (Total)	0.917	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 7.6 %
Number of Iterations: 9 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.5% 1.3% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	944,337	veh/y	1,133,204	pers/y
Delay	1,587	veh-h/y	1,905	pers-h/y
Effective Stops	463,228	veh/y	555,874	pers/y
Travel Distance	596,750	veh-mi/y	716,100	pers-mi/y
Travel Time	16,974	veh-h/y	20,369	pers-h/y
Cost	369,805	$/y	369,805	$/y
Fuel Consumption	25,434	gal/y		
Carbon Dioxide	228,487	kg/y		
Hydrocarbons	20	kg/y		
Carbon Monoxide	276	kg/y		

NOx	440 kg/y

INTERSECTION SUMMARY

Site: 101 [2035 PM (Site Folder: Oakville Cross)]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	34.9	mph	34.9	mph
Travel Distance (Total)	1509.9	veh-mi/h	1811.9	pers-mi/h
Travel Time (Total)	43.3	veh-h/h	51.9	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.87			
Travel Time Index	8.58			
Congestion Coefficient	1.15			
Demand Flows (Total)	2389	veh/h	2867	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.976			
Practical Spare Capacity	-12.9	%		
Effective Intersection Capacity	2449	veh/h		
Control Delay (Total)	5.22	veh-h/h	6.27	pers-h/h
Control Delay (Average)	7.9	sec	7.9	sec
Control Delay (Worst Lane)	33.3	sec		
Control Delay (Worst Movement)	37.5	sec	37.5	sec
Geometric Delay (Average)	4.2	sec		
Stop-Line Delay (Average)	3.7	sec		
Idling Time (Average)	0.6	sec		
Intersection Level of Service (LOS)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	36.1	veh		
95% Back of Queue - Distance (Worst Lane)	932.3	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.23			
Total Effective Stops	1318	veh/h	1582	pers/h
Effective Stop Rate	0.55		0.55	
Proportion Queued	0.77		0.77	
Performance Index	160.4		160.4	
Cost (Total)	941.54	$/h	941.54	$/h
Fuel Consumption (Total)	64.6	gal/h		
Carbon Dioxide (Total)	580.7	kg/h		
Hydrocarbons (Total)	0.050	kg/h		
Carbon Monoxide (Total)	0.701	kg/h		
NOx (Total)	1.118	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 8.6 %
Number of Iterations: 9 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.8% 1.4% 0.7%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,146,948	veh/y	1,376,337	pers/y
Delay	2,506	veh-h/y	3,008	pers-h/y
Effective Stops	632,722	veh/y	759,267	pers/y
Travel Distance	724,765	veh-mi/y	869,718	pers-mi/y
Travel Time	20,764	veh-h/y	24,917	pers-h/y
Cost	451,939	$/y	451,939	$/y
Fuel Consumption	31,029	gal/y		
Carbon Dioxide	278,747	kg/y		
Hydrocarbons	24	kg/y		
Carbon Monoxide	337	kg/y		

NOx	537 kg/y

INTERSECTION SUMMARY

Site: 101v [Existing PM - TWSC (Site Folder: Rutherford - Emissions)]

New Site
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	8.0	mph	8.0	mph
Travel Distance (Total)	1217.7	veh-mi/h	1461.3	pers-mi/h
Travel Time (Total)	152.5	veh-h/h	183.0	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.20			
Travel Time Index	1.11			
Congestion Coefficient	5.01			
Demand Flows (Total)	1978	veh/h	2373	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	12.143			
Practical Spare Capacity	-93.4	%		
Effective Intersection Capacity	163	veh/h		
Control Delay (Total)	110.20	veh-h/h	132.24	pers-h/h
Control Delay (Average)	200.6	sec	200.6	sec
Control Delay (Worst Lane)	5263.3	sec		
Control Delay (Worst Movement)	5263.7	sec	5263.7	sec
Geometric Delay (Average)	1.1	sec		
Stop-Line Delay (Average)	199.5	sec		
Idling Time (Average)	215.4	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	51.9	veh		
95% Back of Queue - Distance (Worst Lane)	1338.6	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.34			
Total Effective Stops	277	veh/h	333	pers/h
Effective Stop Rate	0.14		0.14	
Proportion Queued	0.09		0.09	
Performance Index	230.1		230.1	
Cost (Total)	2522.19	$/h	2522.19	$/h
Fuel Consumption (Total)	76.1	gal/h		
Carbon Dioxide (Total)	682.8	kg/h		
Hydrocarbons (Total)	0.077	kg/h		
Carbon Monoxide (Total)	0.686	kg/h		
NOx (Total)	0.745	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 2.0 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.6% 1.7% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	949,277	veh/y	1,139,132	pers/y
Delay	52,897	veh-h/y	63,476	pers-h/y
Effective Stops	133,196	veh/y	159,835	pers/y
Travel Distance	584,508	veh-mi/y	701,410	pers-mi/y
Travel Time	73,193	veh-h/y	87,831	pers-h/y
Cost	1,210,650	$/y	1,210,650	$/y
Fuel Consumption	36,535	gal/y		
Carbon Dioxide	327,741	kg/y		
Hydrocarbons	37	kg/y		
Carbon Monoxide	329	kg/y		

NOx	357 kg/y

INTERSECTION SUMMARY

Site: 101v [2035 PM - TWSC (Site Folder: Rutherford - Emissions)]

New Site
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	6.9	mph	6.9	mph
Travel Distance (Total)	1464.0	veh-mi/h	1756.8	pers-mi/h
Travel Time (Total)	212.0	veh-h/h	254.4	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.17			
Travel Time Index	0.81			
Congestion Coefficient	5.79			
Demand Flows (Total)	2378	veh/h	2853	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	14.184			
Practical Spare Capacity	-94.4	%		
Effective Intersection Capacity	168	veh/h		
Control Delay (Total)	161.67	veh-h/h	194.01	pers-h/h
Control Delay (Average)	244.8	sec	244.8	sec
Control Delay (Worst Lane)	6118.2	sec		
Control Delay (Worst Movement)	6121.2	sec	6121.2	sec
Geometric Delay (Average)	1.2	sec		
Stop-Line Delay (Average)	243.6	sec		
Idling Time (Average)	263.1	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	57.0	veh		
95% Back of Queue - Distance (Worst Lane)	1470.7	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.37			
Total Effective Stops	374	veh/h	449	pers/h
Effective Stop Rate	0.16		0.16	
Proportion Queued	0.11		0.11	
Performance Index	336.7		336.7	
Cost (Total)	3487.23	$/h	3487.23	$/h
Fuel Consumption (Total)	102.2	gal/h		
Carbon Dioxide (Total)	916.5	kg/h		
Hydrocarbons (Total)	0.110	kg/h		
Carbon Monoxide (Total)	0.988	kg/h		
NOx (Total)	0.967	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 3.3 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.5% 1.7% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,141,277	veh/y	1,369,532	pers/y
Delay	77,603	veh-h/y	93,123	pers-h/y
Effective Stops	179,517	veh/y	215,420	pers/y
Travel Distance	702,729	veh-mi/y	843,274	pers-mi/y
Travel Time	101,745	veh-h/y	122,095	pers-h/y
Cost	1,673,871	$/y	1,673,871	$/y
Fuel Consumption	49,062	gal/y		
Carbon Dioxide	439,933	kg/y		
Hydrocarbons	53	kg/y		
Carbon Monoxide	474	kg/y		

NOx	464 kg/y

INTERSECTION SUMMARY

Site: 101v [Existing PM - Signal (Site Folder: Rutherford - Emissions)]

New Site
Site Category: (None)
Signals - EQUISAT (Pretimed) Isolated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	30.1	mph	30.1	mph
Travel Distance (Total)	1217.9	veh-mi/h	1461.5	pers-mi/h
Travel Time (Total)	40.5	veh-h/h	48.6	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.75			
Travel Time Index	7.24			
Congestion Coefficient	1.33			
Demand Flows (Total)	1978	veh/h	2373	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.755			
Practical Spare Capacity	19.3	%		
Effective Intersection Capacity	2621	veh/h		
Control Delay (Total)	9.88	veh-h/h	11.86	pers-h/h
Control Delay (Average)	18.0	sec	18.0	sec
Control Delay (Worst Lane)	84.9	sec		
Control Delay (Worst Movement)	85.0	sec	85.0	sec
Geometric Delay (Average)	0.9	sec		
Stop-Line Delay (Average)	17.1	sec		
Idling Time (Average)	14.3	sec		
Intersection Level of Service (LOS)	LOS B			
95% Back of Queue - Vehicles (Worst Lane)	43.9	veh		
95% Back of Queue - Distance (Worst Lane)	1132.0	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.21			
Total Effective Stops	1064	veh/h	1276	pers/h
Effective Stop Rate	0.54		0.54	
Proportion Queued	0.57		0.57	
Performance Index	212.8		212.8	
Cost (Total)	821.51	$/h	821.51	$/h
Fuel Consumption (Total)	49.0	gal/h		
Carbon Dioxide (Total)	440.7	kg/h		
Hydrocarbons (Total)	0.038	kg/h		
Carbon Monoxide (Total)	0.551	kg/h		
NOx (Total)	0.758	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 2 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Main (Timing-Capacity) Iterations: 24.4% 0.0% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	949,277	veh/y	1,139,132	pers/y
Delay	4,743	veh-h/y	5,692	pers-h/y
Effective Stops	510,585	veh/y	612,702	pers/y
Travel Distance	584,593	veh-mi/y	701,512	pers-mi/y
Travel Time	19,451	veh-h/y	23,341	pers-h/y
Cost	394,324	$/y	394,324	$/y
Fuel Consumption	23,538	gal/y		
Carbon Dioxide	211,543	kg/y		
Hydrocarbons	18	kg/y		
Carbon Monoxide	264	kg/y		
NOx	364	kg/y		

INTERSECTION SUMMARY

Site: 101v [2035 PM - Signal (Site Folder: Rutherford - Emissions)]

New Site
Site Category: (None)
Signals - EQUISAT (Pretimed) Isolated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	22.0	mph	22.0	mph
Travel Distance (Total)	1464.2	veh-mi/h	1757.1	pers-mi/h
Travel Time (Total)	66.6	veh-h/h	80.0	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.55			
Travel Time Index	4.99			
Congestion Coefficient	1.82			
Demand Flows (Total)	2378	veh/h	2853	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	1.041			
Practical Spare Capacity	-13.5	%		
Effective Intersection Capacity	2284	veh/h		
Control Delay (Total)	29.72	veh-h/h	35.66	pers-h/h
Control Delay (Average)	45.0	sec	45.0	sec
Control Delay (Worst Lane)	125.0	sec		
Control Delay (Worst Movement)	125.0	sec	125.0	sec
Geometric Delay (Average)	1.0	sec		
Stop-Line Delay (Average)	44.0	sec		
Idling Time (Average)	38.9	sec		
Intersection Level of Service (LOS)	LOS D			
95% Back of Queue - Vehicles (Worst Lane)	94.8	veh		
95% Back of Queue - Distance (Worst Lane)	2446.6	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.94			
Total Effective Stops	2042	veh/h	2451	pers/h
Effective Stop Rate	0.86		0.86	
Proportion Queued	0.81		0.81	
Performance Index	403.3		403.3	
Cost (Total)	1301.51	$/h	1301.51	$/h
Fuel Consumption (Total)	71.2	gal/h		
Carbon Dioxide (Total)	639.6	kg/h		
Hydrocarbons (Total)	0.060	kg/h		
Carbon Monoxide (Total)	0.749	kg/h		
NOx (Total)	1.126	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 1.9 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Main (Timing-Capacity) Iterations: 2.4% 2.3% 1.1%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,141,277	veh/y	1,369,532	pers/y
Delay	14,265	veh-h/y	17,118	pers-h/y
Effective Stops	980,221	veh/y	1,176,265	pers/y
Travel Distance	702,832	veh-mi/y	843,398	pers-mi/y
Travel Time	31,985	veh-h/y	38,382	pers-h/y
Cost	624,723	$/y	624,723	$/y
Fuel Consumption	34,190	gal/y		
Carbon Dioxide	306,989	kg/y		
Hydrocarbons	29	kg/y		
Carbon Monoxide	359	kg/y		
NOx	540	kg/y		

INTERSECTION SUMMARY

Site: 101v [Existing PM - TWSC (Site Folder: Oakville Cross - Emissions)]

New Site
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	8.6	mph	8.6	mph
Travel Distance (Total)	1211.5	veh-mi/h	1453.9	pers-mi/h
Travel Time (Total)	140.7	veh-h/h	168.9	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.22			
Travel Time Index	1.28			
Congestion Coefficient	4.65			
Demand Flows (Total)	1967	veh/h	2361	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	11.579			
Practical Spare Capacity	-93.1	%		
Effective Intersection Capacity	170	veh/h		
Control Delay (Total)	100.56	veh-h/h	120.67	pers-h/h
Control Delay (Average)	184.0	sec	184.0	sec
Control Delay (Worst Lane)	4972.4	sec		
Control Delay (Worst Movement)	4974.9	sec	4974.9	sec
Geometric Delay (Average)	0.8	sec		
Stop-Line Delay (Average)	183.3	sec		
Idling Time (Average)	200.5	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	47.0	veh		
95% Back of Queue - Distance (Worst Lane)	1212.4	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.30			
Total Effective Stops	190	veh/h	228	pers/h
Effective Stop Rate	0.10		0.10	
Proportion Queued	0.07		0.07	
Performance Index	225.7		225.7	
Cost (Total)	2336.81	$/h	2336.81	$/h
Fuel Consumption (Total)	72.0	gal/h		
Carbon Dioxide (Total)	646.0	kg/h		
Hydrocarbons (Total)	0.074	kg/h		
Carbon Monoxide (Total)	0.722	kg/h		
NOx (Total)	0.695	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 1.3 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.2% 1.1% 0.5%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	944,337	veh/y	1,133,204	pers/y
Delay	48,268	veh-h/y	57,921	pers-h/y
Effective Stops	91,196	veh/y	109,435	pers/y
Travel Distance	581,542	veh-mi/y	697,850	pers-mi/y
Travel Time	67,545	veh-h/y	81,054	pers-h/y
Cost	1,121,669	$/y	1,121,669	$/y
Fuel Consumption	34,560	gal/y		
Carbon Dioxide	310,063	kg/y		
Hydrocarbons	36	kg/y		
Carbon Monoxide	346	kg/y		

NOx	334 kg/y

INTERSECTION SUMMARY

Site: 101v [2035 PM - TWSC (Site Folder: Oakville Cross - Emissions)]

New Site
Site Category: (None)
Stop (Two-Way)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	5.4	mph	5.4	mph
Travel Distance (Total)	1471.5	veh-mi/h	1765.8	pers-mi/h
Travel Time (Total)	274.7	veh-h/h	329.6	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.13			
Travel Time Index	0.38			
Congestion Coefficient	7.47			
Demand Flows (Total)	2389	veh/h	2867	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	16.667			
Practical Spare Capacity	-95.2	%		
Effective Intersection Capacity	143	veh/h		
Control Delay (Total)	222.09	veh-h/h	266.50	pers-h/h
Control Delay (Average)	334.6	sec	334.6	sec
Control Delay (Worst Lane)	7192.5	sec		
Control Delay (Worst Movement)	7195.5	sec	7195.5	sec
Geometric Delay (Average)	0.9	sec		
Stop-Line Delay (Average)	333.7	sec		
Idling Time (Average)	356.4	sec		
Intersection Level of Service (LOS)	NA			
95% Back of Queue - Vehicles (Worst Lane)	64.7	veh		
95% Back of Queue - Distance (Worst Lane)	1668.1	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.42			
Total Effective Stops	283	veh/h	339	pers/h
Effective Stop Rate	0.12		0.12	
Proportion Queued	0.09		0.09	
Performance Index	416.1		416.1	
Cost (Total)	4463.82	$/h	4463.82	$/h
Fuel Consumption (Total)	121.9	gal/h		
Carbon Dioxide (Total)	1092.8	kg/h		
Hydrocarbons (Total)	0.137	kg/h		
Carbon Monoxide (Total)	1.140	kg/h		
NOx (Total)	1.068	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
NA: Intersection LOS for Vehicles is Not Applicable for two-way sign control since the average intersection delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 1.5 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.7% 1.3% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,146,947	veh/y	1,376,337	pers/y
Delay	106,601	veh-h/y	127,921	pers-h/y
Effective Stops	135,768	veh/y	162,922	pers/y
Travel Distance	706,333	veh-mi/y	847,600	pers-mi/y
Travel Time	131,851	veh-h/y	158,221	pers-h/y
Cost	2,142,634	$/y	2,142,634	$/y
Fuel Consumption	58,529	gal/y		
Carbon Dioxide	524,556	kg/y		
Hydrocarbons	66	kg/y		
Carbon Monoxide	547	kg/y		

NOx	513 kg/y

INTERSECTION SUMMARY

Site: 101v [Existing PM - Signal (Site Folder: Oakville Cross - Emissions)]

New Site
Site Category: (None)
Signals - EQUISAT (Pretimed) Isolated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	31.0	mph	31.0	mph
Travel Distance (Total)	1211.5	veh-mi/h	1453.9	pers-mi/h
Travel Time (Total)	39.1	veh-h/h	46.9	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.77			
Travel Time Index	7.50			
Congestion Coefficient	1.29			
Demand Flows (Total)	1967	veh/h	2361	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	0.820			
Practical Spare Capacity	9.8	%		
Effective Intersection Capacity	2400	veh/h		
Control Delay (Total)	8.68	veh-h/h	10.42	pers-h/h
Control Delay (Average)	15.9	sec	15.9	sec
Control Delay (Worst Lane)	87.3	sec		
Control Delay (Worst Movement)	87.3	sec	87.3	sec
Geometric Delay (Average)	0.6	sec		
Stop-Line Delay (Average)	15.3	sec		
Idling Time (Average)	12.5	sec		
Intersection Level of Service (LOS)	LOS B			
95% Back of Queue - Vehicles (Worst Lane)	51.3	veh		
95% Back of Queue - Distance (Worst Lane)	1323.4	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.51			
Total Effective Stops	1063	veh/h	1275	pers/h
Effective Stop Rate	0.54		0.54	
Proportion Queued	0.59		0.59	
Performance Index	223.8		223.8	
Cost (Total)	797.18	$/h	797.18	$/h
Fuel Consumption (Total)	48.2	gal/h		
Carbon Dioxide (Total)	433.3	kg/h		
Hydrocarbons (Total)	0.038	kg/h		
Carbon Monoxide (Total)	0.543	kg/h		
NOx (Total)	0.746	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 2 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Main (Timing-Capacity) Iterations: 31.9% 12.0% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	944,337	veh/y	1,133,204	pers/y
Delay	4,169	veh-h/y	5,003	pers-h/y
Effective Stops	510,196	veh/y	612,235	pers/y
Travel Distance	581,542	veh-mi/y	697,850	pers-mi/y
Travel Time	18,762	veh-h/y	22,515	pers-h/y
Cost	382,646	$/y	382,646	$/y
Fuel Consumption	23,138	gal/y		
Carbon Dioxide	207,967	kg/y		
Hydrocarbons	18	kg/y		
Carbon Monoxide	261	kg/y		
NOx	358	kg/y		

INTERSECTION SUMMARY

Site: 101v [2035 PM - Signal (Site Folder: Oakville Cross - Emissions)]

New Site
Site Category: (None)
Signals - EQUISAT (Pretimed) Isolated Cycle Time = 145 seconds (Site User-Given Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Travel Speed (Average)	24.9	mph	24.9	mph
Travel Distance (Total)	1471.5	veh-mi/h	1765.8	pers-mi/h
Travel Time (Total)	59.2	veh-h/h	71.1	pers-h/h
Desired Speed (Program)	40.0	mph		
Speed Efficiency	0.62			
Travel Time Index	5.79			
Congestion Coefficient	1.61			
Demand Flows (Total)	2389	veh/h	2867	pers/h
Percent Heavy Vehicles (Demand)	4.0	%		
Degree of Saturation	1.017			
Practical Spare Capacity	-11.5	%		
Effective Intersection Capacity	2349	veh/h		
Control Delay (Total)	22.22	veh-h/h	26.67	pers-h/h
Control Delay (Average)	33.5	sec	33.5	sec
Control Delay (Worst Lane)	114.6	sec		
Control Delay (Worst Movement)	114.9	sec	114.9	sec
Geometric Delay (Average)	0.7	sec		
Stop-Line Delay (Average)	32.8	sec		
Idling Time (Average)	28.3	sec		
Intersection Level of Service (LOS)	LOS C			
95% Back of Queue - Vehicles (Worst Lane)	99.2	veh		
95% Back of Queue - Distance (Worst Lane)	2559.6	ft		
Ave. Queue Storage Ratio (Worst Lane)	0.98			
Total Effective Stops	1900	veh/h	2280	pers/h
Effective Stop Rate	0.80		0.80	
Proportion Queued	0.78		0.78	
Performance Index	391.5		391.5	
Cost (Total)	1179.84	$/h	1179.84	$/h
Fuel Consumption (Total)	67.7	gal/h		
Carbon Dioxide (Total)	608.4	kg/h		
Hydrocarbons (Total)	0.055	kg/h		
Carbon Monoxide (Total)	0.725	kg/h		
NOx (Total)	1.078	kg/h		

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Site Model Variability Index (Iterations 3 to N): 0.0 %
Number of Iterations: 2 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Main (Timing-Capacity) Iterations: 38.1% 20.2% 0.0%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	1,146,947	veh/y	1,376,337	pers/y
Delay	10,667	veh-h/y	12,801	pers-h/y
Effective Stops	912,039	veh/y	1,094,447	pers/y
Travel Distance	706,333	veh-mi/y	847,600	pers-mi/y
Travel Time	28,421	veh-h/y	34,106	pers-h/y
Cost	566,325	$/y	566,325	$/y
Fuel Consumption	32,515	gal/y		
Carbon Dioxide	292,024	kg/y		
Hydrocarbons	27	kg/y		
Carbon Monoxide	348	kg/y		
NOx	517	kg/y		

Appendix K – ICE Calculations

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Summary of Life Cycle Cost Analyses: Roundabout and Signal Alternatives - Rutherford

Annual Costs	Roundabout Alternative		Traffic Signal Alternative		No Build Alternative	
Safety	**Predicted Annual Crashes**	**Safety Cost**	**Predicted Annual Crashes**	**Safety Cost**	**Predicted Annual Crashes**	**Safety Cost**
	Annual Costs of Predicted Crashes	**$ 112,986**	Annual Costs of Predicted Crashes	**$ 1,532,309**	Annual Costs of Predicted Crashes	**$ 172,687**
Delay	**Annual Intersection Delay (person-hrs)**	**Delay Cost**	**Annual Intersection Delay (person-hrs)**	**Delay Cost**	**Annual Intersection Delay (person-hrs)**	**Delay Cost**
Average Annual Person (in Vehicle) Delay	1720	**$ 26,000**	9793	**$ 139,000**	8724	**$ 120,000**
Operation and Maintenance	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**
Annualized Cost of Signal Retiming		$ -	Signal Retiming Every 3 Years	$ 1,000		
Annual Cost of Power for Signal		$ -	Power for Signal	$ 750		
Annual Cost of Illumination	Intersection Illumination	$ 750	Intersection Illumination	$ 750		
Annual Cost of Maintenance	Landscaping Costs	$ 1,500	Signal Maintenance Costs (power outage, detection, etc.)	$ 1,500	Intersection Illumination	$ 1,500
	Total Annual Operation and Maintenance Costs	**$ 2,250**	Total Annual Operation and Maintenance Costs	**$ 4,000**	Total Annual Operation and Maintenance Costs	**$ 1,500**
Initial Capital Costs	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**
Preliminary Engineering						$ -
Right-of-way and Utilities						$ -
Construction		**$ 4,757,719**		**$ 1,192,628**		**$ -**

***Delay cost is based upon an average of the AM and PM peak hours.**

Total Discounted Life Cycle Costs (2020 - 2035)	Roundabout Alternative		Traffic Signal Alternative		No Build Alternative	
Safety	**Total Predicted Crashes**	**Safety Cost**	**Total Predicted Crashes**	**Safety Cost**	**Total Predicted Crashes**	**Safety Cost**
	Total Costs of Predicted Crashes	**$1,256,222**	Total Costs of Predicted Crashes	**$17,036,800**	Total Costs of Predicted Crashes	**$42,785,600**
Delay	**Total Intersection Delay (person-hrs)**	**Delay Cost**	**Total Intersection Delay (person-hrs)**	**Delay Cost**	**Total Intersection Delay (person-hrs)**	**Delay Cost**
Total Person (in Vehicle) Delay		**$ 410,000**		**$ 2,220,000**		**$ 1,920,000**
Fuel and GHG Cost	**Fuel and Green House Gas Cost**		**Fuel and Green House Gas Cost**		**Fuel and Green House Gas Cost**	
Total Fuel and GHG Costs		**$ 1,502,342**		**$ 1,502,344**		**$ 2,175,442**
Operation and Maintenance	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**
		$ -	Signal Retiming Every 3 Years	$ 11,118	Signal Retiming Every 3 Years	$ -
		$ -	Power for Signal	$ 8,339	Power for Signal	$ -
	Intersection Illumination	$ 8,339	Intersection Illumination	$ 8,339	Intersection Illumination	$ -
	Landscaping Costs	$ 16,678	Signal Maintenance Costs (power outage, detection, etc.)	$ 16,678	Signal Maintenance Costs (power outage, detection, etc.)	$ 16,678
	Total Annual Operation and Maintenance Costs	**$ 25,016**	Total Annual Operation and Maintenance Costs	**$ 44,474**	Total Annual Operation and Maintenance Costs	**$ 16,678**
Initial Capital Costs	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**
Preliminary Engineering		$ -		$ -		$ -
Right-of-way and Utilities		$ -		$ -		$ -
Construction		$ 4,758,000		$ 1,193,000		$ -
	Total Initial Capital Costs	**$ 4,758,000**	Total Initial Capital Costs	**$ 1,193,000**	Total Initial Capital Costs	**$ -**
Total Life Cycle Costs (Opening Year $)	**Net Present Value**	**$ 7,952,000**	**Net Present Value**	**$ 21,997,000**	**Net Present Value**	**$ 46,898,000**

***Delay cost is based upon an average of the AM and PM peak hours.**

Comparative Summary: Roundabout to Signal To Existing TWSC

Life Cycle Costs (20 year design)	Roundabout Alternative	Traffic Signal Alternative	No Build Alternative
Collision and Mobility Costs			
Collision Costs of predicted crashes [2]	$1,257,000	$17,037,000	$42,786,000
Delay Costs	$410,000	$2,220,000	$1,920,000
Fuel and GHG Costs	$1,503,000	$1,503,000	$2,176,000
Project Costs Including Design, Construction and Maintenance			
Operations and Maintenance Costs	$26,000	$45,000	$17,000
Project Costs (including soft costs) [3]	$4,758,000	$1,193,000	$0
Total Life Cycle Costs	**$7,954,000**	**$21,998,000**	**$46,899,000**

Notes:

1. Existing geometry is analyzed for the PM peak hour traffic volumes of the Ultimate Design Year.

2. The collision costs presented within this table were derived using the Caltrans tool for Intersection Control Evaluation Collision Cost Analysis

3. To improve safety at the existing intersection, an exlusive northbound left turn pocket needs to be included. The cost of such an improvement is not included within this report as it is beyond the scope of the ICE analysis. However, it should be noted, that the inclusion of this cost would only result in the increase in the Total Life Cycle Cost.

Summary of Life Cycle Cost Analyses: Roundabout and Signal Alternatives - Oakville Cross

Annual Costs	Roundabout Alternative		Traffic Signal Alternative		No Build Alternative	
Safety	**Predicted Annual Crashes**	**Safety Cost**	**Predicted Annual Crashes**	**Safety Cost**	**Predicted Annual Crashes**	**Safety Cost**
	Annual Costs of Predicted Crashes	**$ 134,463**	Annual Costs of Predicted Crashes	**$ 1,823,574**	Annual Costs of Predicted Crashes	**$ 149,302**
Delay	**Annual Intersection Delay (person-hrs)**	**Delay Cost**	**Annual Intersection Delay (person-hrs)**	**Delay Cost**	**Annual Intersection Delay (person-hrs)**	**Delay Cost**
Average Annual Person (in Vehicle) Delay	2238	**$ 33,000**	10462	**$ 147,000**	7532	**$ 104,000**
Operation and Maintenance	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**
Annualized Cost of Signal Retiming		$ -	Signal Retiming Every 3 Years	$ 1,000		
Annual Cost of Power for Signal		$ -	Power for Signal	$ 750		
Annual Cost of Illumination	Intersection Illumination	$ 750	Intersection Illumination	$ 750		
Annual Cost of Maintenance	Landscaping Costs	$ 1,500	Signal Maintenance Costs (power outage, detection, etc.)	$ 1,500	Intersection Illumination	$ 1,500
	Total Annual Operation and Maintenance Costs	**$ 2,250**	Total Annual Operation and Maintenance Costs	**$ 4,000**	Total Annual Operation and Maintenance Costs	**$ 1,500**
Initial Capital Costs	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**
Preliminary Engineering						$ -
Right-of-way and Utilities						$ -
Construction		**$ 4,280,432**		**$ 1,192,628**		**$ -**

***Delay cost is based upon an average of the AM and PM peak hours.**

Total Discounted Life Cycle Costs (2020 - 2035)	Roundabout Alternative		Traffic Signal Alternative		No Build Alternative	
Safety	**Total Predicted Crashes**	**Safety Cost**	**Total Predicted Crashes**	**Safety Cost**	**Total Predicted Crashes**	**Safety Cost**
	Total Costs of Predicted Crashes	**$1,495,008**	Total Costs of Predicted Crashes	**$20,275,200**	Total Costs of Predicted Crashes	**$50,918,400**
Delay	**Total Intersection Delay (person-hrs)**	**Delay Cost**	**Total Intersection Delay (person-hrs)**	**Delay Cost**	**Total Intersection Delay (person-hrs)**	**Delay Cost**
Total Person (in Vehicle) Delay		**$ 520,000**		**$ 2,350,000**		**$ 1,660,000**
Fuel and GHG Cost	**Fuel and Green House Gas Cost**		**Fuel and Green House Gas Cost**		**Fuel and Green House Gas Cost**	
Total Fuel and GHG Costs		**$ 1,491,340**		**$ 1,450,336**		**$ 2,337,489**
Operation and Maintenance	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**	**Operation and Maintenance**	**O&M Cost**
		$ -	Signal Retiming Every 3 Years	$ 11,118	Signal Retiming Every 3 Years	$ -
		$ -	Power for Signal	$ 8,339	Power for Signal	$ -
	Intersection Illumination	$ 8,339	Intersection Illumination	$ 8,339	Intersection Illumination	$ -
	Landscaping Costs	$ 16,678	Signal Maintenance Costs (power outage, detection, etc.)	$ 16,678	Signal Maintenance Costs (power outage, detection, etc.)	$ 16,678
	Total Annual Operation and Maintenance Costs	**$ 25,016**	Total Annual Operation and Maintenance Costs	**$ 44,474**	Total Annual Operation and Maintenance Costs	**$ 16,678**
Initial Capital Costs	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**	**Total Capital Costs**	**Cost**
Preliminary Engineering		$ -		$ -		$ -
Right-of-way and Utilities		$ -		$ -		$ -
Construction		$ 4,281,000		$ 1,193,000		$ -
	Total Initial Capital Costs	**$ 4,281,000**	Total Initial Capital Costs	**$ 1,193,000**	Total Initial Capital Costs	**$ -**
Total Life Cycle Costs (Opening Year $)	**Net Present Value**	**$ 7,813,000**	**Net Present Value**	**$ 25,314,000**	**Net Present Value**	**$ 54,933,000**

***Delay cost is based upon an average of the AM and PM peak hours.**

Comparative Summary: Roundabout to Signal To Existing TWSC

Life Cycle Costs (20 year design)	Roundabout Alternative	Traffic Signal Alternative	No Build Alternative
Collision and Mobility Costs			
Collision Costs of predicted crashes [2]	$1,496,000	$20,276,000	$50,919,000
Delay Costs	$520,000	$2,350,000	$1,660,000
Fuel and GHG Costs	$1,492,000	$1,451,000	$2,338,000
Project Costs Including Design, Construction and Maintenance			
Operations and Maintenance Costs	$26,000	$45,000	$17,000
Project Costs (including soft costs) [3]	$4,281,000	$1,193,000	$0
Total Life Cycle Costs	**$7,815,000**	**$25,315,000**	**$54,934,000**

Notes:

1. Existing geometry is analyzed for the PM peak hour traffic volumes of the Ultimate Design Year.

2. The collision costs presented within this table were derived using the Caltrans tool for Intersection Control Evaluation Collision Cost Analysis

3. To improve safety at the existing intersection, an exlusive northbound left turn pocket needs to be included. The cost of such an improvement is not included within this report as it is beyond the scope of the ICE analysis. However, it should be noted, that the inclusion of this cost would only result in the increase in the Total Life Cycle Cost.

Appendix L: Kimley Horn Study

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Napa County SR-29 and Silverado Trail Intersection Improvements

Deliverable 2.2: Final Existing Conditions Memorandum

September 9, 2019

Prepared for:

Prepared by: Kimley»Horn

Table of Contents

1 Introduction 1
1.1 Study Area 1
1.2 Data Collection 3
1.3 Analysis Methodology 3

2 Existing Field Conditions 4
2.1 Existing Roadway Analysis 4
2.1.1 Existing Bicycle and Pedestrian Facilities 5
2.1.2 Existing Transit Service 6
2.1.3 Existing Lane Configuration and Traffic Control 6
2.1.4 Existing Traffic Volumes 6
2.1.5 Existing Rail Activity 6
2.1.6 Field Observations 11
2.2 Gap Study 13
2.2.1 Gap Study Analysis 13
2.3 Travel Times Analysis 19
2.3.1 INRIX Travel Times 19

3 Existing Model Conditions Analysis 24
3.1 Existing Intersection Level of Service Analysis 24
3.1.1 Lane Geometry and Intersection Control Inputs 24
3.1.2 Volume Inputs 26
3.1.3 SimTraffic Calibration 26
3.1.4 LOS and Delay Results 27
3.1.5 Queuing Analysis 30
3.1.6 Arterial Travel Times 32

Figures

Figure 1: Study Area Vicinity Map 2
Figure 2: Existing Bicycle Facilities Network 7
Figure 3: Existing Transit Facilities 8
Figure 4: Intersection Lane Geometry and Traffic Control 9
Figure 5: Existing Peak Hour Turning Movement Volumes 10
Figure 6: SR-29/Rutherford Road – Accepted and Rejected Gaps 14
Figure 7: SR-29/Robert Mondavi Winery Driveway – Accepted and Rejected Gaps 15
Figure 8: SR-29/Oakville Cross Road – Accepted and Rejected Gaps 16
Figure 9: Silverado Trail/Conn Creek Road – Accepted and Rejected Gaps 17
Figure 10: INRIX Segments 21
Figure 11: SB SR-29 PM INRIX Travel Time Graph 22
Figure 12: SB Silverado Trail PM INRIX Travel Time Graph 22
Figure 13: Existing PM Peak Hour Turning Movement Demand Volume 28

Tables

Table 1: Intersection Level of Service Definitions 4
Table 2: Average Accepted and Rejected Gaps on SR-29 and Silverado Trail 18
Table 3: SB SR-29 Speed Contour – PM Peak Period 20
Table 4: SB Silverado Trail Speed Contour – PM Peak Period 20
Table 5: INRIX Travel Time Summary 23
Table 6: Adjustments to Movement and Simulation Settings in Synchro 25
Table 7: Existing PM Peak Hour Intersection Delay and LOS Results 29
Table 8: Existing PM Peak Hour Intersection Queues 31
Table 9: SimTraffic Arterial Operations Summary 32

Appendices

Appendix A: Turning Movement Counts
Appendix B: SimTraffic Outputs

1 INTRODUCTION

State Route 29 (SR-29) and Silverado Trail are major north-south corridors located in the County of Napa. These corridors provide access to commercial and residential land uses within the County of Napa. SR-29 connects to Solano County and Lake County while Silverado Trail connects to the cities of Napa and Calistoga and serves as an alternate route to SR-29 between the two cities. SR-29 between Whitehall Lane and Oakville Cross Road and Silverado Trail between SR-128/Conn Creek Road and Oakville Cross Road are currently experiencing congestion in the southbound direction during the PM peak period. In addition, many of the side-street stop-controlled intersection approaches along the corridor have been observed to have difficulty turning onto SR-29 and Silverado Trail.

This study assesses the existing conditions of the two corridors to determine the causes of the congestion and to develop potential near-term improvements to improve operations.

The Existing Conditions report summarizes the following:

- Description of the existing roadway, bicycle, pedestrian, and transit facilities within the study area as well as the existing roadway geometry and traffic volumes
- Analysis of the gap study and field observations used to calibrate the Synchro models
- Comparison between INRIX travel times and SimTraffic arterial travel times
- Existing conditions intersection level of service and queuing analysis

1.1 Study Area

The project study limits are SR-29 from SR-128/Rutherford Road to Oakville Cross Road and Silverado Trail from Conn Creek Road to Skellenger Lane. To assess the existing conditions of the southbound PM peak period traffic conditions, the following side-street stop-controlled intersections located within the study area were selected for evaluation:

1. SR-29 at SR-128/Rutherford Road
2. SR-29 at Robert Mondavi Winery Driveway
3. SR-29 at Oakville Grocery Driveway
4. SR-29 at Oakville Cross Road
5. Silverado Trail at SR-128/Conn Creek Road
6. Silverado Trail at SR-128/Sage Canyon Road
7. Silverado Trail at Skellenger Lane

Figure 1 shows the study limits and intersections.

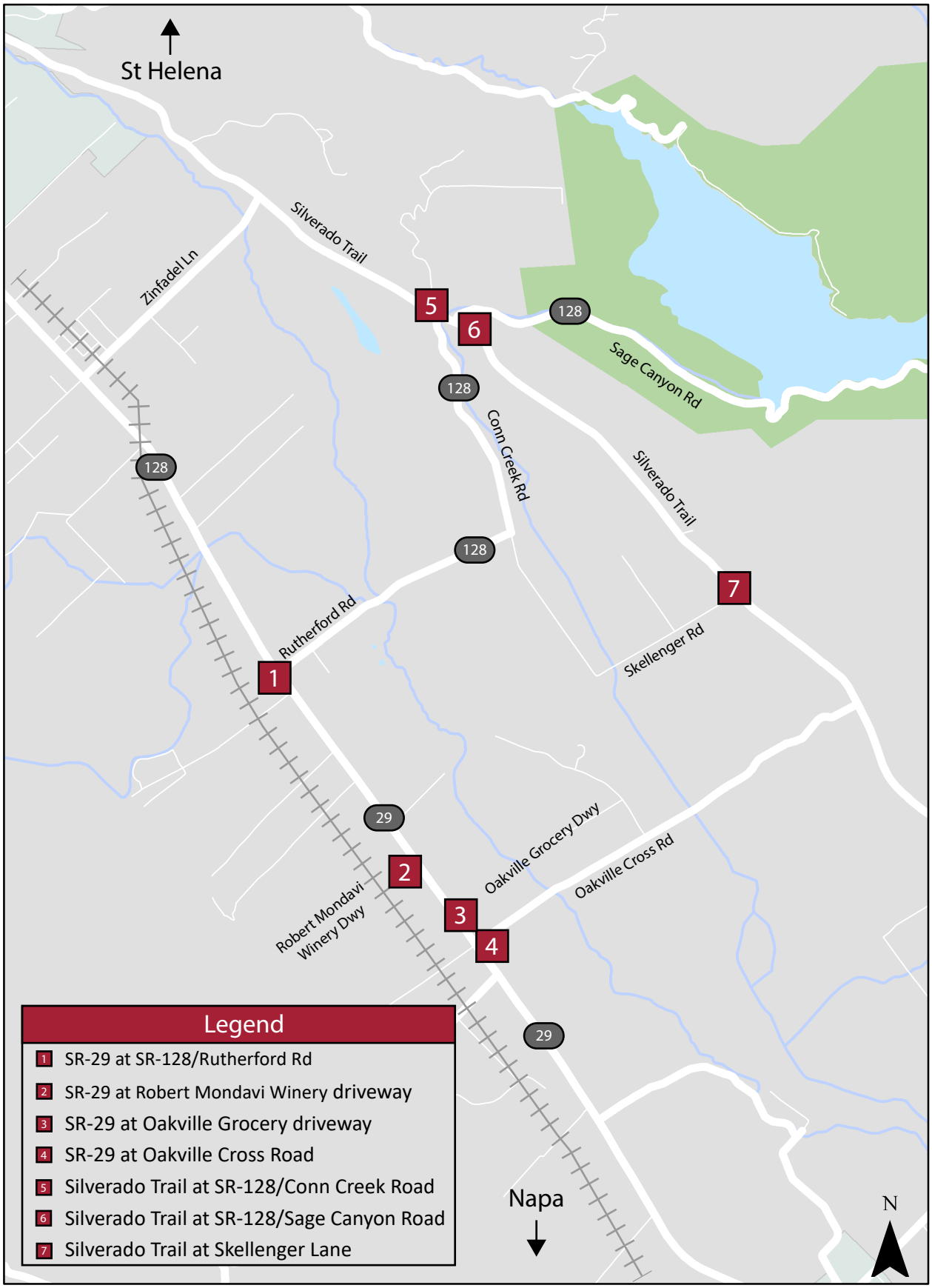

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FIGURE 1
STUDY AREA VICINITY MAP

1.2 Data Collection

Traffic count data was collected for all of the listed intersections within the study area. Weekday intersection turning movement volumes were collected at all study area intersections on a Tuesday, Wednesday, and Thursday from May 21, 2019 to May 23, 2019. Volumes were collected during the PM peak period between 3:30 PM and 6:30 PM. Bicycle and pedestrian counts were also collected as part of the traffic count data collection task. Volume data sheets for all traffic counts are provided in the **Appendix**.

Kimley-Horn performed site visits to observe corridor conditions in the evening peak hours, documented existing intersection lane geometries, performed gap studies, and identified potential causes of the congestion.

1.3 Analysis Methodology

Kimley-Horn analyzed the Level of Service (LOS) and delay at each of the study intersections along SR-29 and Silverado Trail under existing conditions. The existing traffic analysis was performed for the weekday PM peak hour conditions.

All study intersections were analyzed using procedures and methodologies contained in the SimTraffic software. SimTraffic operations were used instead of the typical Highway Capacity Manual (HCM) methodologies within Synchro software because the HCM methodologies can only evaluate operations within a single intersection while SimTraffic considers the impacts of upstream and/or downstream conditions of the intersection.

Operating conditions experienced by drivers are described in terms of Level of Service (LOS), which is a qualitative measure of factors such as delay, speed, travel time, freedom to maneuver, and driving comfort and convenience. Levels of service are represented by a letter scale from LOS A to LOS F, with LOS A representing the best performance and LOS F representing the poorest performance.

The LOS for a side-street stop-control (SSSC) intersection is a function of average control delay for each minor street approach movement. Conversely, the LOS for an all-way stop-control (AWSC) and signalized intersection are a function of average control delay for the intersection as a whole. For SSSC intersections, LOS service is reported for the worst approach movement. **Table 1** relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

Table 1: Intersection Level of Service Definitions

LEVEL OF SERVICE	DESCRIPTION	SIGNALIZED (Avg. control delay per vehicle sec/veh)	UNSIGNALIZED (Avg. control delay per vehicle sec/veh)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Source: Highway Capacity Manual, 6th Edition.

The LOS criteria, as outlined in the Napa County General Plan, states that the traffic LOS should not exceed LOS D at signalized intersections and on arterial roadways with the exception of the following roadway segments:

- SR-29 in unincorporated areas between Yountville and Calistoga – LOS F is acceptable
- Silverado Trail between SR-128 and Yountville Cross Road – LOS E is acceptable

2 EXISTING FIELD CONDITIONS

This section describes the existing conditions of the roadway network, transit service, pedestrian facilities, and bicycles facilities within the vicinity of the study area. This section also presents the existing turning movement volumes, intersection level of service, and gap study analysis.

2.1 Existing Roadway Analysis

The following provides a description of the specific roadways included in this study.

Conn Creek Road/SR-128 is a two-lane, north-south highway near the study area which serves commercial and agricultural land uses. It connects to Skellenger Lane to the south and to Silverado Trail to the north. Conn Creek Road becomes SR-128 at Rutherford Road/SR-128. There is no posted speed limit on Conn Creek Road.

Oakville Cross Road is a two-lane, east-west collector roadway near the study area which serves commercial and agricultural land uses. It connects to SR-29 to the west and to Silverado Trail to the east. There is no posted speed limit on Oakville Cross Road.

Oakville Grocery Driveway is private road providing access to the Oakville Grocery.

Robert Mondavi Winery Driveway is a private road providing access to the Robert Mondavi Winery parking lot.

Rutherford Road/ SR-128 is a two-lane, east-west highway near the study area which serves commercial and residential land uses. It connects to SR-29 to the west and becomes Conn Creek Road/SR-128 to the east. The posted speed limit on Rutherford Road near the study area is 30 miles per hour.

Sage Canyon Road/SR-128 is two-lane, east-west highway near the study area. It connects to Silverado Trail to the west and becomes Capell Valley Road to the east at Berryessa Knoxville Road. The posted speed limit on Sage Canyon Road near the study area is 40 miles per hour.

Silverado Trail is a two-lane, north-south arterial roadway near the study area which serves commercial and agricultural land uses. It connects to Soscol Avenue to the south and to SR-29 in Calistoga in the north, providing access to multiple municipalities along its route including the City of Napa, Town of Yountville, Oakville, Rutherford and City of St. Helena near the study area. The posted speed limit near the study area is 55 miles per hour.

Skellenger Lane is a two-lane, east-west collector roadway near the study area which serves agricultural land uses. It connects to Conn Creek Road to the west and to Silverado Trail to the east. There is no posted speed limit on Skellenger Lane.

SR-29 is a two-lane, north-south conventional highway with discontinuous two-way left-turn lanes (TWLTL) within the study area. SR-29 serves commercial and agricultural land uses and includes many driveways within the limits of the study area. It connects to SR-20 in Lake County and to I-80 in Solano County. SR-29 contains a section north of Rutherford Road that is contiguous with SR-128 and a section to the south of SR-121 that is contiguous with SR-121 and SR-12. The posted speed limit near the study area on SR-29 ranges from 40 miles per hour to 50 miles per hour.

2.1.1 Existing Bicycle and Pedestrian Facilities

Class II bicycle lanes and Class III bicycles routes exist within the project vicinity and are described as follows:

- Class II Bicycle Lanes
    - SR-29 between Rutherford Road and Madison Street

  - Conn Creek Road between Rutherford Road/SR-128 and Skellenger Lane
  - Silverado Trial between north of Zinfandel Lane and south of Oakville Cross Road
- Class III Bicycle Routes
  - Skellenger Lane between Conn Creek Road and Silverado Trail
  - Oakville Cross Road between SR-29 and Silverado Trail

While some painted bike lane markings exist on the Class II bicycle lane on Silverado Trail, the bulk of the lane runs along a wide shoulder on Silverado Trail. This existing bikeway network in the study area is depicted in **Figure 2.**

2.1.2 Existing Transit Service

Transit service in the study area is limited to two bus routes operated by the Napa Valley Transportation Authority under the Vine Transit brand. Lines 10 and 10X run from Napa to Calistoga, with Line 10 providing local service between Napa Valley College and Calistoga, and Line 10X providing express service between Soscol Gateway Transit Center and Calistoga. Transit service is shown in **Figure 3.**

2.1.3 Existing Lane Configuration and Traffic Control

Existing intersection lane configurations and traffic control at study intersections are illustrated in **Figure 4**. All study intersections are side-street stop-controlled. The figure also shows the length of the right and left turn storage bays where present.

2.1.4 Existing Traffic Volumes

The weekday PM peak period traffic counts were collected between 3:30 PM to 6:30 PM on Tuesday, May 21, 2019 through Thursday, May 23, 2019 at the study intersections. There was minimal variance in the volumes between each day, with Wednesday volumes primarily being the median volumes of the three days. In addition, the peak hour was observed to generally be between 3:30 PM and 4:30 PM. The Wednesday volumes between 3:30 PM and 4:30 PM are shown in **Figure 5**.

2.1.5 Existing Rail Activity

The Napa Wine Train is a tourist activity that runs along the railroad tracks adjacent to SR-29 and operates between Downtown Napa and St Helena. It begins at the Napa Wine Train station located in Downtown Napa and crosses Soscol Avenue and SR-29 in Napa, running along the west side of SR-29. It then crosses SR-29 at Whitehall Lane in St Helena, north of the study area, and runs along the east side of SR-29. The train operates up to approximately nine (9) times a day during peak days.

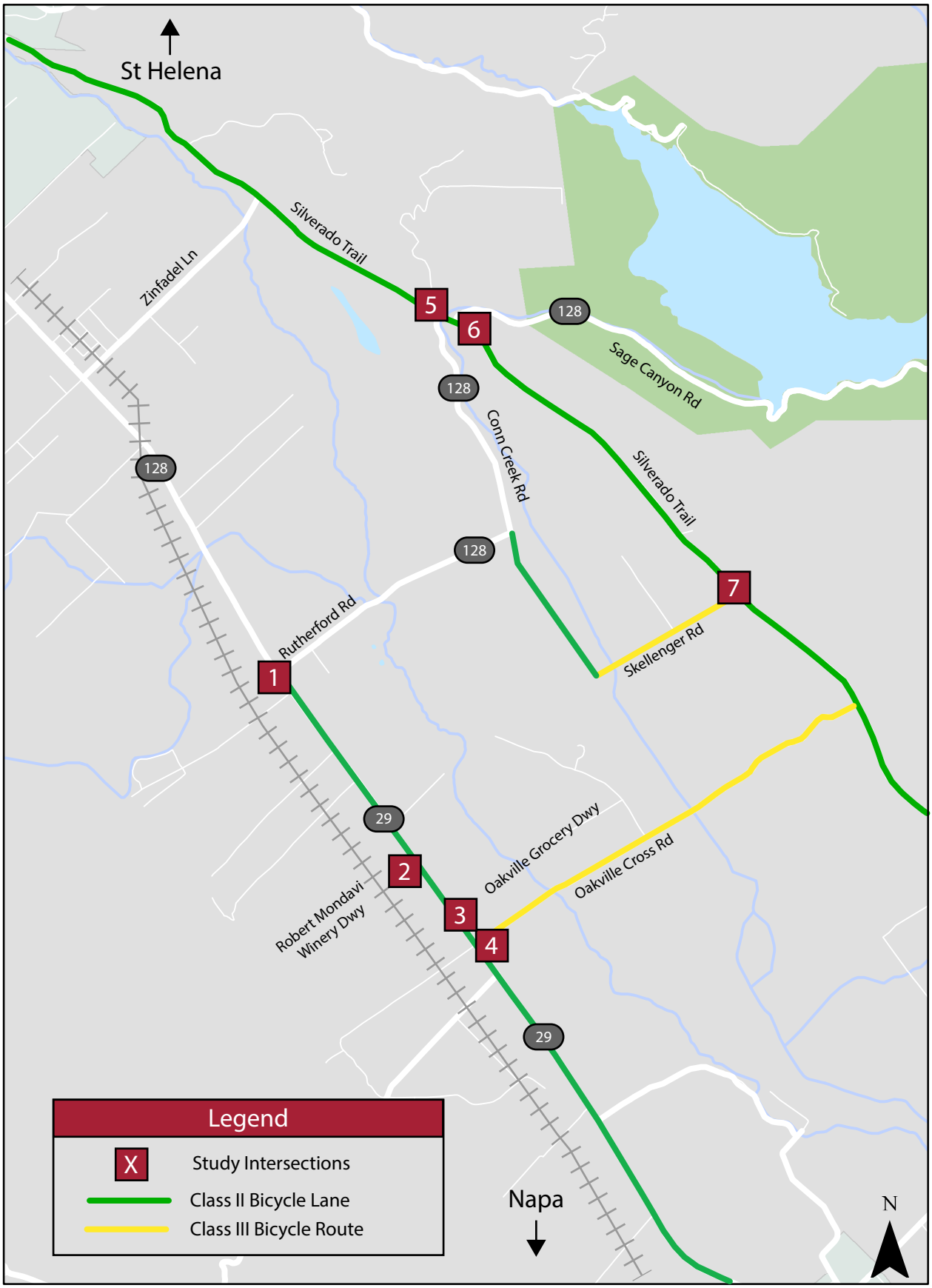

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FIGURE 2
EXISTING BICYCLE FACILITIES

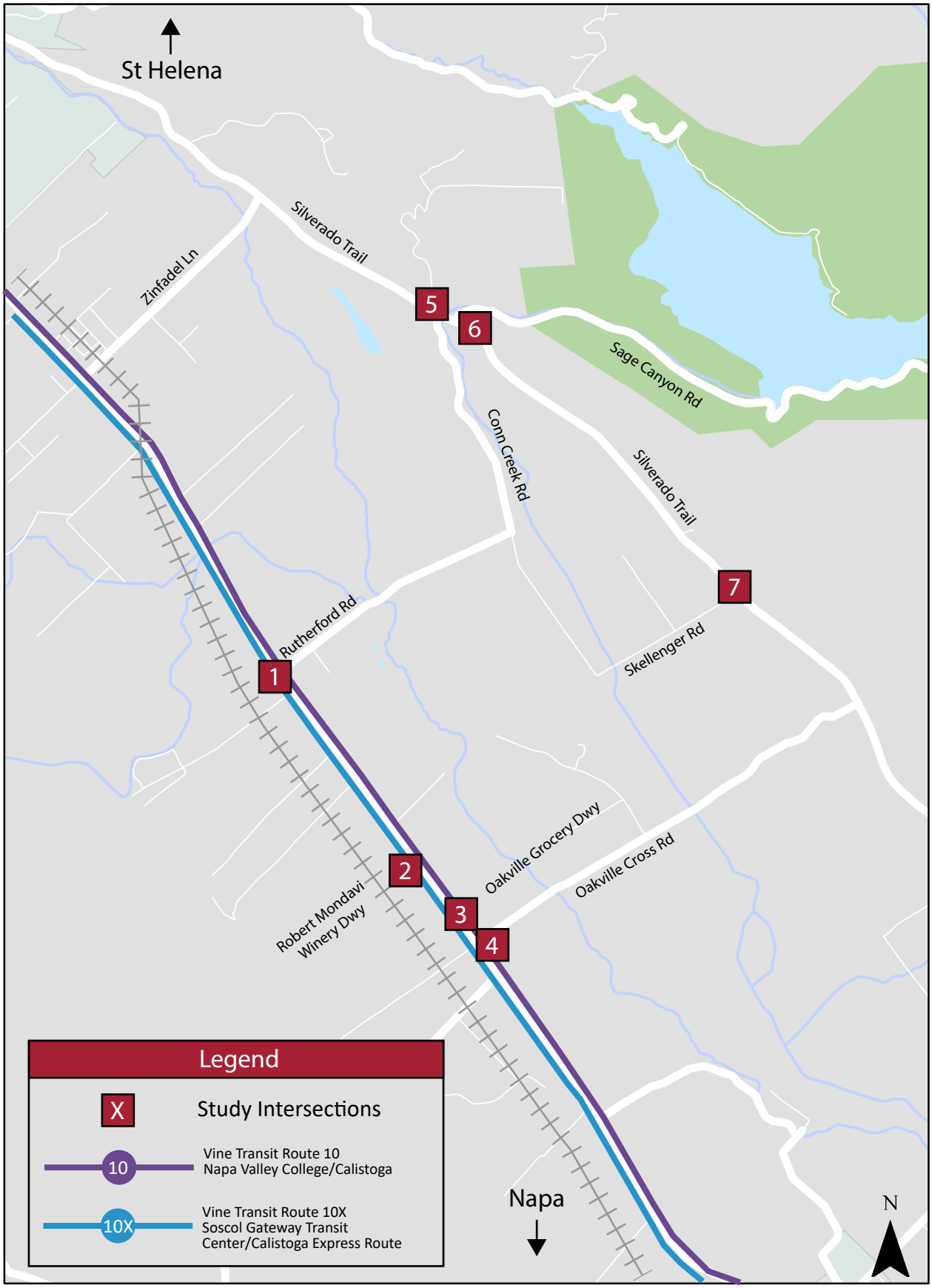

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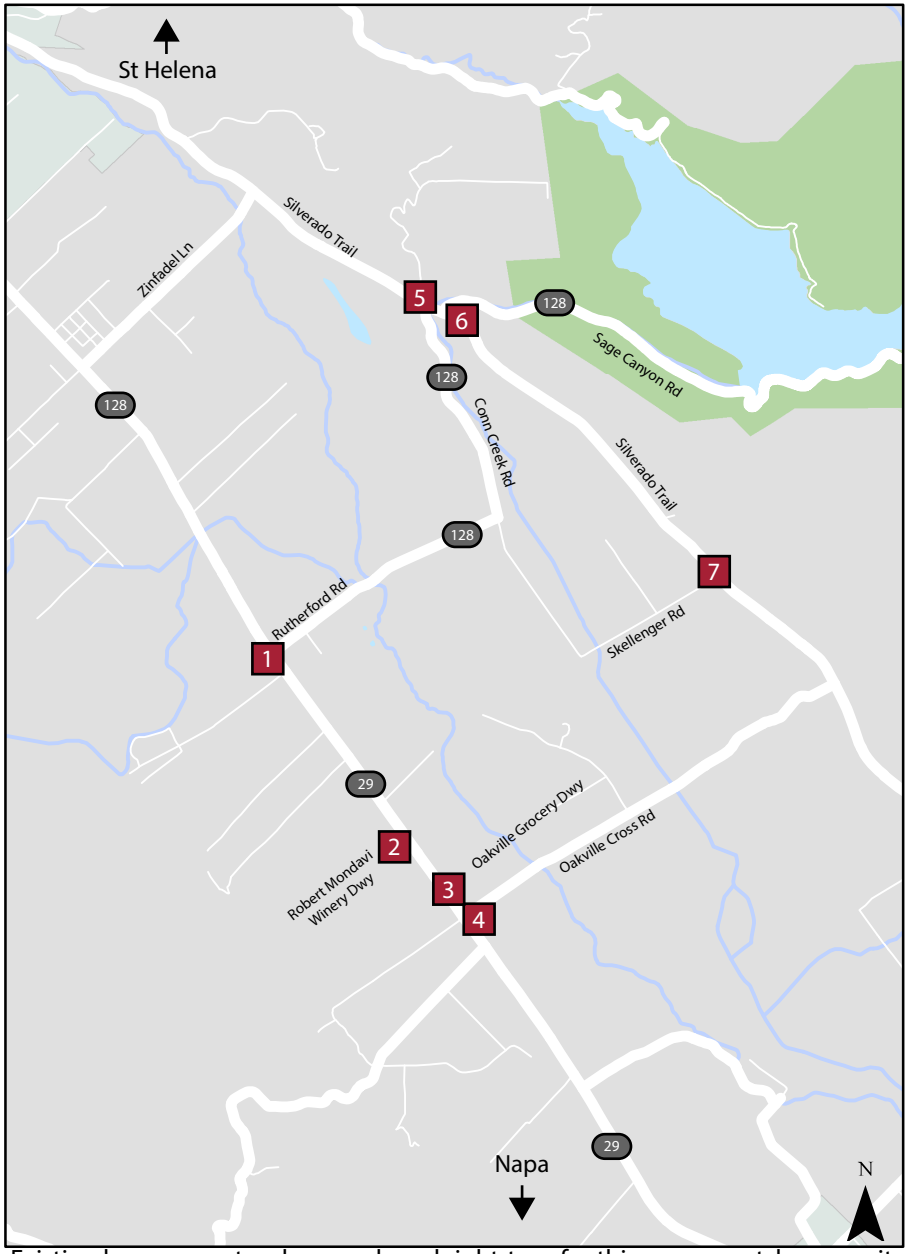
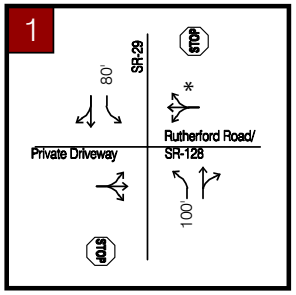
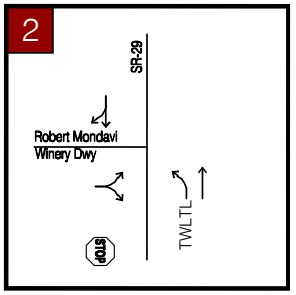
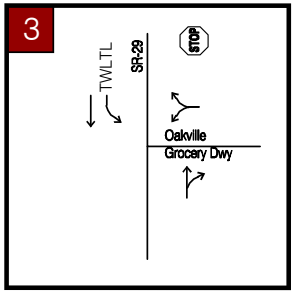
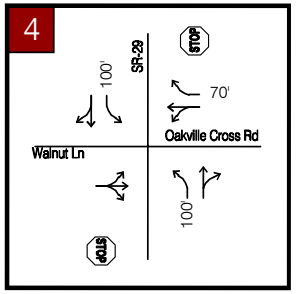
FIGURE 3
EXISTING TRANSIT FACILITIES

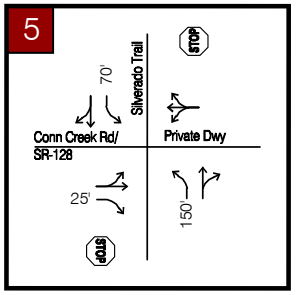


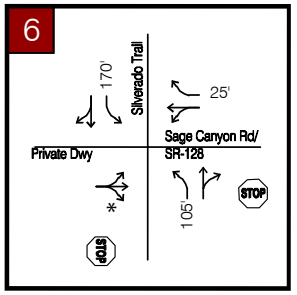


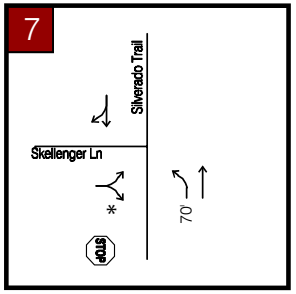


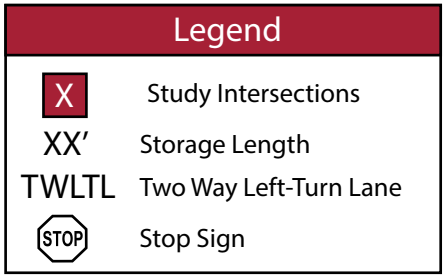




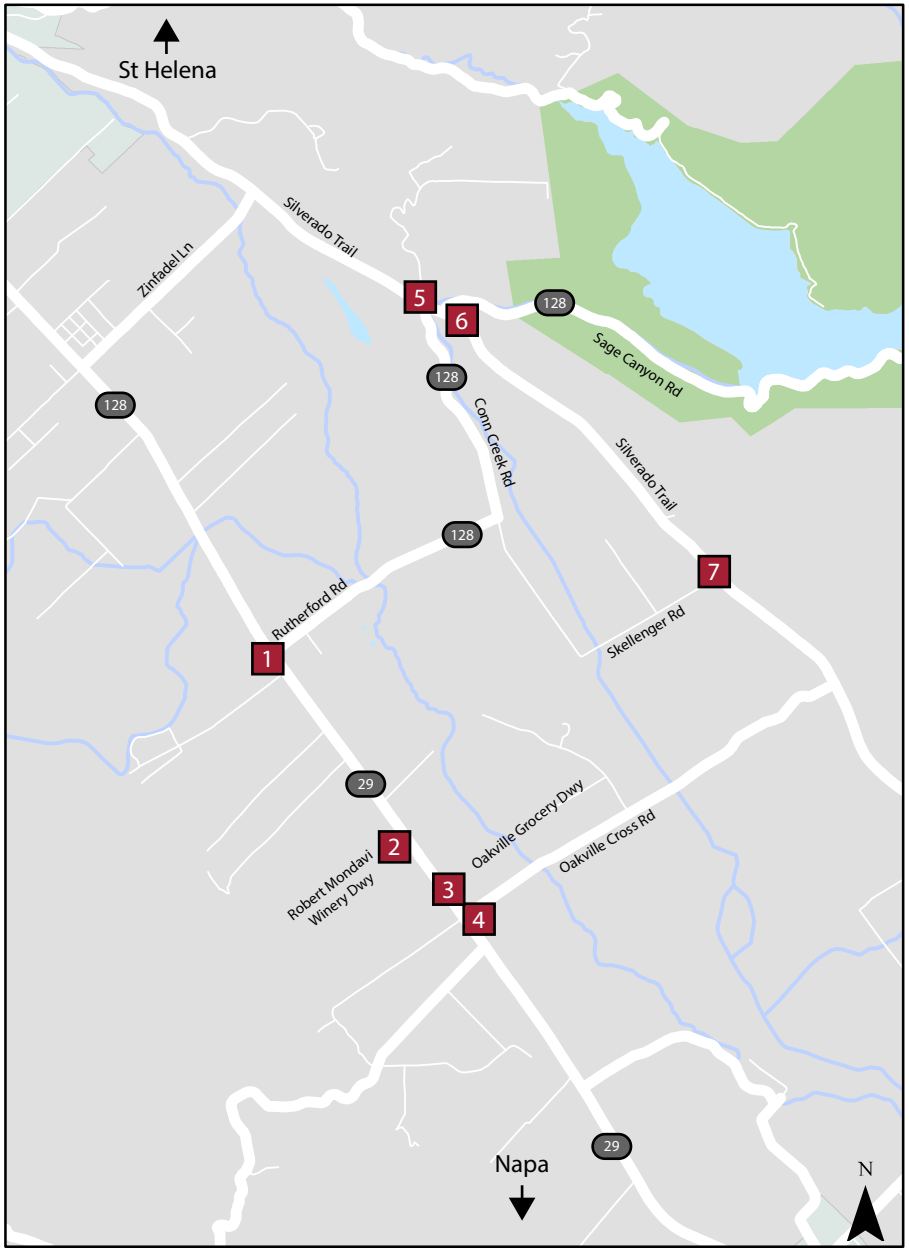


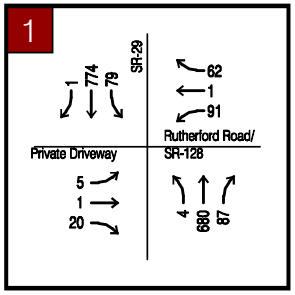


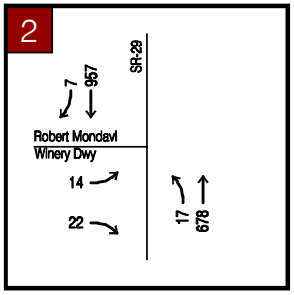


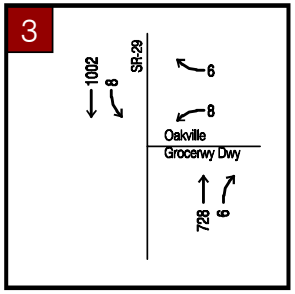


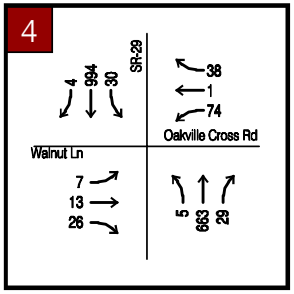
*Note: Existing lane geometry shows a shared right-turn for this movement, however it operates as an exclusive right-turn. Synchro model lane geometry re˜ec ts how the intersection operates.

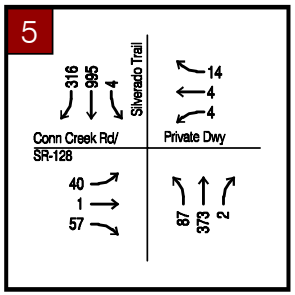


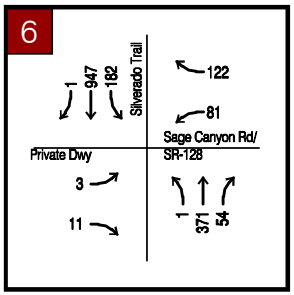


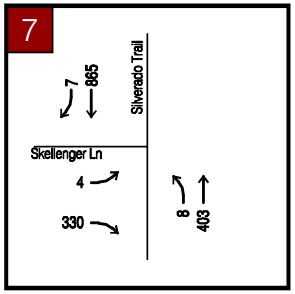


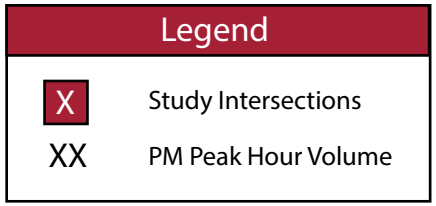












Kimley»Horn

FIGURE 5

EXISTING PM PEAK HOUR TURNING MOVEMENT VOLUMES

2.1.6 Field Observations

Kimley-Horn visited the study area on Wednesday, May 22nd, 2019 to better understand the field conditions as well as investigate possible causes of the congestion in the area. The observations that were noted in the field were primarily related to available gaps for side street traffic, queues and other general travel patterns.

Based on field observations, the most severe congestion along southbound SR-29 appeared to be caused by the driveways along the corridor both at and upstream of the Robert Mondavi Winery Driveway. Vehicles slow down within that segment when cross street and driveway vehicles are entering and exiting SR-29. Fewer vehicles enter and exit SR-29 downstream of the Robert Mondavi Winery Driveway, therefore speeds begin to increase after that location.

As a result of the congestion along southbound SR-29, there are few available gaps for vehicles entering the highway. However, when vehicles on SR-29 come to a standstill (or speeds less than 10 mph), some vehicles on southbound SR-29 yield the right-of-way to entering vehicles and it may be less difficult for vehicles to enter when SR-29 is congested. When southbound vehicles yield right-of-way to cross-street traffic, delay and congestion further increase on SR-29.

There is also a two-way left-turn lane (TWLTL) or a dedicated left-turn lane at each of the three intersections on SR-29 where gap data was collected. Along SR-29 near both Rutherford Road and Oakville Cross Road, the TWLTL transitions into a northbound left turn pocket on either side of the intersection. During periods of congestion, some vehicles making a westbound left turn from Rutherford Road and Oakville Cross Road experience difficulty entering southbound SR-29 when they were not let in, and these vehicles queue in the northbound left turn storage lane until a gap is available for them to enter the southbound highway. There were a few vehicles in the northbound left turn at each intersection.

On SR-29 at SR-128/Rutherford Road, congestion on southbound SR-29 began around 3:40 PM. Most vehicles making a westbound right-turn from Rutherford Road onto northbound SR-29 did not have any significant delays and those making a westbound left-turn onto Southbound SR-29 were able to complete that turn when vehicles on southbound SR-29 allowed them to enter.

On SR-29 at Robert Mondavi Winery Driveway, congestion on southbound SR-29 began around 3:30 PM. The queue in the area did recede from the intersection at times but travel speeds on southbound SR-29 remained low (i.e. between 0-25 mph). The lower speeds on southbound SR-29 did benefit the side-street vehicles when drivers on southbound SR-29 would allow vehicles making an eastbound right-turn from the winery to merge in front them and would provide an available gap for vehicles making an eastbound left-turn to cross southbound SR-29 and enter northbound SR-29. Approximately 90 percent of side-street vehicles would wait about one or two cars at most before being allowed in. During gap study observations, approximately 25 percent of the side-street vehicles

increased their speed to make an eastbound right-turn or eastbound left-turn and approximately 20 percent of side-street vehicles caused southbound SR-29 vehicles to brake, adding to southbound SR-29 congestion and delay.

On SR-29 at Oakville Cross Road, the speeds in the southbound direction were at or near free flow conditions. This made westbound left-turn movements challenging but, as mentioned above, left-turning vehicles from Oakville Cross Road treated the northbound left-turn lane at the intersection as if it were a TWLTL and aggressively joined the southbound traffic flow with cars southbound on SR-29 having to slow down approximately 75 percent of the time. Vehicles completing a two-stage westbound left-turn treated the 100-foot northbound left-turn lane as a TWLTL since there are few northbound left turning vehicles. After Oakville Cross Road vehicles made the first stage of the left turn into the northbound left-turn lane, southbound SR-29 vehicles would usually slow down and allow the vehicles in the northbound left-turn lane to merge in. Right-turning cars from Oakville Cross Road would merge onto northbound SR-29 without any slow-down.

On southbound Silverado Trail, congestion appeared to be caused by the high eastbound right-turn volumes at the Skellenger Lane intersection with Silverado Trail. Congestion on southbound Silverado Trail extends to just south of Conn Creek Road and does not recover to free flow conditions until downstream of Skellenger Lane. Observations showed a one-to-one merge between the southbound through vehicles and the eastbound right turn vehicles at this intersection, even though the stop-control is only for the eastbound approach. The high eastbound right-turn volume at Skellenger Lane is due to vehicles bypassing the southbound congestion on Silverado Trail by using Conn Creek Road to connect to Skellenger Lane. Multiple GPS maps and apps showed this as the quickest route when traveling southbound on Silverado Trail. Southbound vehicles on SR-29 also make a left turn at Rutherford Road and use Conn Creek Road to connect to Skellenger Lane to bypass the southbound congestion on SR-29. However, Skellenger Lane traffic is comprised of far fewer vehicles detouring from SR-29 than vehicles detouring from Silverado Trail.

On Silverado Trail at SR-128/Conn Creek Road, southbound congestion did not extend as far north as the intersection, so vehicles on Silverado Trail were moving at free flow speeds. The high speeds (i.e. 55 mph) on Silverado Trail made it difficult for vehicles to make eastbound left and right-turns from Conn Creek Road. Since there is no TWLTL along Silverado Trail at Conn Creek Road, vehicles making an eastbound left turn need to wait until there is an available gap in both directions before entering the intersection in a one-stage movement. In addition, there were typically several vehicles making a northbound left turn onto Conn Creek Road from Silverado Trail, which further increased delays for the side-street vehicles turning from Conn Creek Road because they had to yield to another conflicting movement. At other times, there were enough available gaps for vehicles on Conn Creek Road to make a left turn onto Silverado Trail. During gap study observations, approximately four percent of the vehicles on Conn Creek Road aggressively increased their speed to make an eastbound right-turn or eastbound left-

turn and approximately two percent of the side-street vehicles caused vehicles on Silverado Trail to brake.

2.2 Gap Study

Kimley-Horn conducted a gap study along SR-29 and Silverado Trail to determine the accepted and rejected gaps by side-street/driveway vehicles along each corridor. The gap study was conducted at the following four side-street stop-controlled intersections along SR-29 and Silverado Trail:

- Intersection #1 – SR-29 and Rutherford Road
- Intersection #2 – SR-29 and Robert Mondavi Winery Driveway
- Intersection #4 – SR-29 and Oakville Cross Road
- Intersection #5 – Silverado Trail and Conn Creek Road

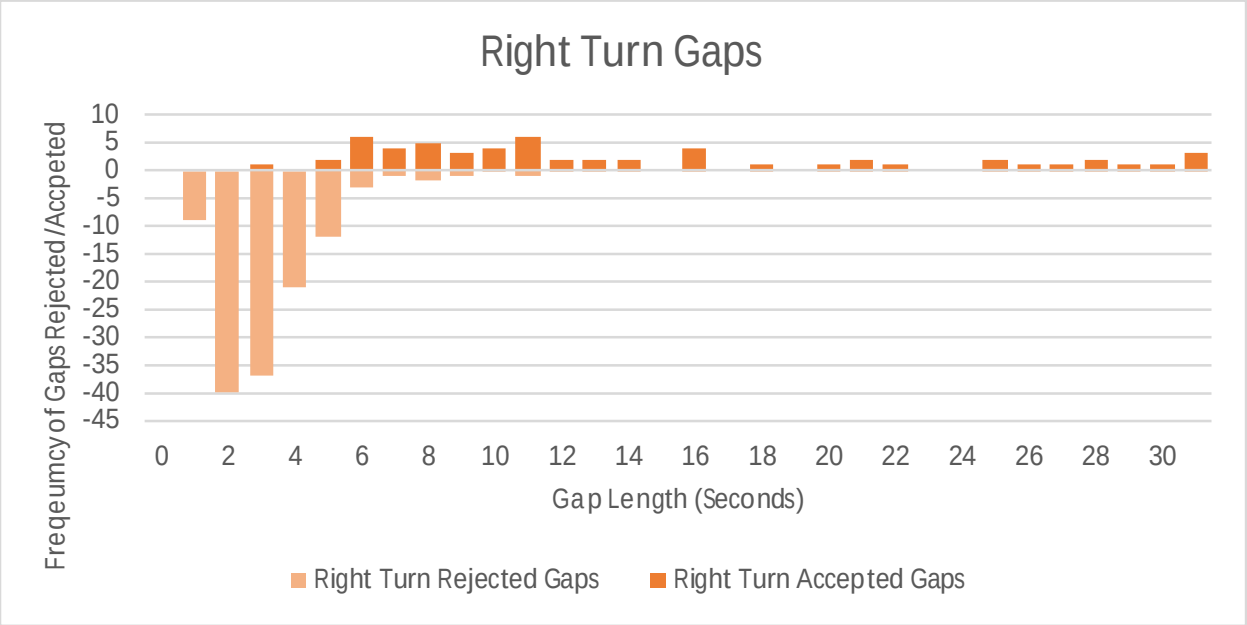
The data for the gap study involved noting the gaps that exist in the traffic stream as well as determining the average delay of the side-street vehicle. The analysis was performed on Wednesday, May 22, 2019 during the PM peak period from 3:30 PM to 6:00 PM.

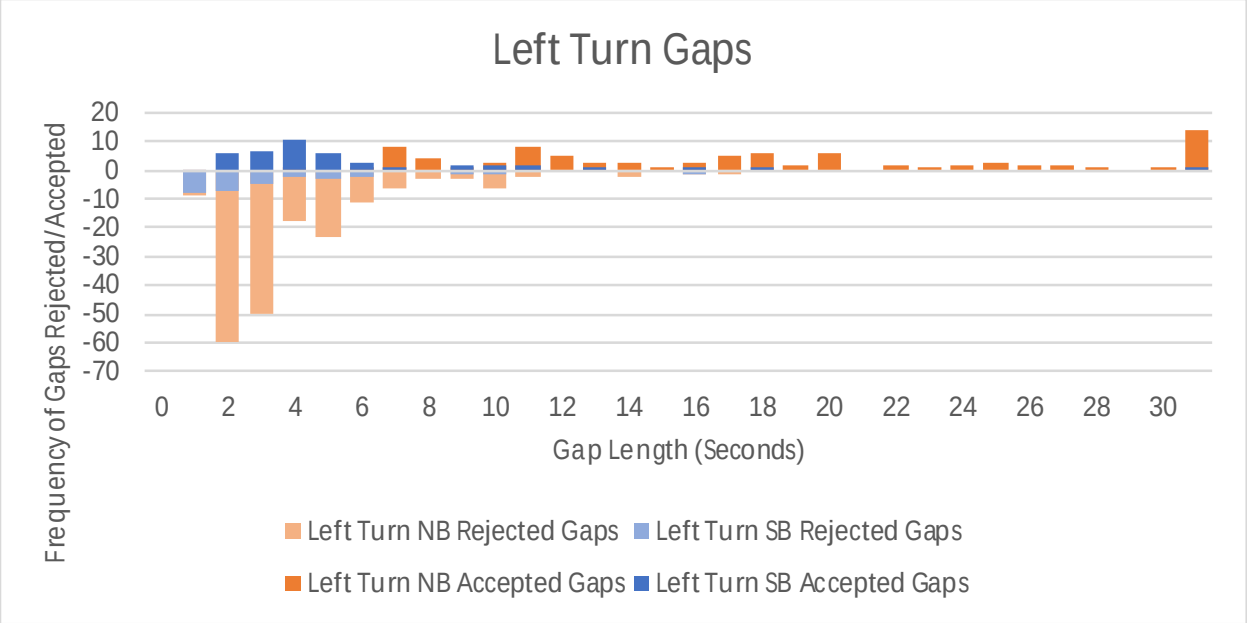
2.2.1 Gap Study Analysis

The analysis was conducted in various stages. The first step was to note the timestamps for vehicles on SR-29 and Silverado Trail in both directions to determine all available gaps. Simultaneously, the timestamp for vehicles approaching on the side street was also collected, as well as the time it took to complete either a right turn or left turn. Right-turn maneuvers from the side-street require the approaching vehicle to find a gap only in one direction of travel on SR-29 or Silverado Trail; however, left-turn maneuvers require the approaching vehicle to find a gap in two directions of travel on SR-29 or Silverado Trail. Several of the study intersections have either left-turn pockets or TWLTLs on SR-29, allowing vehicles to make a two-stage turning maneuver (turning into the left-turn lane or TWLTL once they get a gap in one direction on SR-29, followed by merging into the other direction of traffic on SR-29 once a gap is available). Where a vehicle was making a right-turn, or a one-stage turn, one timestamp was collected to determine when the vehicle entered the flow of traffic on SR-29 or Silverado Trail. Whereas if a vehicle was making a left-turn, or a two-stage turn, two timestamps were collected to determine when the vehicle crossed one direction of SR-29 or Silverado Trail and then entered the flow of traffic in the other direction.

The next step after data collection was to process the timestamps. This was done to determine which gaps were accepted or rejected by each vehicle. The average delay experienced by the side-street vehicle (as the lead vehicle only) at each of the four intersections was also collected. This analysis was completed for all four intersections where gap analysis data was collected. The gaps accepted and rejected by side-street street vehicle movements are graphically shown in **Figure 6** through **Figure 9**.

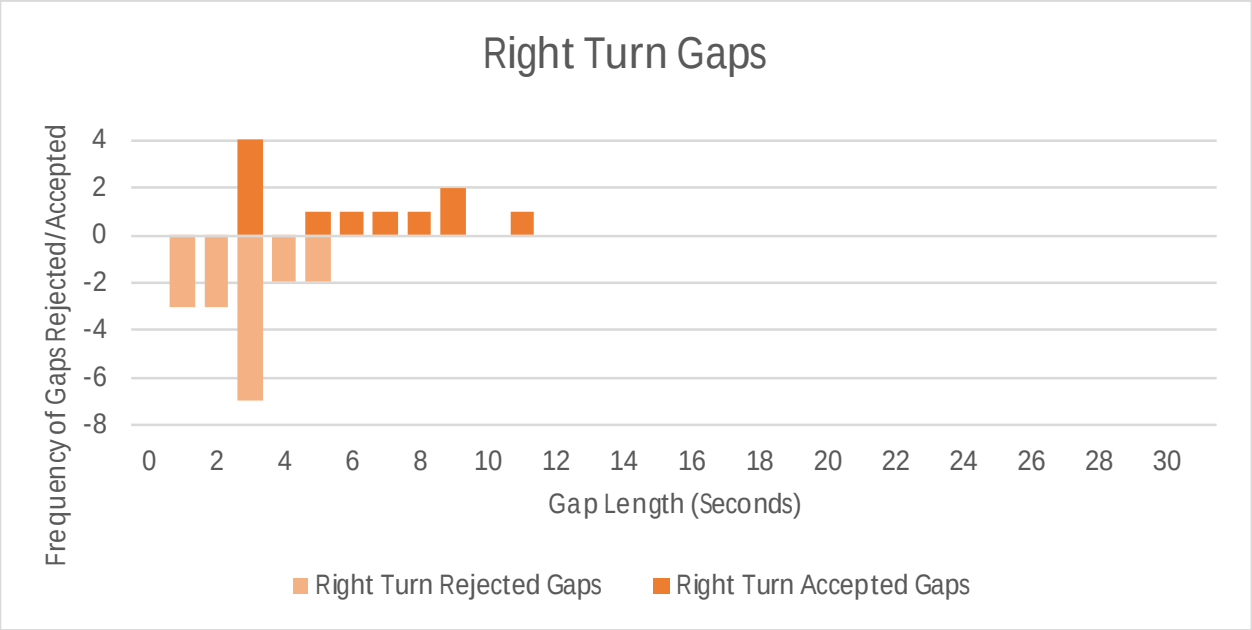
Figure 6: SR-29/Rutherford Road – Accepted and Rejected Gaps

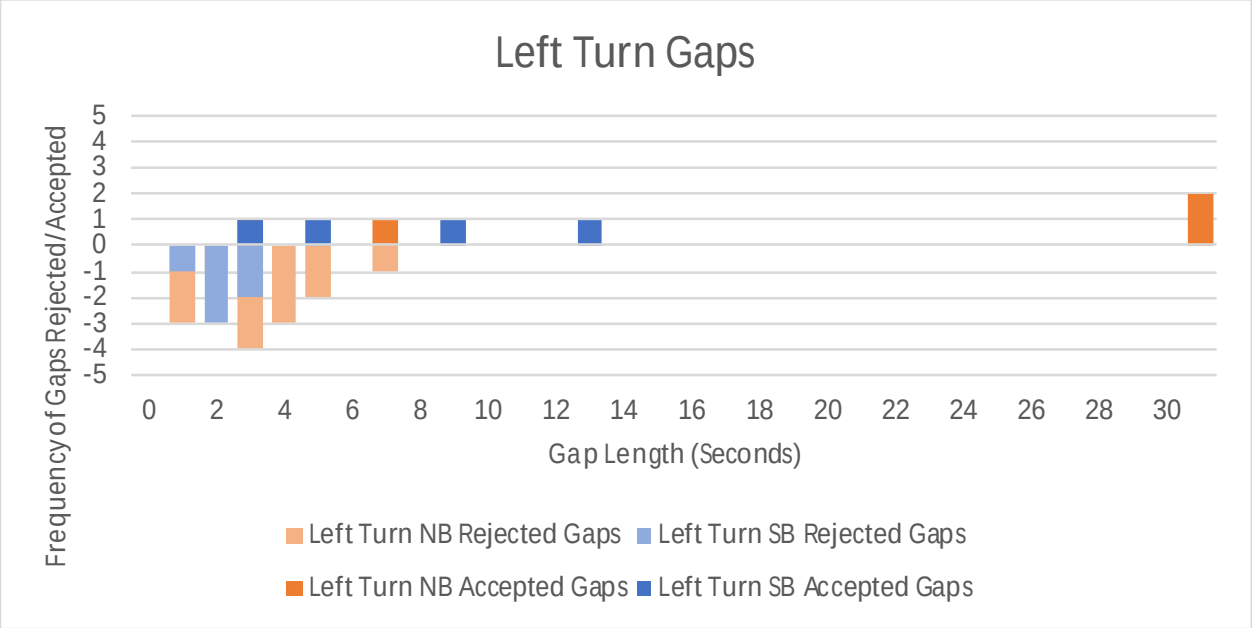




Note: Gaps Rejected shown as a negative number, gaps accepted shown as a positive number

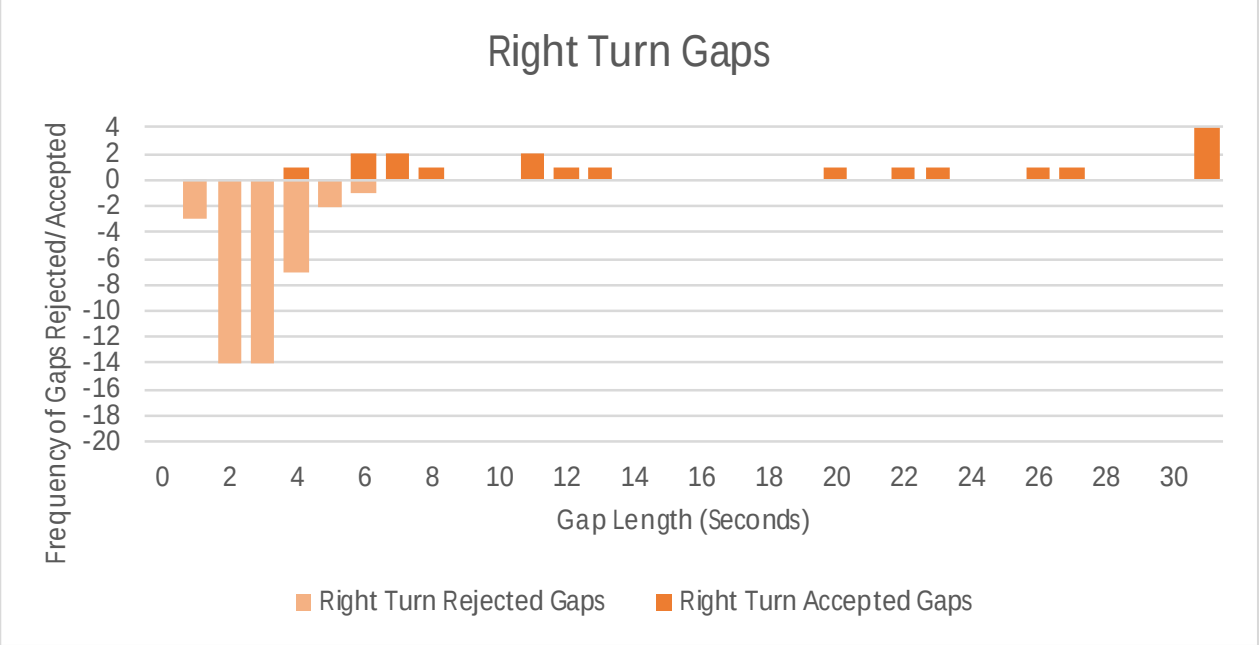
Figure 7: SR-29/Robert Mondavi Winery Driveway – Accepted and Rejected Gaps

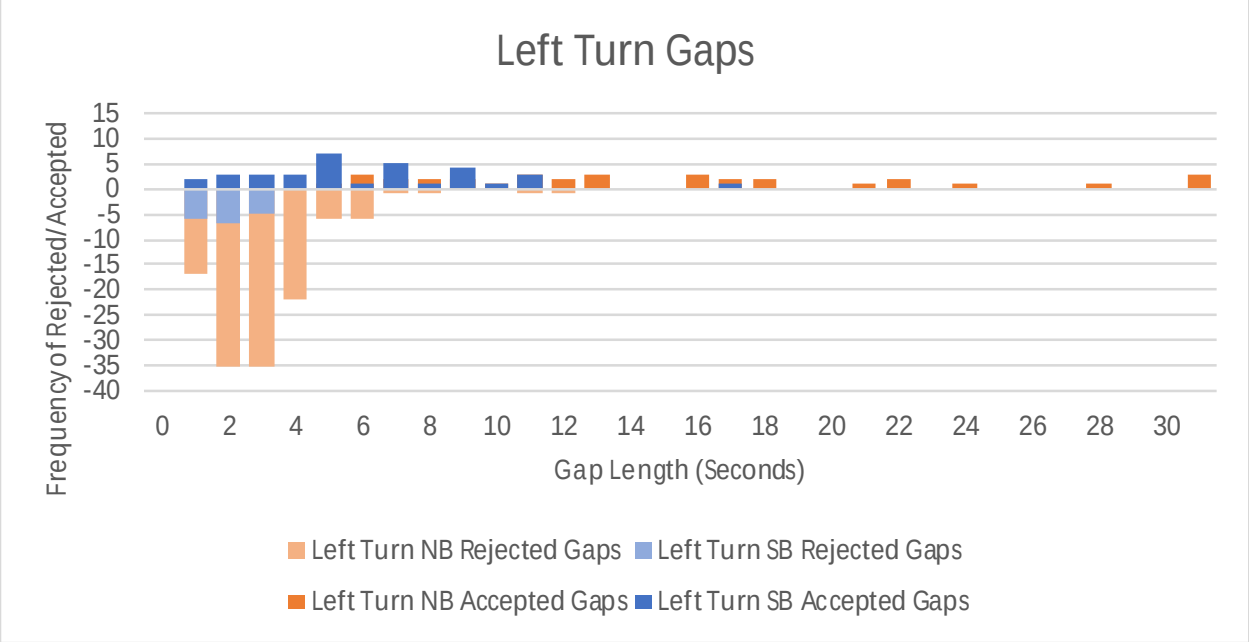




Note: Gaps Rejected shown as a negative number, gaps accepted shown as a positive number

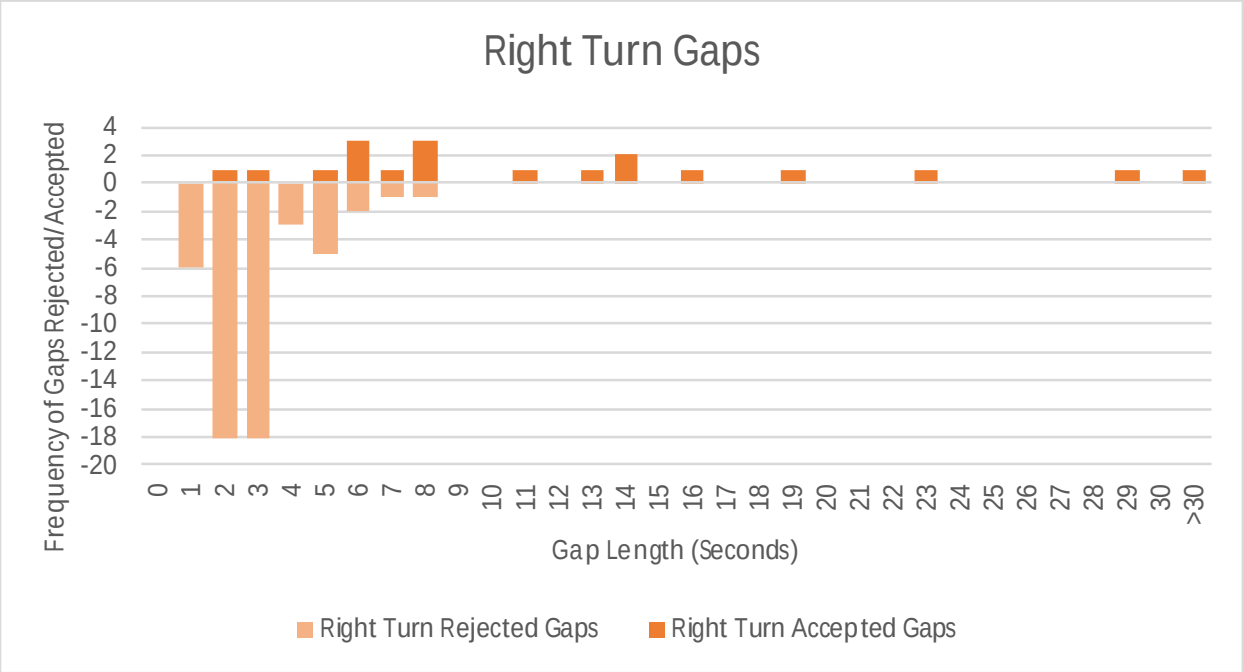
Figure 8: SR-29/Oakville Cross Road – Accepted and Rejected Gaps

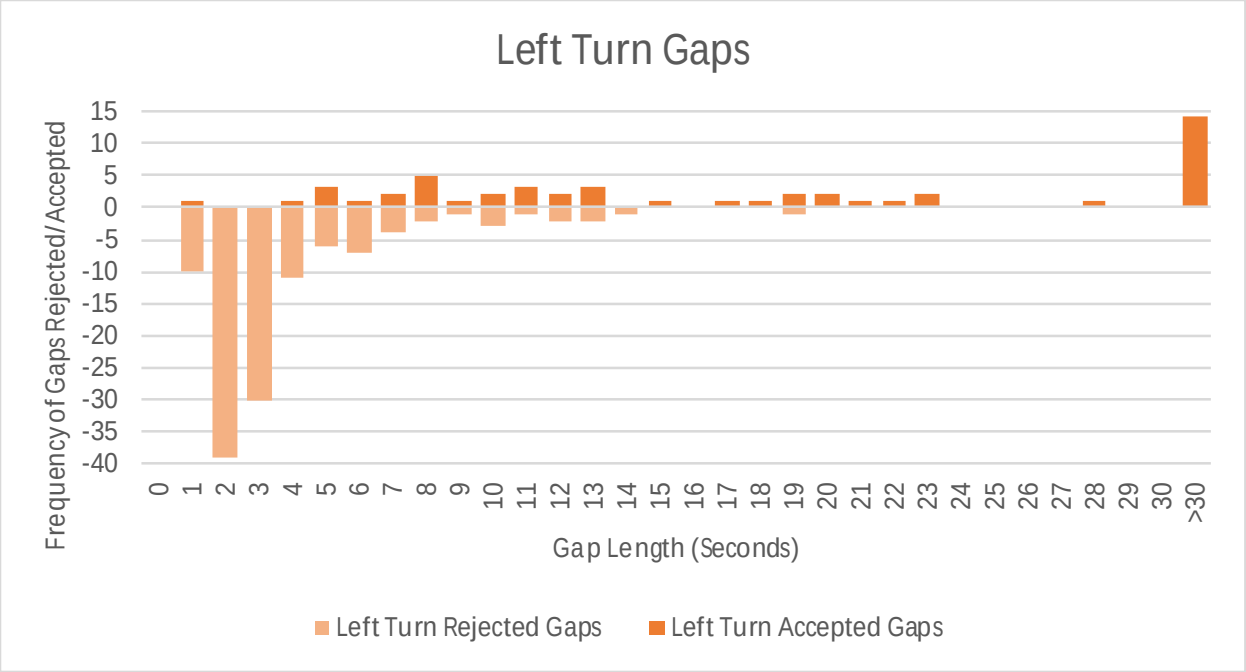




Note: Gaps Rejected shown as a negative number, gaps accepted shown as a positive number

Figure 9: Silverado Trail/Conn Creek Road – Accepted and Rejected Gaps





Note: Gaps Rejected shown as a negative number, gaps accepted shown as a positive number

Table 2: Average Accepted and Rejected Gaps on SR-29 and Silverado Trail

#	Intersection	Movement	SR-29 and Silverado Trail Gap Direction	Accepted Gaps (seconds)		HCM Critical Gap	5th Percentile Accepted Gap < HCM Critical Gap?	Rejected Gaps (seconds)		Average Side-Street Vehicle Delay[1] (Seconds)
				Average	5th Percentile			Average	95th Percentile	
1	SR-29 / Rutherford Road	WB Left Turn	SB Gap	6.4	1.3	6.1	**Yes**	2.9	8.9	26.3
			NB Gap	20.7	6.5	6.1	No	3.5	9.4	
		WB Right Turn	NB Gap	14.0	5.0	6.2	**Yes**	2.7	5.1	8.0
2	SR-29 / Robert Mondavi Winery Driveway	EB Left Turn	NB Gap	23.6	2.7	6.1	**Yes**	2.7	5.0	24.8
			SB Gap	7.0	2.9	6.1	**Yes**	1.6	2.7	
		EB Right Turn	SB Gap	5.5	2.1	6.2	**Yes**	2.2	4.1	8.6
4	SR-29 / Oakville Cross Road	WB Left Turn	SB Gap	5.6	1.2	6.1	**Yes**	1.4	2.5	16.6
			NB Gap	14.8	5.7	6.1	**Yes**	2.6	5.4	
		WB Right Turn	NB Gap	17.3	5.5	6.2	**Yes**	2.3	4.0	5.9
5	Silverado Trail / Conn Creek Road	EB Left Turn	NB Gap	27.9	4.8	7.1	**Yes**	3.4	10.8	20.7
			SB Gap	16.6	4.8					
		EB Right Turn	SB Gap	11.6	2.1	6.2	**Yes**	2.4	5.3	9.8

[1] Delay only as lead vehicle

The average and 5th percentile accepted gaps, as well as the average and 95th percentile rejected gaps, were determined and summarized in **Table 2**. The 5th percentile gaps are listed to show the minimum gaps that side-street vehicles are willing to accept. The average gaps accepted can be misleading because many of the northbound gaps are long to begin with since there are less vehicles traveling northbound on SR-29 and Silverado Trail in the PM peak hour. Critical headway gaps based on the Highway Capacity Manual 6th Edition (HCM), are shown in **Table 2** and compared with the 5th percentile accepted gaps. Critical gaps are the minimum acceptable time intervals necessary to allow vehicles to cross or enter the opposing flow of traffic.

As shown in **Table 2**, all movements have a 5th percentile accepted gap less than the HCM critical gap with the exception of the westbound left-turn at SR-29 and Rutherford Road when crossing northbound SR-29. Findings that the 5th percentile gap accepted is less than the HCM gap at nearly all intersections indicate that side-street vehicles are turning aggressively and making maneuvers into gaps that are insufficient. As a result, vehicles along SR-29 and Silverado Trail are forced to slow down, thereby creating periods of congestion upstream due to saturated conditions and results in additional delay for traffic already operating under saturated conditions. It is likely that this effect is the root cause of the congestion on SR-29 and Silverado Trail.

2.3 Travel Times Analysis

2.3.1 INRIX Travel Times

INRIX data was obtained to determine travel time and average speed data along each corridor. The INRIX data was used as a comparison to SimTraffic outputs to calibrate the existing conditions models.

2.3.1.1 Methodology

The INRIX data captures the travel time between set data points along a roadway by gathering information anonymously from vehicles and GPS-enabled smart phones that pass the set points. The INRIX data was collected and downloaded for multiple days during periods when traffic counts were collected. The INRIX data provided travel times along SR-29 between north of Rutherford Road and approximately 0.55 miles south of Oakville Cross Road (approximately 2.6 miles) and along Silverado Trail between Conn Creek Road and approximately 0.36 miles south of Skellenger Lane (approximately 2.7 miles). Speeds along SR-29 and Silverado Trail were also obtained for the same limits collected for travel times. **Table 3** and **Table 4** show the average speeds for Wednesday, May 22, 2019 along SR-29 and Silverado Trail, respectively. INRIX segment limits along SR-29 and Silverado Trail are shown in **Figure 10**. **Figure 11**, **Figure 12**, and **Table 5** summarize the INRIX travel times and average speeds along each corridor for Wednesday, May 22, 2019.

Table 3: SB SR-29 Speed Contour – PM Peak Period

Segment #	Segment Limits	Speed Limit (mph)	Speed (mph)												
			3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:15 PM	6:30 PM
1	North of Rutherford Rd to approx 450 ft north of Manley Ln	40 / 50	37	31	14	12	13	19	15	16	17	24	31	28	14
2	Approx 450 ft north of Manley Ln to 250 ft south of Glos Ln	50	37	30	19	14	17	20	18	17	30	31	18	22	17
3	250 ft south of Glos Ln to 550 ft north of Oakville Cross Rd	50	38	33	24	21	26	27	27	24	37	30	24	37	45
4	550 ft north of Oakville Cross Rd to 2,900 ft south of Oakville Cross	50	41	37	37	34	43	35	41	41	38	23	38	45	46
Average Speed (mph)			38	33	23	20	25	25	25	24	31	27	28	33	30

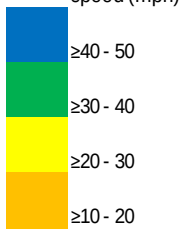
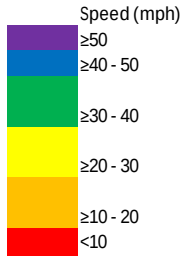


Table 4: SB Silverado Trail Speed Contour – PM Peak Period

Segment #	Segment Limits	Speed Limit	Speed (mph)												
			3:30 PM	3:45 PM	4:00 PM	4:15 PM	4:30 PM	4:45 PM	5:00 PM	5:15 PM	5:30 PM	5:45 PM	6:00 PM	6:15 PM	6:30 PM
1	Conn Creek Rd to SR 128	55	50	42	49	38	19	50	34	39	42	49	50	50	50
2	SR 128 to 3400 ft south of SR 128	55	49	38	24	15	11	27	13	14	31	43	51	54	50
3	3400 ft south of SR 128 to 550 ft north of Ponti Rd	55	50	50	44	13	8	14	24	11	11	19	50	52	51
4	550 ft north of Ponti Rd to 1400 ft north of Skellenger	55	50	51	28	22	8	10	15	10	13	19	26	48	31
5	1400 ft north of Skellenger to 1900 ft south of Skellenger	55	49	49	17	16	13	13	14	14	13	20	19	48	19
Average Speed (mph)			50	46	32	21	12	23	20	18	22	30	39	51	40



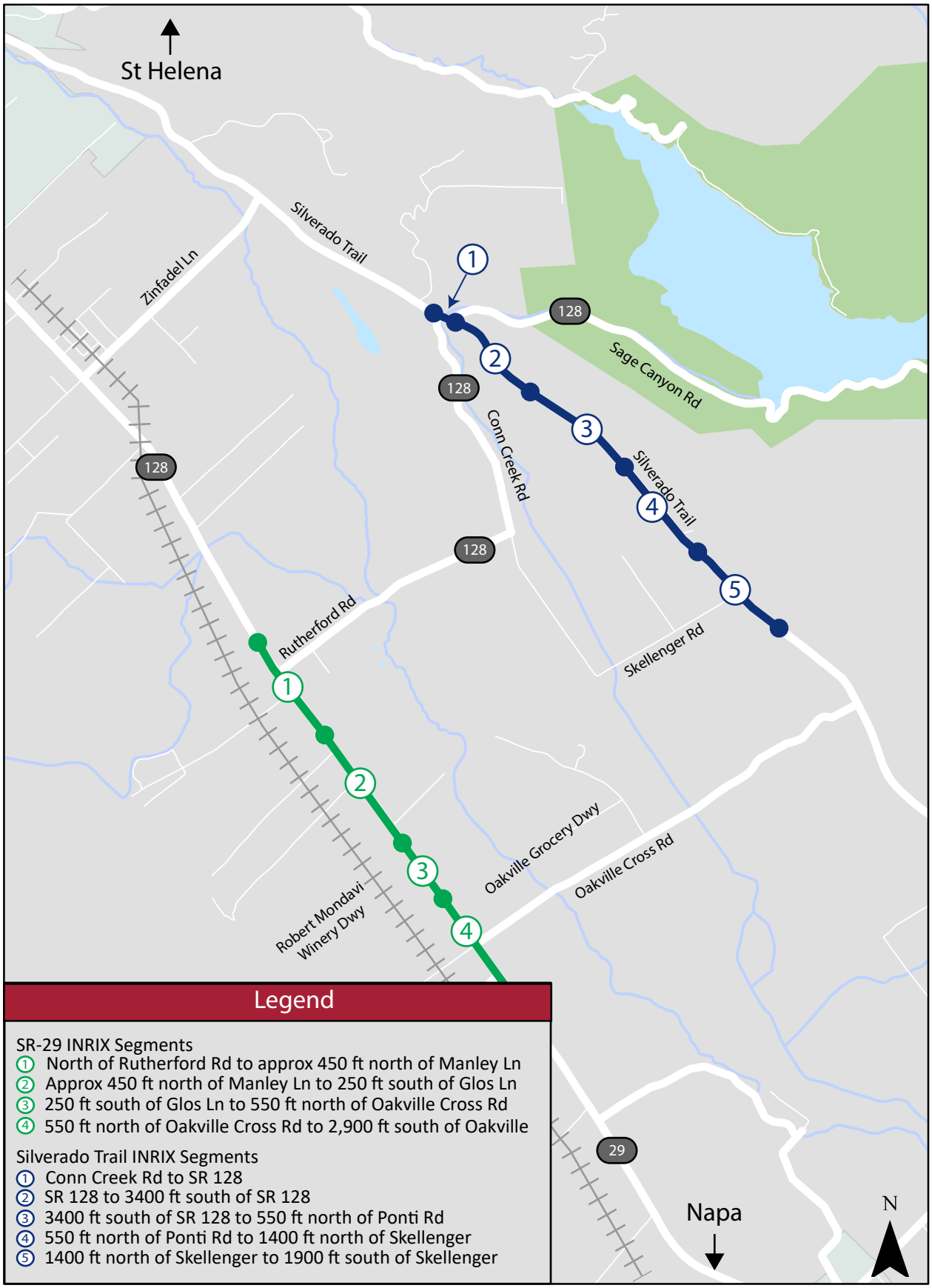


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FIGURE 10
INRIX SEGMENTS

Figure 11: SB SR-29 PM INRIX Travel Time Graph

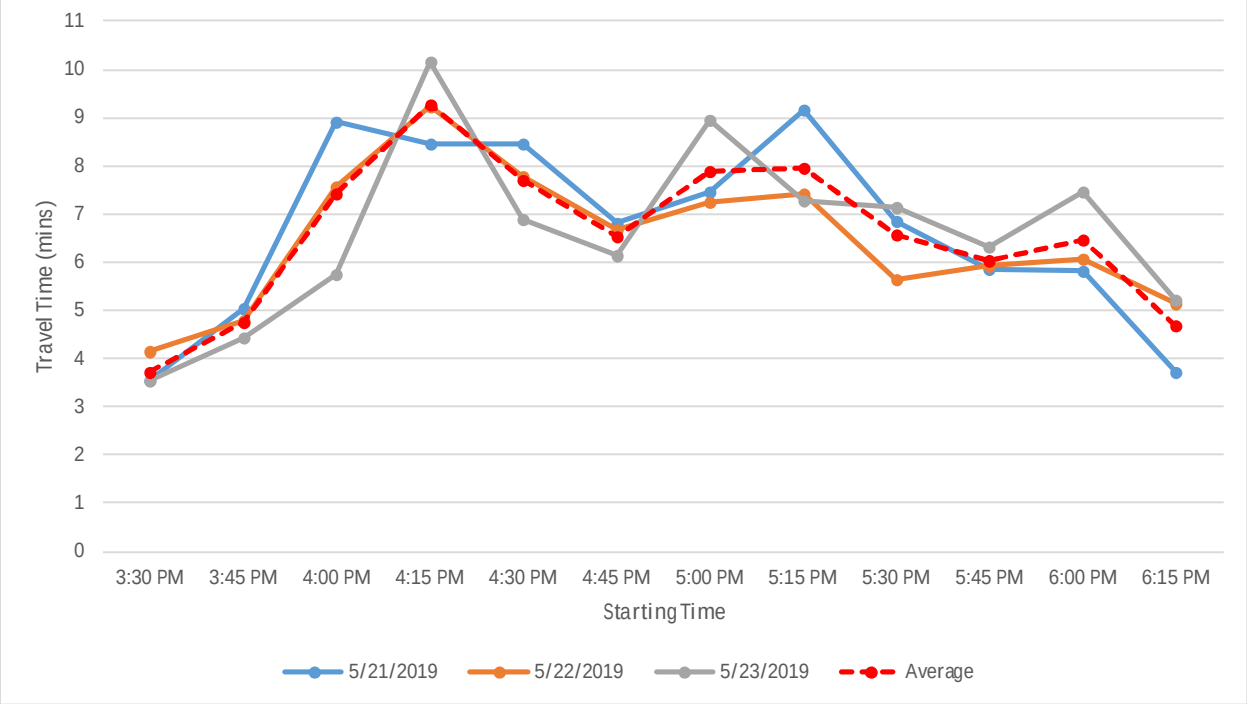


Figure 12: SB Silverado Trail PM INRIX Travel Time Graph

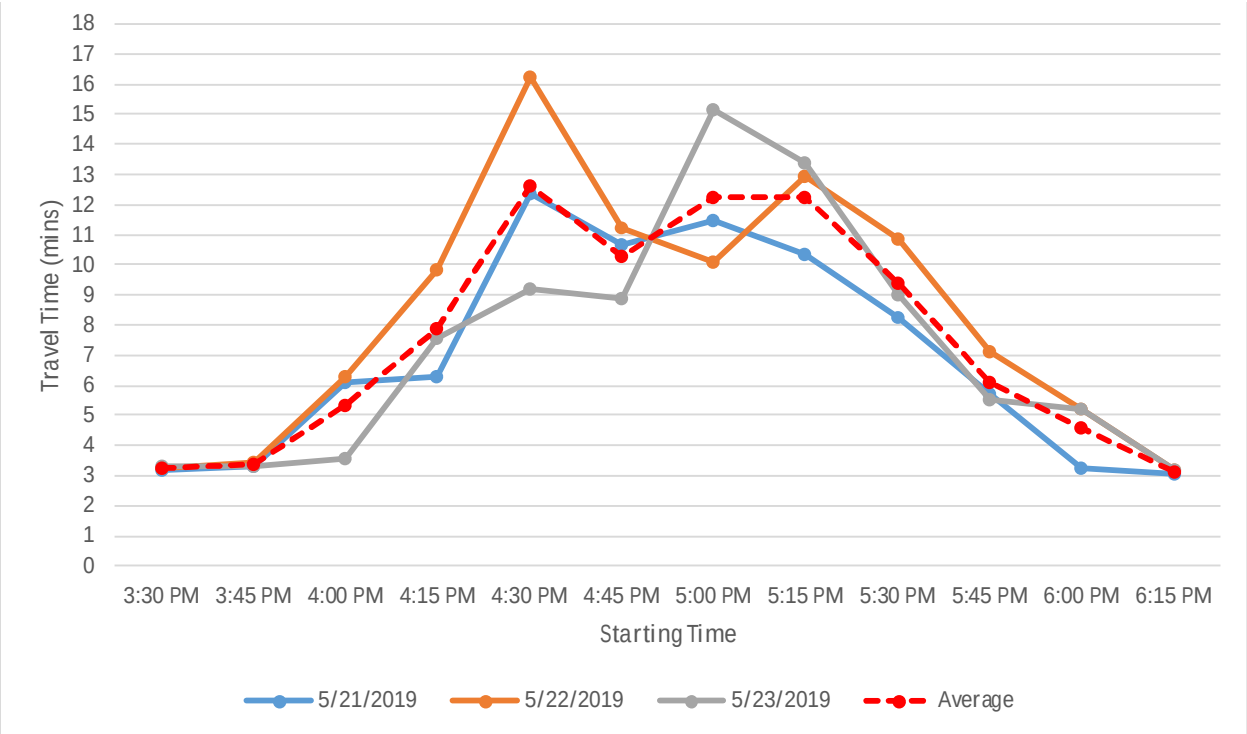


Table 5: INRIX Travel Time Summary

Start Time	SB SR-29		SB Silverado Trail	
	INRIX Travel Time (minutes)	INRIX Average Speeds (mph)	INRIX Travel Time (minutes)	INRIX Average Speeds (mph)
3:30 PM	4.13	38	3.23	50
3:45 PM	4.80	33	3.47	46
4:00 PM	7.58	23	6.26	32
4:15 PM	9.23	20	9.84	21
4:30 PM	7.76	25	16.21	12
4:45 PM	6.66	25	11.22	23
5:00 PM	7.24	25	10.07	20
5:15 PM	7.43	24	12.92	18
5:30 PM	5.65	31	10.86	22
5:45 PM	5.91	27	7.11	30
6:00 PM	6.08	28	5.24	39
6:15 PM	5.13	33	3.19	51

For southbound SR-29, the travel times vary between 4.13 minutes and 9.23 minutes for this segment. The maximum travel time of 9.23 minutes occurs at 4:15 PM. It should be noted that the free-flow travel time is approximately three minutes, assuming a free-flow speed of 50 mph and a distance of 2.44 miles.

For southbound Silverado Trail, the travel times vary between 3.19 minutes and 16.21 minutes for this segment. The maximum travel time of 16.21 minutes occurs at 4:30 PM. It should be noted that the free-flow travel time is approximately three minutes, assuming a free-flow speed of 55 mph and a distance of 2.68 miles.

3 EXISTING MODEL CONDITIONS ANALYSIS

3.1 Existing Intersection Level of Service Analysis

Traffic operations were evaluated under baseline traffic conditions for Weekday PM peak hour conditions using Synchro and SimTraffic analysis platforms.

3.1.1 Lane Geometry and Intersection Control Inputs

The Synchro model was developed based on the existing lane geometry and intersection control for each study intersection. It should be noted that for some approaches the lanes are striped as a shared through-right lane, however the approach operates as a separate through lane and separate right turn lane due to the available width of the roadway. For example, the westbound approach at the intersection of SR-29 and Rutherford Road is striped as a single lane approach for the left turn, through, and right turn movements. However, this approach is wide enough for right-turning vehicles to slip by and therefore the approach operates as a shared left-through lane and a separate right turn lane. This operation significantly reduces the delay for the right-turning vehicles.

Default values for the movement setting under the HCM 6th Edition tab and for the simulation setting were also adjusted based on the gap study field observations collected. **Table 6** summarizes the adjustments modified.

In addition, to simulate the congestion on each study corridor, a roadway segment with a lower link speed (10 mph) was added to the following locations:

- SR-29 between Robert Mondavi Winery driveway and Oakville Grocery Driveway (also adjusted saturated flow to be 1,055 vphpl)
- SR-29 south of Rutherford Road (also adjusted saturated flow to be 1,055 vphpl)
- Silverado Trail south of Skellenger Lane (also adjusted saturated flow to be 1,000 vphpl)

The Synchro and SimTraffic software programs have limited capabilities for analyzing the unique traffic conditions on the SR-29 and Silverado Trail corridors. With each study corridor having no stop control at any of the intersections along SR-29 or Silverado Trail, without model intervention, the Synchro and SimTraffic software would show no congestion along SR-29 and Silverado Trail. Therefore, to simulate the slowdowns on SR-29 and Silverado Trail, these “dummy” roadway segments were added to reflect slowdowns observed on the corridors caused by driver behavior, as discussed in Section 2.2. By artificially restricting the speeds to 10 mph, the model is forced to simulate congestion along SR-29 and Silverado Trail that mimics the field conditions. Simply reducing the saturated flow rates did not result in model congestion that matched field conditions.

Table 6: Adjustments to Movement and Simulation Settings in Synchro

#	Intersection	Approach	Movement	Adjustment
1	SR-29 and SR-128/Rutherford Road	WB	N/A	Vehicles in Median Storage (#) from 0 to 2
		WB	Right	Critical Headway = 5.1 (Default = 6.2) Headway Factor = 0.8 (Default = 1)
		WB	Left	Headway Factor = 0.9 (Default = 1) "Yes" to entering blocked intersection
		EB	Thru	"Yes" to entering blocked intersection
		EB	Left	
		EB	Right	
2	SR-29 and Robert Mondavi Winery Driveway	EB	N/A	Vehicles in Median Storage (#) from 0 to 2
		EB	Left	Critical Headway Stage 1 = 2.7 (Default = 5.4) "Yes" to entering blocked intersection
		EB	Left	Critical Headway Stage 2 = 5.0 (Default = 5.4 "Yes" to entering blocked intersection
		EB	Right	Critical Headway = 4.1 (Default = 6.2) "Yes" to entering blocked intersection
3	SR-29 and Oakville Grocery Driveway	WB	Left	"Yes" to entering blocked intersection
4	SR-29 and Oakville Cross Road	WB	N/A	Vehicles in Median Storage (#) from 0 to 2
		WB	Left	Critical Headway Stage 1 = 5.4 (Default = 6.1) "Yes" to entering blocked intersection
		WB	Left	Critical Headway Stage 2 = 2.5 (Default = 6.1) "Yes" to entering blocked intersection
		WB	Right	Critical Headway = 4.0 (Default = 6.2)
		EB	Thru	"Yes" to entering blocked intersection
		EB	Left	
		EB	Right	
5	Silverado Trail and SR-128/Conn Creek Road	EB	Left	Critical Headway = 5.0 (Default = 7.1)
6	Silverado Trail and SR-128/Sage Canyon Road	WB	Left	Critical Headway = 5.0 (Default = 7.1)
7	Silverado Trail and Skellenger Lane	EB	Right	Critical Headway = 4.0 (Default = 6.2) "Yes" to entering blocked intersection
		EB	Left	"Yes" to entering blocked intersection

3.1.2 Volume Inputs

The PM peak hour volumes used for this evaluation are from 3:30 PM to 4:30 PM on Wednesday, May 22, 2019. Since the study corridors are under heavy congestion, demand volumes were calculated and used for the analysis. The demand volumes were calculated by adding the queued vehicles to the counted throughput vehicles on each corridor. The queued vehicles were calculated by determining the delay along each corridor using the INRIX travel times and multiplying them by the throughput of the bottleneck.

For the southbound SR-29 corridor, the bottleneck is the segment of SR-29 between the Robert Mondavi driveway and Oakville Cross Road. The bottleneck for SR-29 was determined from the counts downstream of the congestion at the intersection of SR-29 and Oakville Cross Road. The southbound approach volume for the PM peak hour was 1,055 vph. The average delay as measured from INRIX data was 3.37 minutes. By multiplying the throughput volume by the measured delay, the queued demand was determined to be 59 vph. The 59 vph were added to the southbound approaches for each of the intersections along SR-29 upstream of the bottleneck in congestion.

For the southbound Silverado Trail corridor, the bottleneck is the segment downstream of the Silverado Trail/Skellenger Lane intersection. The bottleneck for Silverado Trail was determined from the counts at the intersection of Silverado Trail/Skellenger Lane. The southbound through volume and the eastbound right turn volumes for the PM peak hour were added and equal 1,161 vph. The average delay as measured from INRIX data was 2.92 minutes. By multiplying the throughput volume by the measured delay, the queued demand was determined to be 44 vph. The 44 vph were added to the southbound approaches for each of the intersections along Silverado Trail upstream of the bottleneck in congestion. These demand volumes and the observed peak hour factors (calculated for each intersection) were input in the Synchro model. **Figure 13** shows the existing demand volumes used in the analysis.

3.1.3 SimTraffic Calibration

The default inputs for SimTraffic were primarily used for the model. However, to better reflect observed field conditions, the following parameters were modified:

- Headway @ 0 mph (sec) = Used 3 instead of default value of 0.65 to 0.35
- Headway @ 20 mph (sec) = Used 3 instead of default value of 1.80 to 0.80
- Headway @ 50 mph (sec) = Used 3 instead of default value of 2.20 to 1.00
- Headway @ 80 mph (sec) = Used 3 instead of default value of 2.20 to 1.00
- Gap Acceptance Factor = Used 0.75 instead of default value of 1.15 to 0.85

In addition, the following intersection specific parameters were modified in the Simulation Settings:

- Intersection #1 (SR-29 and Rutherford Road):
    - Southbound through Headway Factor = Used 2.00 instead of default value of 1.00

- Westbound left turn Turning Speed = Used 30 instead of default value of 15

The following SimTraffic modeling parameters were used:

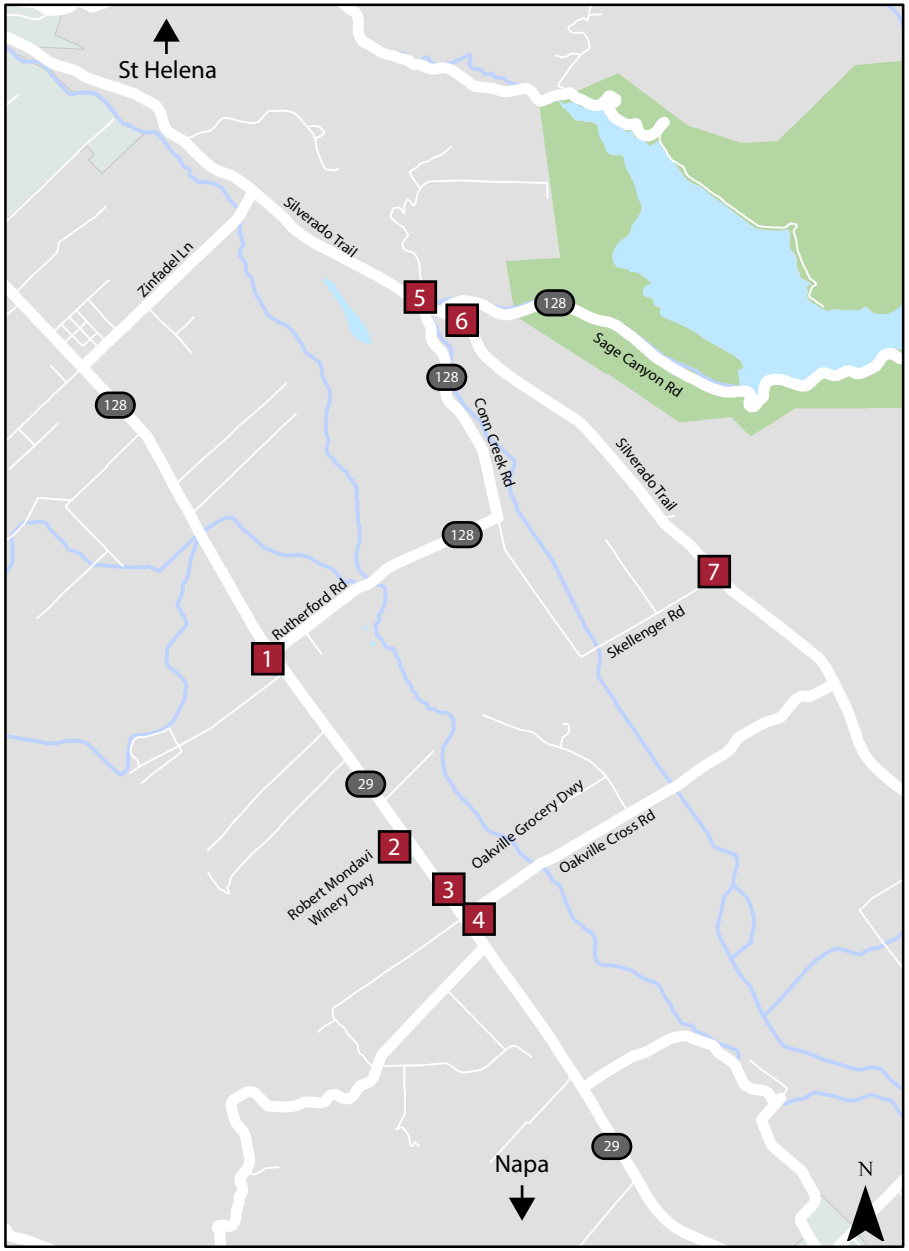
- Seeding duration = 15 minutes
- Recording duration = four x 15-minute intervals
- PHF adjust = Yes, first 15-minute interval with PHF Adjustment, the remaining three intervals with inverse PHF adjusted

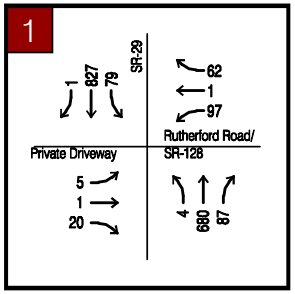
3.1.4 LOS and Delay Results

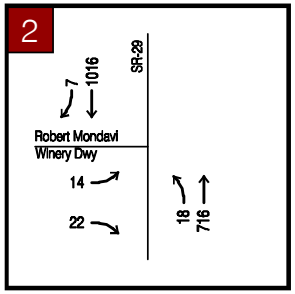
The SimTraffic model was run 10 times to determine the baseline PM peak period measures of effectiveness (MOE). The results of the 10 runs were averaged. The MOE's for this study include:

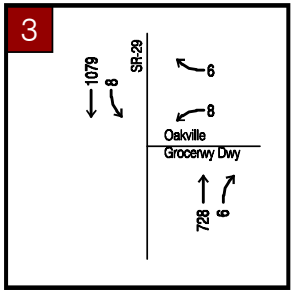
- Average delay per vehicle
- 95th percentile queues
- Corridor travel times

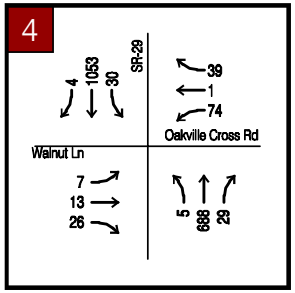
Table 7 summarizes the average delay per vehicle and level of service (LOS) for each intersection. Included is the jurisdictional standard for acceptable LOS (as previously described in the Analysis Methodology section). Analysis worksheets are provided in the **Appendix**.

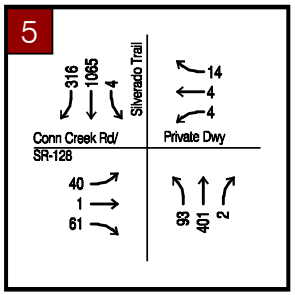


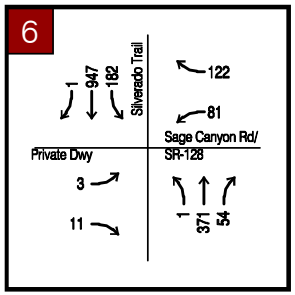


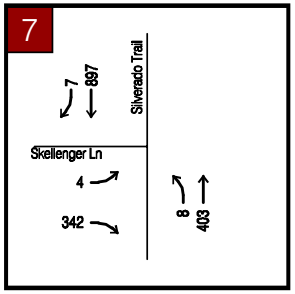












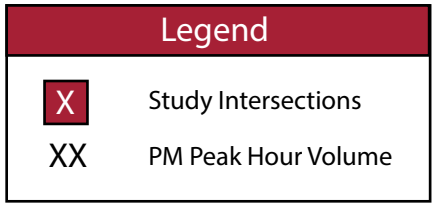


FIGURE 13

EXISTING PM PEAK HOUR TURNING MOVEMENT DEMAND VOLUMES

Table 7: Existing PM Peak Hour Intersection Delay and LOS Results

#	Intersection	Intersection Control	LOS Standard	PM Peak	
				LOS	Delay
1	SR-29 and SR-128/Rutherford Road	SSSC	F	F	163.1
	Westbound Left			F	878.7
	Westbound Right			F	867.0
	Eastbound Left			F	128.8
	Eastbound Right			E	36.2
2	SR-29 and Robert Mondavi Winery Driveway	SSSC	F	F	125.4
	Eastbound Left			C	23.3
	Eastbound Right			B	10.7
3	SR-29 and Oakville Grocery Driveway	SSSC	F	A	1.8
	Westbound Left			B	14.1
	Westbound Right			A	8.3
4	SR-29 and Oakville Cross Road	SSSC	F	A	7.4
	Westbound Left			E	42.9
	Westbound Right			B	10.3
	Eastbound Left			C	17.5
	Eastbound Right			A	5.2
5	Silverado Trail and SR-128/Conn Creek Road	SSSC	E	E	48.2
	Westbound Left			-	-
	Westbound Right			B	13.4
	Eastbound Left			**F**	**73.3**
	Eastbound Right			E	40.6
6	Silverado Trail and SR-128/Sage Canyon Road	SSSC	E	A	8.6
	Westbound Left			D	30.3
	Westbound Right			B	11.5
	Eastbound Left			A	5.7
	Eastbound Right			A	8.2
7	Silverado Trail and Skellenger Lane	SSSC	E	D	32.8
	Eastbound Left			C	15.4
	Eastbound Right			E	37.3

Notes:
- Delay and LOS calculated using SimTraffic software
- Delay reported in seconds/vehicle
- SSSC = Side-street stop-controlled
- LOS and delay shown **bold** reflect deficient operations
- SimTraffic did not report measurable delay for movements marked with "-"

Results of the analysis indicate that all study intersections operate at acceptable levels of service based on established significance criteria.

It should be noted that many of the other study intersections operate at LOS F, however, the Napa County General Plan allows for LOS F operations along SR-29 in unincorporated areas between Yountville and Calistoga.

In general, the queue results from the SimTraffic model overestimate the side-street queues at each intersection relative to field observations. Although the model was adjusted to increase the gap acceptance factor and the headways were increased for vehicles traveling at low speeds, vehicles on the side-street approaches still are not as aggressive as observed in the field and therefore the model queues are high. This is particularly true for the following movement:

- Westbound left turn at the intersection of SR-29 and Rutherford Road

SimTraffic lacks the capability to accurately model the traffic operations on this unique corridor where congestion occurs on the major roadway that is not the result of a stop-intersection control or reduction in roadway capacity. However, the SimTraffic model is expected to provide useful comparative results to aid in assessing the relative benefits and impacts of improvement strategies that may affect travel patterns, introduce new control points, and modify roadway capacity. Therefore, it is expected to be a useful tool in completing the subsequent effort of evaluating the feasibility and effectiveness of the potential improvement strategies.

3.1.5 Queuing Analysis

The SimTraffic model was also used to determine the existing queues at each study intersection. **Table 8** summarizes the 95th percentile queues for each intersection movement. Analysis worksheets are provided in the **Appendix**.

Table 8: Existing PM Peak Hour Intersection Queues

Int #1 – SR-29 & Rutherford Rd/SR-128		
Movement	Storage Length (ft)	95th Percentile Queue (ft)
EBL/T/R	-	59
WBL/T/R	-	1,680
NBL/T/R	-	27
SBL	80	**175**
SBT/R	-	1,415
Int #2 – SR-29 & Robert Mondavi Winery Dwy		
EBL/R	-	67
NBL	-	22
SBT/R	-	2,991
Int #3 – SR-29 & Oakville Grocery Dwy		
WBL/R	-	32
NBT/R	-	-
SBL	-	15
Int #4 – SR-29 & Oakville Cross Rd		
EBL/T/R	-	48
WBL/T	-	125
WBR	70	50
NBL	100	8
NBT/R	-	22
SBL	100	27
Int #5 – SR-29 & Conn Creek Rd/SR-128		
EBL/T/R	-	126
WBL/T/R	-	46
NBL	150	95
NBT/R	-	13
SBL	170	8
SBT/R	-	71
Int #6 – SR-29 & Sage Canyon Rd/SR-128		
EBL/T/R	-	38
WBL/T/R	-	137
NBL	150	7
NBT/R	-	6
SBL	170	45
SBT/R	-	-
Int #7 – SR-29 & Skellenger Ln		
EBL/R	-	304
NBL	70	21
SBT/R	-	71

Note: Locations where the queue length exceeds the link storage by 25 ft or more are shown in **bold.**
SimTraffic did not report measurable queue for movements marked with "-"

3.1.6 Arterial Travel Times

The SimTraffic model was also used to determine the arterial travel times along each study corridor. **Table 9** summarizes the arterial travel time outputs from the SimTraffic model. Analysis worksheets are provided in the **Appendix**.

Table 9: SimTraffic Arterial Operations Summary

Segment Corridor	Arterial Operations	
	Travel Time (minutes)	Speed (mph)
SB SR-29		
Rutherford Road to Robert Mondavi Winery Dwy	12.5	7
Robert Mondavi Winery Dwy to Oakville Grocery Dwy	5.1	4
Oakville Grocery Dwy to Oakville Cross Road	0.1	40
Entire Segment	**17.7**	**6**
SB Silverado Trail		
Conn Creek Road to Sage Canyon Road	0.2	29
Sage Canyon Road to Skellenger Lane	16.5	8
Entire Segment	**16.7**	**8**

The SimTraffic simulated arterial travel times for each corridor is 17.7 minutes and 16.1 minutes for SR-29 and Silverado Trail, respectively. The simulation travel time along SB SR-29 is approximately nine (9) minutes higher than the travel time provided by INRIX (9 minutes on SR-29) while the simulation travel time along SB Silverado Trail is approximately one (1) minute higher than the travel time provided by INRIX (16 minutes on Silverado Trail). As noted previously, there are insufficient tools within Synchro and SimTraffic to accurately simulate the causes of delay currently being experienced in these corridors, and thus the models have limited calibration opportunity.

Appendices

Appendix A: Turning Movement Counts

WILTEC

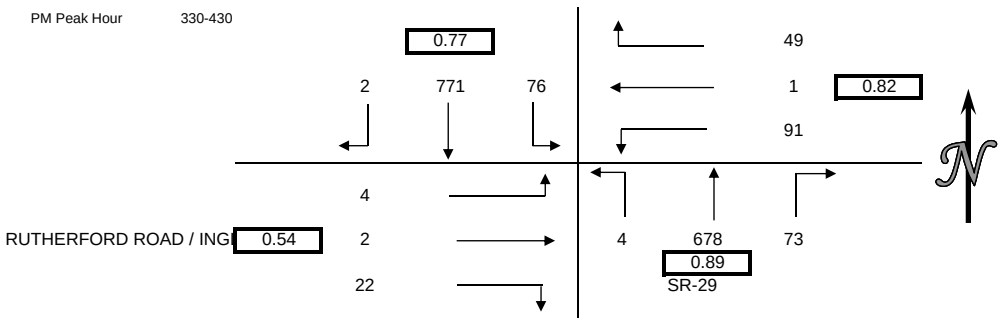
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W RUTHERFORD ROAD / INGLENOOK WINERY DRIVEWAY
CITY: NAPA COUNTY

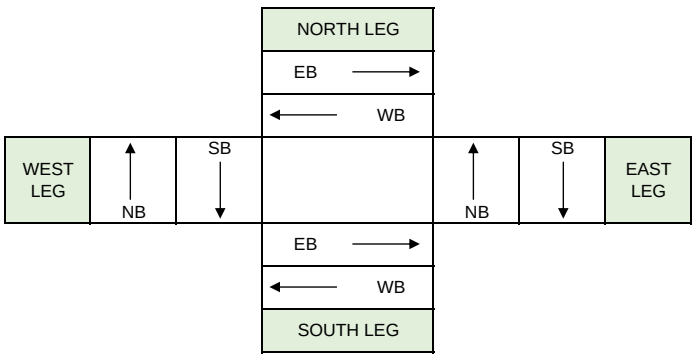
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	253	20	8	0	28	12	152	3	6	0	0	483
345-400	0	195	24	10	1	15	29	161	0	1	0	4	440
400-415	0	169	18	17	0	19	13	172	1	11	2	0	422
415-430	1	154	14	14	0	29	19	193	0	4	0	0	428
430-445	0	154	10	10	1	33	10	160	1	5	0	2	386
445-500	0	183	9	6	0	36	18	146	1	5	0	1	405
500-515	2	198	10	11	0	33	14	156	0	2	0	0	426
515-530	0	168	16	14	0	29	9	150	0	1	1	0	388
530-545	0	219	12	10	0	24	13	141	0	5	1	0	425
545-600	0	199	2	9	0	12	11	129	0	0	0	2	364
600-615	0	156	6	5	0	8	2	124	0	0	0	0	301
615-630	0	108	2	5	0	8	9	114	0	0	0	0	246
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	2	771	76	49	1	91	73	678	4	22	2	4	1773
345-445	1	672	66	51	2	96	71	686	2	21	2	6	1676
400-500	1	660	51	47	1	117	60	671	3	25	2	3	1641
415-515	3	689	43	41	1	131	61	655	2	16	0	3	1645
430-530	2	703	45	41	1	131	51	612	2	13	1	3	1605
445-545	2	768	47	41	0	122	54	593	1	13	2	1	1644
500-600	2	784	40	44	0	98	47	576	0	8	2	2	1603
515-615	0	742	36	38	0	73	35	544	0	6	2	2	1478
530-630	0	682	22	29	0	52	35	508	0	5	1	2	1336



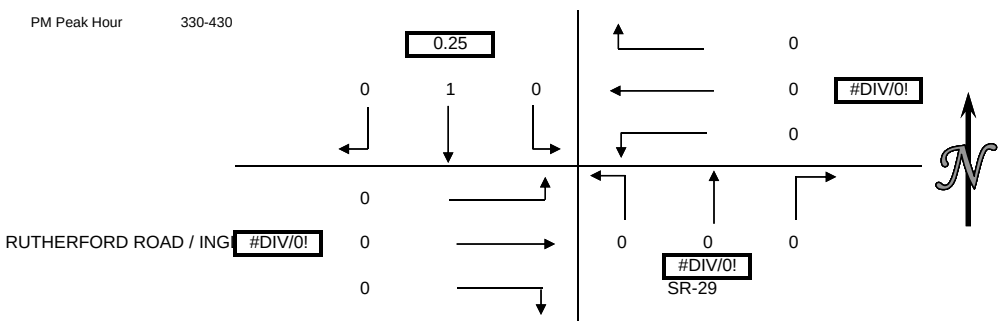
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	1	0	0	0	0	0	0	0	0	0	0	1
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

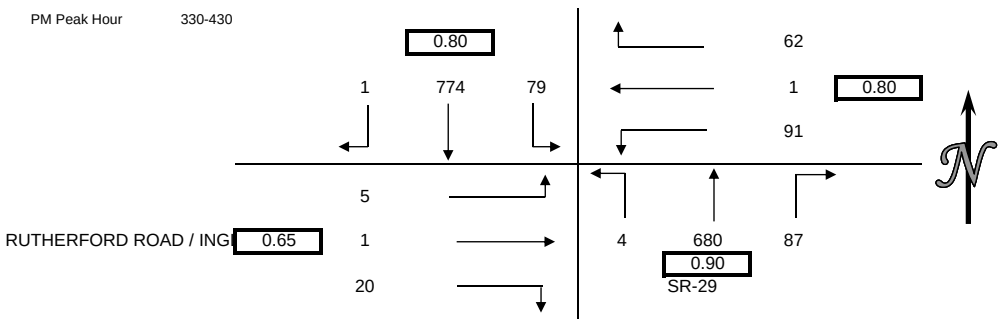
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W RUTHERFORD ROAD / INGLENOOK WINERY DRIVEWAY
CITY: NAPA COUNTY

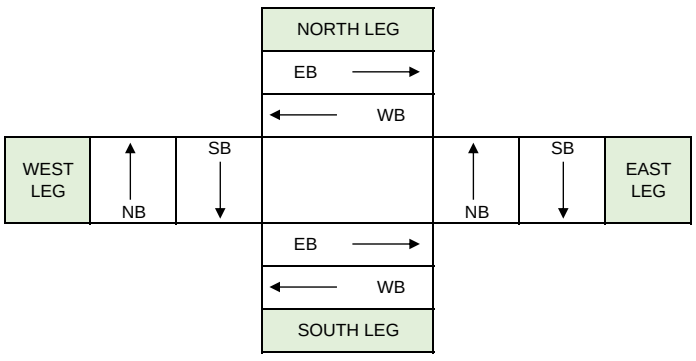
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	243	25	15	1	21	27	183	3	7	0	2	527
345-400	0	172	24	18	0	15	16	167	0	3	0	2	417
400-415	0	163	13	16	0	20	26	157	0	8	1	1	405
415-430	1	196	17	13	0	35	18	173	1	2	0	0	456
430-445	0	180	11	11	0	39	16	142	1	5	0	0	405
445-500	0	184	16	2	0	29	16	146	0	2	0	0	395
500-515	0	183	5	13	0	38	14	144	0	5	1	0	403
515-530	0	189	7	7	0	36	17	151	0	2	0	1	410
530-545	0	219	13	4	0	46	11	172	0	2	1	1	469
545-600	0	228	7	3	0	22	9	143	0	1	0	3	416
600-615	0	178	4	9	0	15	9	110	4	5	1	1	336
615-630	0	163	17	1	0	6	28	123	0	2	0	0	340
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	1	774	79	62	1	91	87	680	4	20	1	5	1805
345-445	1	711	65	58	0	109	76	639	2	18	1	3	1683
400-500	1	723	57	42	0	123	76	618	2	17	1	1	1661
415-515	1	743	49	39	0	141	64	605	2	14	1	0	1659
430-530	0	736	39	33	0	142	63	583	1	14	1	1	1613
445-545	0	775	41	26	0	149	58	613	0	11	2	2	1677
500-600	0	819	32	27	0	142	51	610	0	10	2	5	1698
515-615	0	814	31	23	0	119	46	576	4	10	2	6	1631
530-630	0	788	41	17	0	89	57	548	4	10	2	5	1561



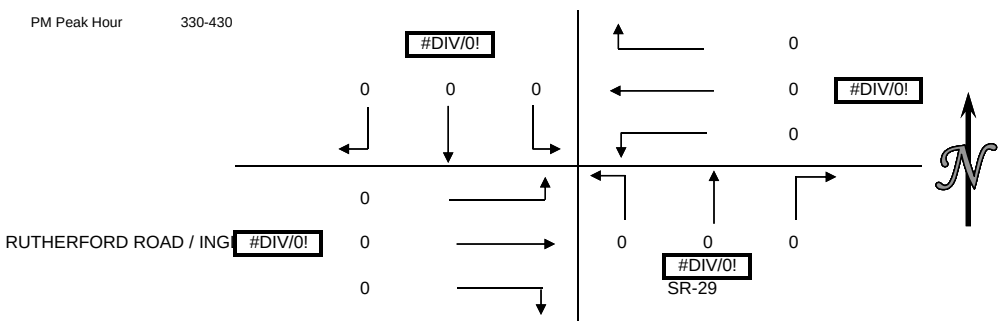
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	1	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	1	0	0	0	0	0
500-600	0	0	0	1	0	0	0	0	0
515-615	0	0	0	1	0	0	0	0	0
530-630	0	0	0	1	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

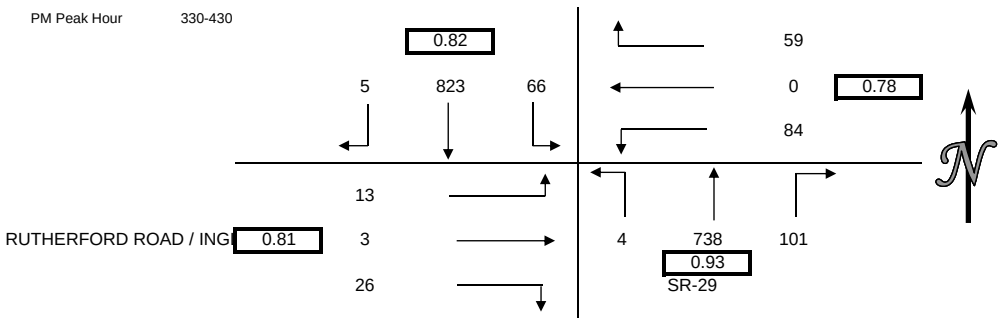
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W RUTHERFORD ROAD / INGLENOOK WINERY DRIVEWAY
CITY: NAPA COUNTY

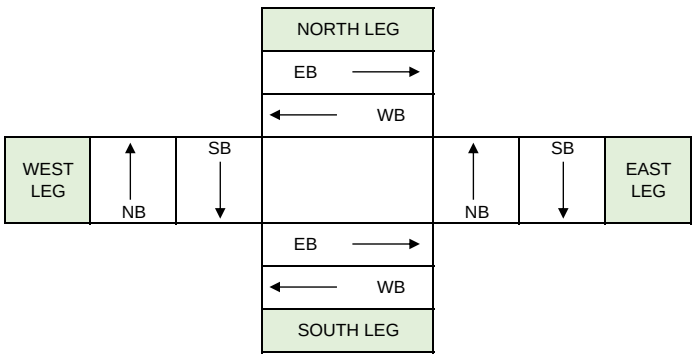
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	233	15	16	0	21	26	200	1	8	0	2	522
345-400	3	251	17	11	0	15	22	196	1	7	0	2	525
400-415	0	188	22	19	0	27	32	169	2	6	3	4	472
415-430	2	151	12	13	0	21	21	173	0	5	0	5	403
430-445	1	200	11	16	0	37	12	158	0	5	0	0	440
445-500	0	147	13	8	0	27	21	163	1	3	2	1	386
500-515	0	185	6	8	0	33	18	160	1	1	0	2	414
515-530	0	177	9	11	0	38	20	169	2	7	1	1	435
530-545	0	214	9	14	0	18	19	167	0	3	0	1	445
545-600	0	224	11	6	0	15	12	140	1	0	0	0	409
600-615	0	192	10	7	0	7	13	127	1	1	0	1	359
615-630	0	176	8	6	0	20	7	124	1	4	1	0	347
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	5	823	66	59	0	84	101	738	4	26	3	13	1922
345-445	6	790	62	59	0	100	87	696	3	23	3	11	1840
400-500	3	686	58	56	0	112	86	663	3	19	5	10	1701
415-515	3	683	42	45	0	118	72	654	2	14	2	8	1643
430-530	1	709	39	43	0	135	71	650	4	16	3	4	1675
445-545	0	723	37	41	0	116	78	659	4	14	3	5	1680
500-600	0	800	35	39	0	104	69	636	4	11	1	4	1703
515-615	0	807	39	38	0	78	64	603	4	11	1	3	1648
530-630	0	806	38	33	0	60	51	558	3	8	1	2	1560



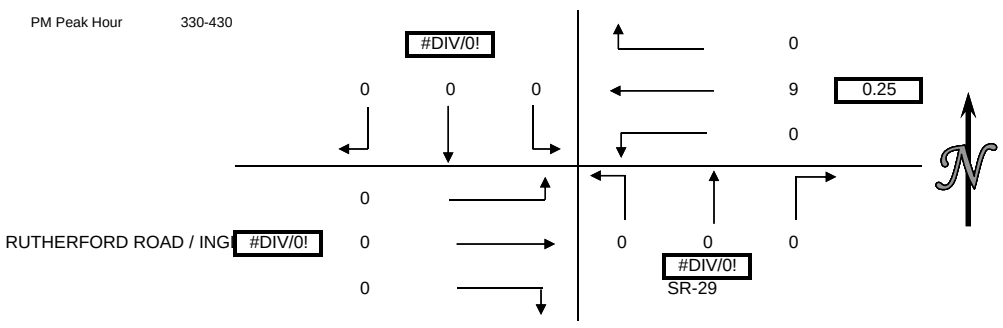
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	2	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	2	0	0	0	0	0	0	0	0
415-515	2	0	0	0	0	0	0	0	0
430-530	2	0	0	0	0	0	0	0	0
445-545	2	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	9	0	0	0	0	0	0	0	9
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	1	0	0	0	0	0	0	0	1
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	1	0	0	0	0	0	0	0	1
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	9	0	0	0	0	0	0	0	9
345-445	0	0	0	0	1	0	0	0	0	0	0	0	1
400-500	0	0	0	0	1	0	0	0	0	0	0	0	1
415-515	0	0	0	0	1	0	0	0	0	0	0	0	1
430-530	0	0	0	0	1	0	0	0	0	0	0	0	1
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	1	0	0	0	0	0	0	0	1
0	1	2	3	4	6	6	7	8	9	10	11	12	79



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

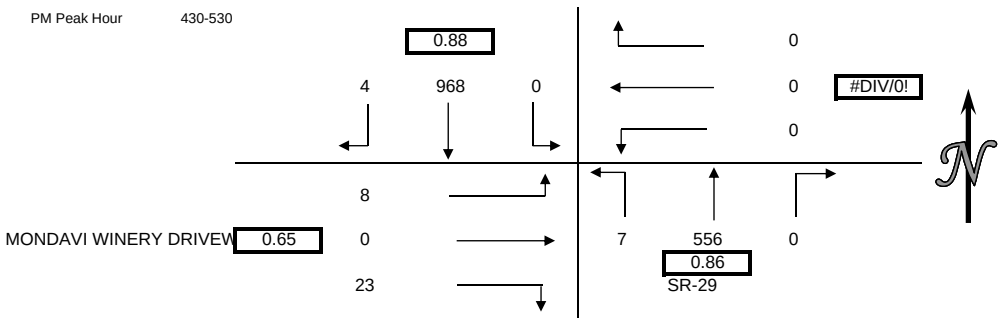
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W MONDAVI WINERY DRIVEWAY
CITY: NAPA COUNTY

VEHICLE COUNTS

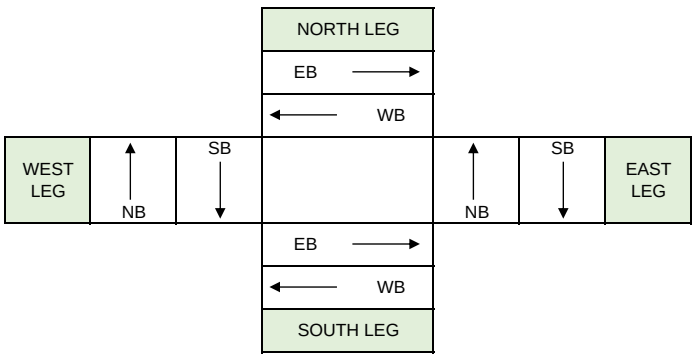
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	4	189	0	0	0	0	0	181	4	8	0	4	390
345-400	5	225	0	0	0	0	0	173	5	6	0	1	415
400-415	1	217	0	0	0	0	0	129	1	5	0	4	357
415-430	2	187	0	0	0	0	0	187	3	10	0	0	389
430-445	4	207	0	0	0	0	0	150	2	2	0	5	370
445-500	0	246	0	0	0	0	0	138	2	8	0	0	394
500-515	0	239	0	0	0	0	0	105	2	10	0	2	358
515-530	0	276	0	0	0	0	0	163	1	3	0	1	444
530-545	0	251	0	0	0	0	0	135	0	6	0	0	392
545-600	2	262	0	0	0	0	0	145	1	9	0	1	420
600-615	0	200	0	0	0	0	0	127	3	8	0	0	338
615-630	1	147	0	0	0	0	0	109	0	2	0	1	260
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	12	818	0	0	0	0	0	670	13	29	0	9	1551
345-445	12	836	0	0	0	0	0	639	11	23	0	10	1531
400-500	7	857	0	0	0	0	0	604	8	25	0	9	1510
415-515	6	879	0	0	0	0	0	580	9	30	0	7	1511
430-530	4	968	0	0	0	0	0	556	7	23	0	8	1566
445-545	0	1012	0	0	0	0	0	541	5	27	0	3	1588
500-600	2	1028	0	0	0	0	0	548	4	28	0	4	1614
515-615	2	989	0	0	0	0	0	570	5	26	0	2	1594
530-630	3	860	0	0	0	0	0	516	4	25	0	2	1410

PM Peak Hour 430-530



PEDESTRIAN COUNTS

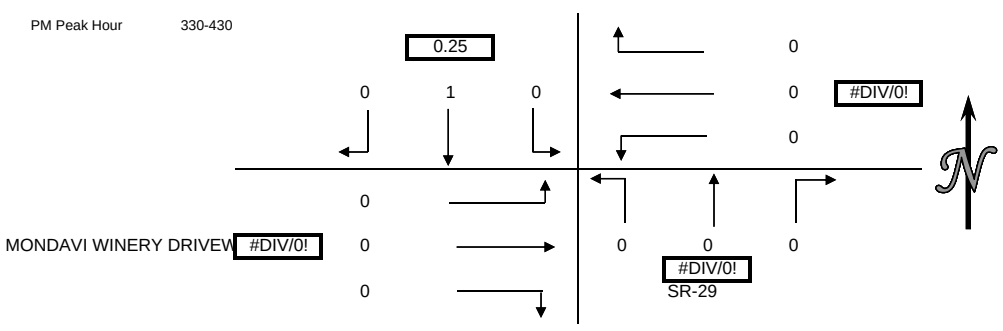
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	1	0	0	1	2
515-530	0	0	0	0	0	0	0	1	1
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	1	1
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	1	0	0	1	2
430-530	0	0	0	0	1	0	0	2	3
445-545	0	0	0	0	1	0	0	2	3
500-600	0	0	0	0	1	0	0	3	4
515-615	0	0	0	0	0	0	0	2	2
530-630	0	0	0	0	0	0	0	1	1



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	1	0	0	0	0	0	0	0	0	0	0	1
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78

PM Peak Hour 330-430



WILTEC

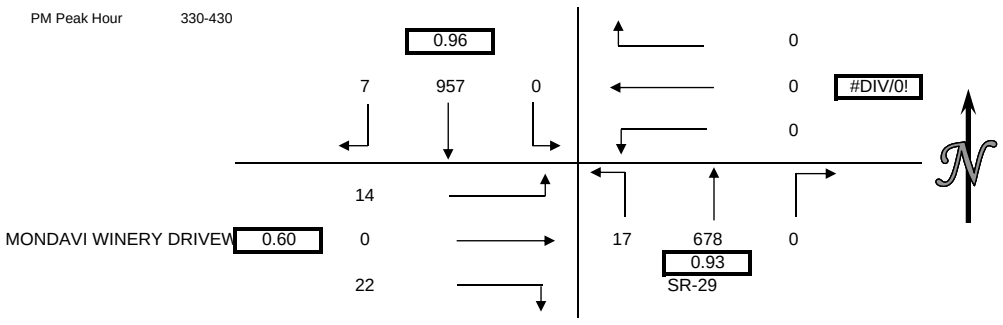
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W MONDAVI WINERY DRIVEWAY
CITY: NAPA COUNTY

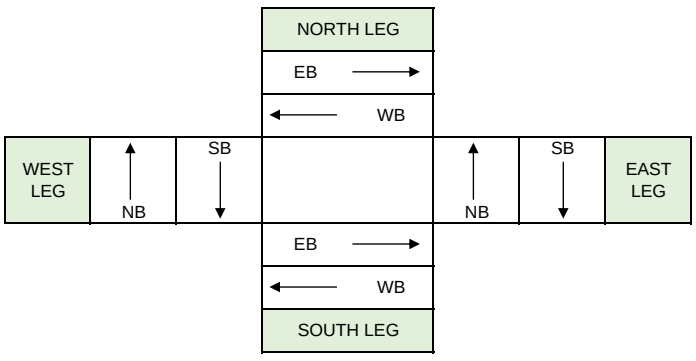
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	238	0	0	0	0	0	180	6	8	0	7	439
345-400	3	233	0	0	0	0	0	165	4	5	0	3	413
400-415	0	239	0	0	0	0	0	158	5	6	0	2	410
415-430	4	247	0	0	0	0	0	175	2	3	0	2	433
430-445	5	238	0	0	0	0	0	148	2	5	0	0	398
445-500	2	258	0	0	0	0	0	146	3	10	0	2	421
500-515	3	256	0	0	0	0	0	97	1	3	0	4	364
515-530	0	266	0	0	0	0	0	152	2	10	0	1	431
530-545	1	259	0	0	0	0	0	172	1	6	0	2	441
545-600	1	228	0	0	0	0	0	150	2	7	0	3	391
600-615	1	234	0	0	0	0	0	114	2	4	0	1	356
615-630	0	116	0	0	0	0	0	117	0	2	0	0	235
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	7	957	0	0	0	0	0	678	17	22	0	14	1695
345-445	12	957	0	0	0	0	0	646	13	19	0	7	1654
400-500	11	982	0	0	0	0	0	627	12	24	0	6	1662
415-515	14	999	0	0	0	0	0	566	8	21	0	8	1616
430-530	10	1018	0	0	0	0	0	543	8	28	0	7	1614
445-545	6	1039	0	0	0	0	0	567	7	29	0	9	1657
500-600	5	1009	0	0	0	0	0	571	6	26	0	10	1627
515-615	3	987	0	0	0	0	0	588	7	27	0	7	1619
530-630	3	837	0	0	0	0	0	553	5	19	0	6	1423



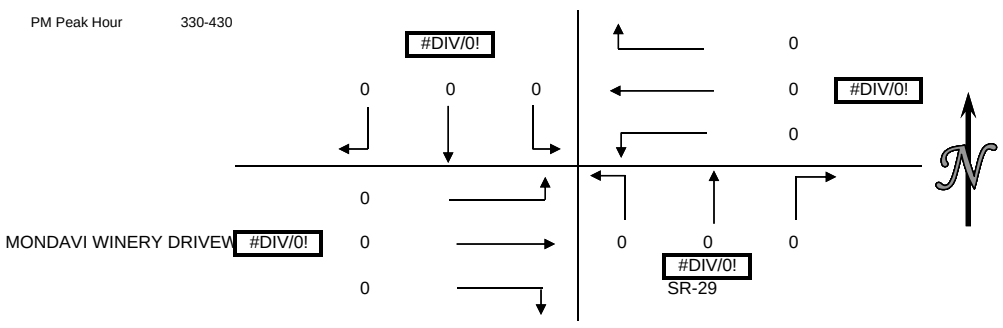
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

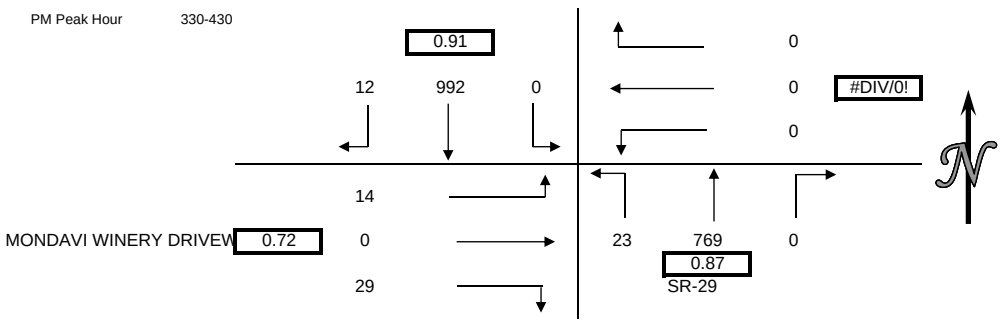
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W MONDAVI WINERY DRIVEWAY
CITY: NAPA COUNTY

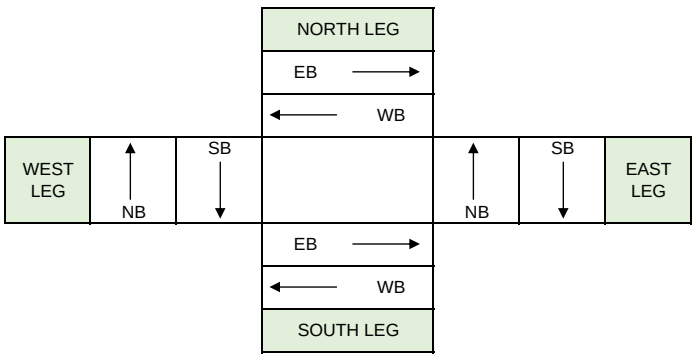
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	5	260	0	0	0	0	0	223	5	7	0	4	504
345-400	2	273	0	0	0	0	0	197	6	8	0	4	490
400-415	3	236	0	0	0	0	0	166	8	11	0	4	428
415-430	2	223	0	0	0	0	0	183	4	3	0	2	417
430-445	2	226	0	0	0	0	0	155	2	8	0	3	396
445-500	2	179	0	0	0	0	0	159	3	5	0	1	349
500-515	0	212	0	0	0	0	0	171	2	8	0	1	394
515-530	1	193	0	0	0	0	0	183	2	6	0	3	388
530-545	0	249	0	0	0	0	0	168	1	5	0	7	430
545-600	1	267	0	0	0	0	0	133	2	5	0	0	408
600-615	0	273	0	0	0	0	0	138	2	8	0	1	422
615-630	0	220	0	0	0	0	0	124	0	2	0	0	346
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	12	992	0	0	0	0	0	769	23	29	0	14	1839
345-445	9	958	0	0	0	0	0	701	20	30	0	13	1731
400-500	9	864	0	0	0	0	0	663	17	27	0	10	1590
415-515	6	840	0	0	0	0	0	668	11	24	0	7	1556
430-530	5	810	0	0	0	0	0	668	9	27	0	8	1527
445-545	3	833	0	0	0	0	0	681	8	24	0	12	1561
500-600	2	921	0	0	0	0	0	655	7	24	0	11	1620
515-615	2	982	0	0	0	0	0	622	7	24	0	11	1648
530-630	1	1009	0	0	0	0	0	563	5	20	0	8	1606



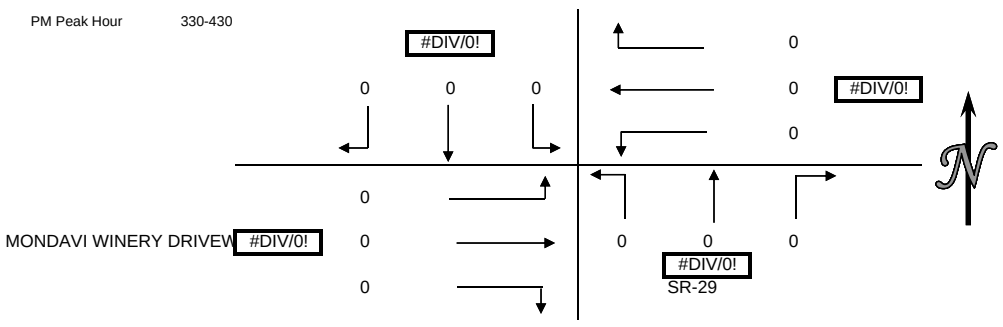
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	3	0	3
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	3	0	3
445-545	0	0	0	0	0	0	3	0	3
500-600	0	0	0	0	0	0	3	0	3
515-615	0	0	0	0	0	0	3	0	3
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

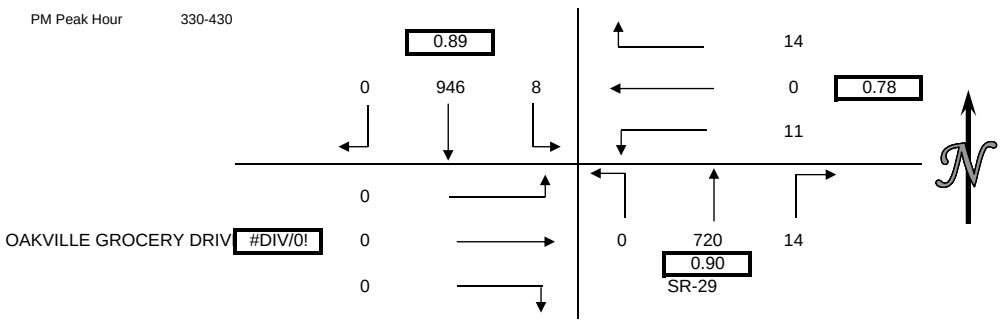
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE GROCERY DRIVEWAYS
CITY: NAPA COUNTY

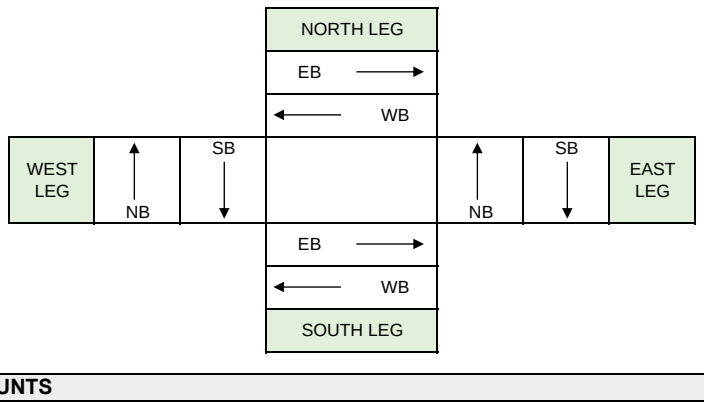
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	264	3	4	0	2	5	193	0	0	0	0	471
345-400	0	238	2	4	0	3	3	200	0	0	0	0	450
400-415	0	234	2	3	0	5	6	125	0	0	0	0	375
415-430	0	210	1	3	0	1	0	202	0	0	0	0	417
430-445	0	258	1	2	0	4	4	165	0	0	0	0	434
445-500	0	260	0	5	0	4	5	133	0	0	0	0	407
500-515	0	251	0	1	0	2	1	158	0	0	0	0	413
515-530	0	263	0	3	0	4	1	144	0	0	0	0	415
530-545	0	268	0	0	0	2	0	156	0	0	0	0	426
545-600	0	272	0	0	0	1	0	124	0	0	0	0	397
600-615	0	213	1	1	0	0	0	121	0	0	0	0	336
615-630	0	151	0	0	0	0	1	112	0	0	0	0	264
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	946	8	14	0	11	14	720	0	0	0	0	1713
345-445	0	940	6	12	0	13	13	692	0	0	0	0	1676
400-500	0	962	4	13	0	14	15	625	0	0	0	0	1633
415-515	0	979	2	11	0	11	10	658	0	0	0	0	1671
430-530	0	1032	1	11	0	14	11	600	0	0	0	0	1669
445-545	0	1042	0	9	0	12	7	591	0	0	0	0	1661
500-600	0	1054	0	4	0	9	2	582	0	0	0	0	1651
515-615	0	1016	1	4	0	7	1	545	0	0	0	0	1574
530-630	0	904	1	1	0	3	1	513	0	0	0	0	1423



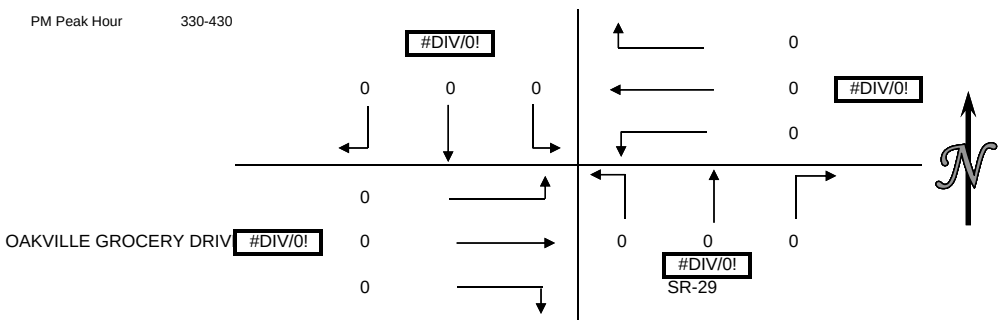
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	1	0	0	0	0	0	0	0	0
515-530	1	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	1	0	0	0	0	0	0	0	0
430-530	2	0	0	0	0	0	0	0	0
445-545	2	0	0	0	0	0	0	0	0
500-600	2	0	0	0	0	0	0	0	0
515-615	1	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

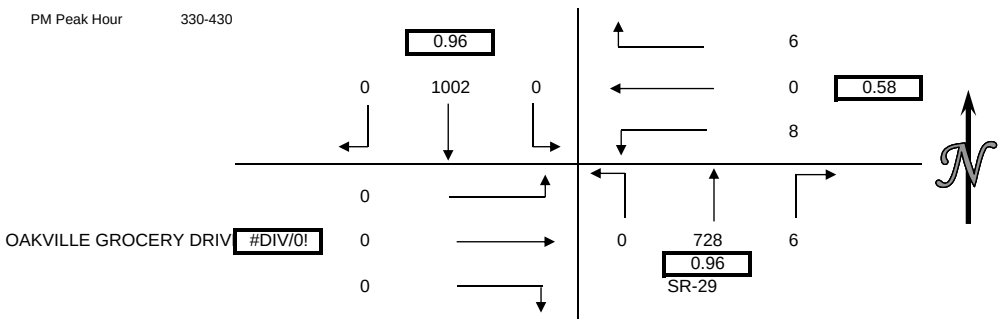
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE GROCERY DRIVEWAYS
CITY: NAPA COUNTY

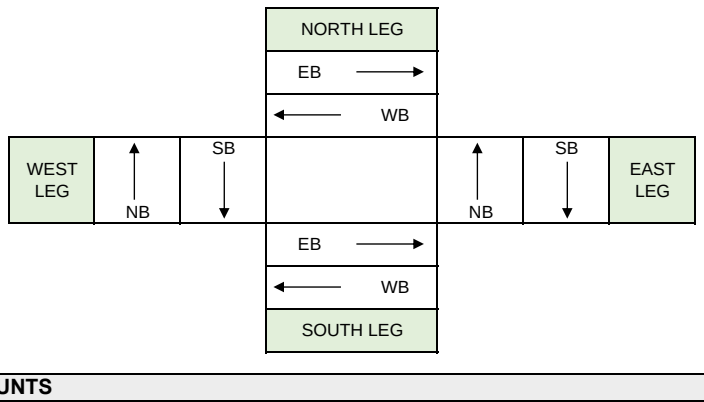
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	255	0	3	0	3	2	190	0	0	0	0	453
345-400	0	262	0	2	0	2	3	180	0	0	0	0	449
400-415	0	229	0	1	0	2	0	170	0	0	0	0	402
415-430	0	256	0	0	0	1	1	188	0	0	0	0	446
430-445	0	256	3	1	0	1	4	149	0	0	0	0	414
445-500	0	262	0	4	0	1	3	157	0	0	0	0	427
500-515	0	267	0	2	0	5	3	150	0	0	0	0	427
515-530	0	283	0	0	0	2	2	144	0	0	0	0	431
530-545	0	263	0	1	0	0	1	191	0	0	0	0	456
545-600	0	238	1	1	0	1	1	135	0	0	0	0	377
600-615	0	251	0	0	0	0	1	132	0	0	0	0	384
615-630	0	164	0	1	0	1	0	127	0	0	0	0	293
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1002	0	6	0	8	6	728	0	0	0	0	1750
345-445	0	1003	3	4	0	6	8	687	0	0	0	0	1711
400-500	0	1003	3	6	0	5	8	664	0	0	0	0	1689
415-515	0	1041	3	7	0	8	11	644	0	0	0	0	1714
430-530	0	1068	3	7	0	9	12	600	0	0	0	0	1699
445-545	0	1075	0	7	0	8	9	642	0	0	0	0	1741
500-600	0	1051	1	4	0	8	7	620	0	0	0	0	1691
515-615	0	1035	1	2	0	3	5	602	0	0	0	0	1648
530-630	0	916	1	3	0	2	3	585	0	0	0	0	1510



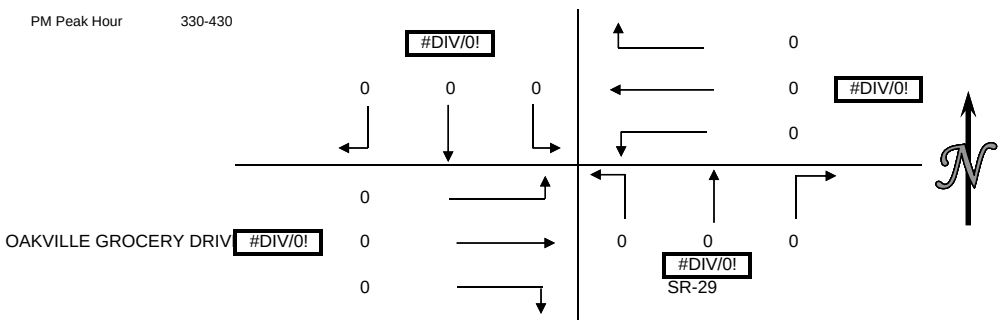
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

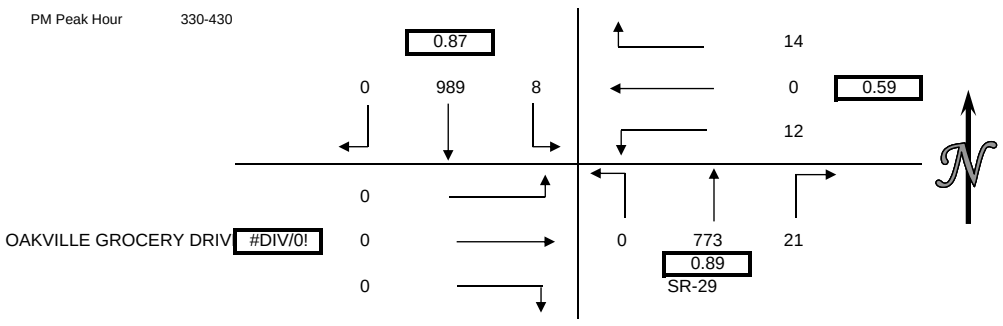
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE GROCERY DRIVEWAYS
CITY: NAPA COUNTY

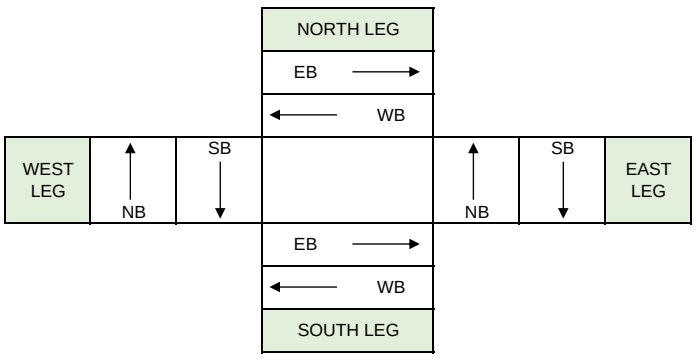
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	282	4	4	0	7	8	214	0	0	0	0	519
345-400	0	257	1	4	0	0	4	210	0	0	0	0	476
400-415	0	232	2	1	0	2	1	170	0	0	0	0	408
415-430	0	218	1	5	0	3	8	179	0	0	0	0	414
430-445	0	218	1	3	0	2	8	153	0	0	0	0	385
445-500	0	258	1	6	0	3	2	173	0	0	0	0	443
500-515	0	262	3	9	0	4	5	154	0	0	0	0	437
515-530	0	255	0	2	0	6	1	180	0	0	0	0	444
530-545	0	254	1	2	0	3	1	179	0	0	0	0	440
545-600	0	259	1	1	0	0	0	132	0	0	0	0	393
600-615	0	262	1	1	0	1	1	150	0	0	0	0	416
615-630	0	203	1	0	0	0	0	116	0	0	0	0	320
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	989	8	14	0	12	21	773	0	0	0	0	1817
345-445	0	925	5	13	0	7	21	712	0	0	0	0	1683
400-500	0	926	5	15	0	10	19	675	0	0	0	0	1650
415-515	0	956	6	23	0	12	23	659	0	0	0	0	1679
430-530	0	993	5	20	0	15	16	660	0	0	0	0	1709
445-545	0	1029	5	19	0	16	9	686	0	0	0	0	1764
500-600	0	1030	5	14	0	13	7	645	0	0	0	0	1714
515-615	0	1030	3	6	0	10	3	641	0	0	0	0	1693
530-630	0	978	4	4	0	4	2	577	0	0	0	0	1569



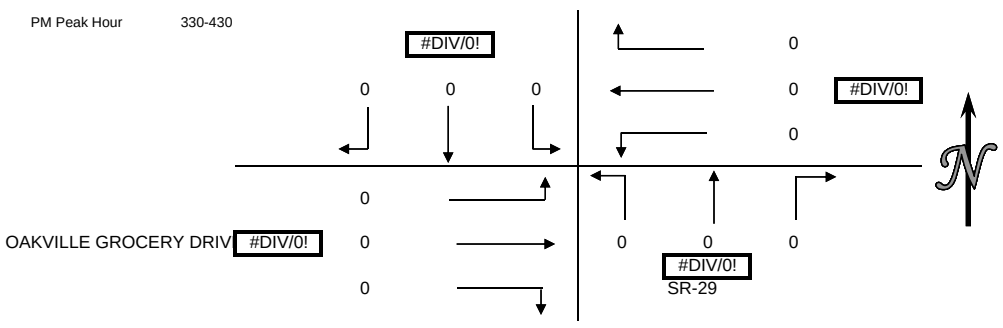
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	1	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	1	0	0	0	0	0	0	0	0
530-630	1	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

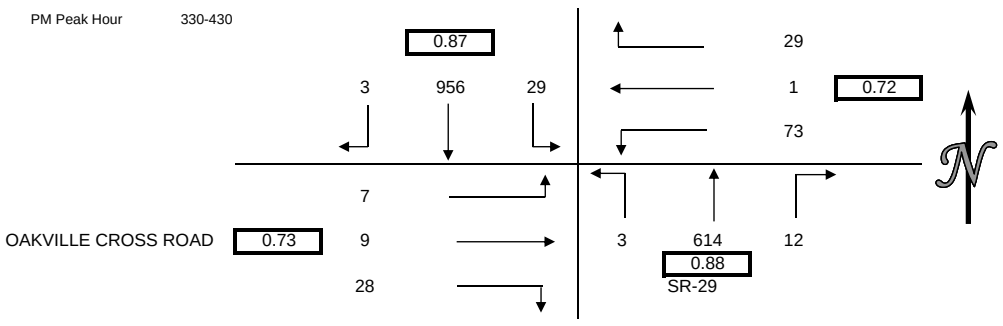
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE CROSS ROAD
CITY: NAPA COUNTY

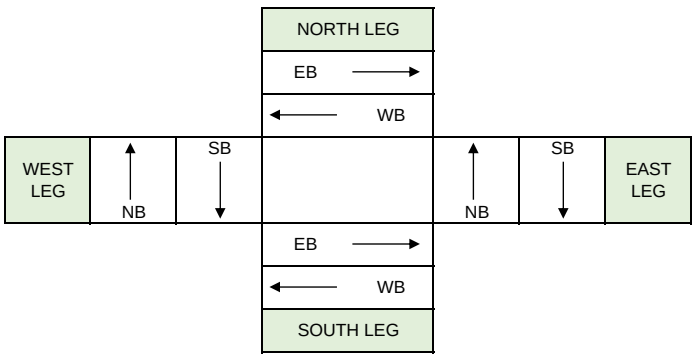
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	272	12	10	0	26	4	159	0	12	2	1	498
345-400	1	238	5	5	0	15	2	171	0	5	1	3	446
400-415	2	231	6	8	0	17	3	111	1	8	5	1	393
415-430	0	215	6	6	1	15	3	173	2	3	1	2	427
430-445	2	251	11	8	0	13	9	144	0	4	0	0	442
445-500	0	266	5	5	0	13	4	118	0	2	0	0	413
500-515	0	252	5	6	0	19	4	128	1	5	1	1	422
515-530	4	265	1	6	0	8	0	124	0	1	0	1	410
530-545	0	263	5	6	0	18	2	124	1	3	0	1	423
545-600	1	276	2	1	0	8	1	110	0	0	0	0	399
600-615	1	207	1	0	0	5	2	105	0	1	0	0	322
615-630	1	162	0	2	0	5	0	96	0	0	0	0	266
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	3	956	29	29	1	73	12	614	3	28	9	7	1764
345-445	5	935	28	27	1	60	17	599	3	20	7	6	1708
400-500	4	963	28	27	1	58	19	546	3	17	6	3	1675
415-515	2	984	27	25	1	60	20	563	3	14	2	3	1704
430-530	6	1034	22	25	0	53	17	514	1	12	1	2	1687
445-545	4	1046	16	23	0	58	10	494	2	11	1	3	1668
500-600	5	1056	13	19	0	53	7	486	2	9	1	3	1654
515-615	6	1011	9	13	0	39	5	463	1	5	0	2	1554
530-630	3	908	8	9	0	36	5	435	1	4	0	1	1410



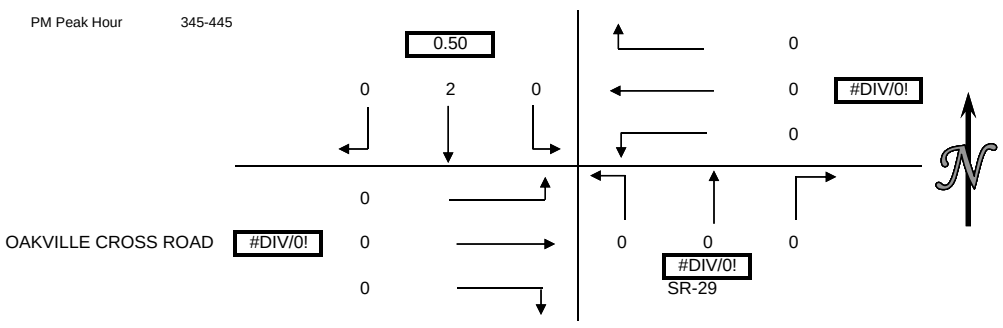
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	1	0	0	0	0	0	0	0	0	0	0	1
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	1	0	0	0	0	0	0	0	0	0	0	1
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	1	0	0	0	0	0	0	0	0	0	0	1
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	2	0	0	0	0	0	0	0	0	0	0	2
400-500	0	2	0	0	0	0	0	0	0	0	0	0	2
415-515	0	1	0	0	0	0	0	0	0	0	0	0	1
430-530	0	2	0	0	0	0	0	0	0	0	0	0	2
445-545	0	1	0	0	0	0	0	0	0	0	0	0	1
500-600	0	1	0	0	0	0	0	0	0	0	0	0	1
515-615	0	1	0	0	0	0	0	0	0	0	0	0	1
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

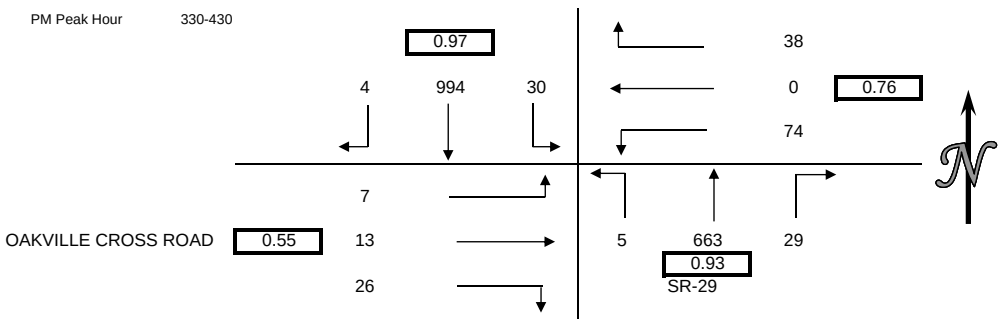
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE CROSS ROAD
CITY: NAPA COUNTY

VEHICLE COUNTS

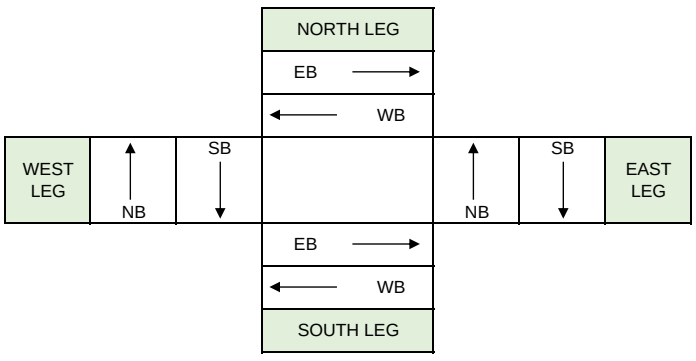
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	2	251	9	10	0	27	7	180	1	11	2	3	503
345-400	1	258	5	8	0	14	8	171	1	2	1	0	469
400-415	1	229	11	10	0	18	10	138	1	8	10	3	439
415-430	0	256	5	10	0	15	4	174	2	5	0	1	472
430-445	0	256	8	9	1	22	4	133	0	2	0	0	435
445-500	1	261	9	3	0	9	3	154	0	1	0	1	442
500-515	1	276	4	9	0	17	4	150	0	2	0	1	464
515-530	1	257	7	11	0	9	5	138	0	6	0	0	434
530-545	0	252	1	8	0	9	6	170	0	0	0	1	447
545-600	0	251	4	1	0	12	4	140	0	0	0	0	412
600-615	0	253	5	2	1	5	3	115	1	1	0	1	387
615-630	1	111	0	1	0	3	1	121	0	1	0	0	239
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	4	994	30	38	0	74	29	663	5	26	13	7	1883
345-445	2	999	29	37	1	69	26	616	4	17	11	4	1815
400-500	2	1002	33	32	1	64	21	599	3	16	10	5	1788
415-515	2	1049	26	31	1	63	15	611	2	10	0	3	1813
430-530	3	1050	28	32	1	57	16	575	0	11	0	2	1775
445-545	3	1046	21	31	0	44	18	612	0	9	0	3	1787
500-600	2	1036	16	29	0	47	19	598	0	8	0	2	1757
515-615	1	1013	17	22	1	35	18	563	1	7	0	2	1680
530-630	1	867	10	12	1	29	14	546	1	2	0	2	1485

PM Peak Hour 330-430



PEDESTRIAN COUNTS

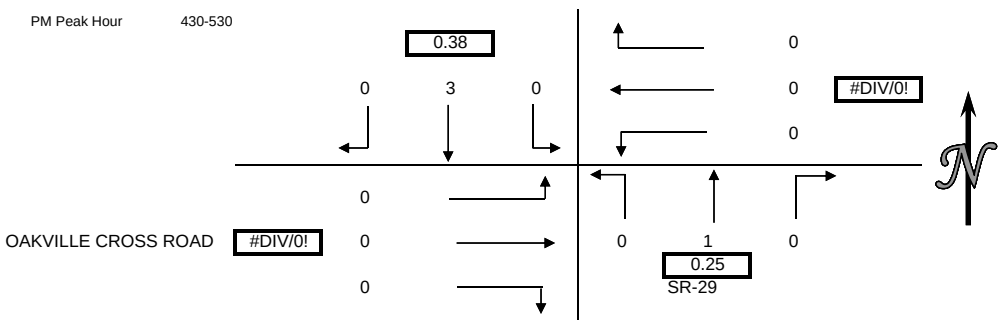
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	2	1	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	2	1	0	0	0	0	0
400-500	0	0	2	1	0	0	0	0	0
415-515	0	0	2	1	0	0	0	0	0
430-530	0	0	2	1	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	1	0	0	0	0	0	1	0	0	0	0	2
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	2	0	0	0	0	0	0	0	0	0	0	2
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	1	0	0	0	0	0	1	0	0	0	0	2
415-515	0	1	0	0	0	0	0	1	0	0	0	0	2
430-530	0	3	0	0	0	0	0	1	0	0	0	0	4
445-545	0	3	0	0	0	0	0	1	0	0	0	0	4
500-600	0	2	0	0	0	0	0	0	0	0	0	0	2
515-615	0	2	0	0	0	0	0	0	0	0	0	0	2
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78

PM Peak Hour 430-530



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

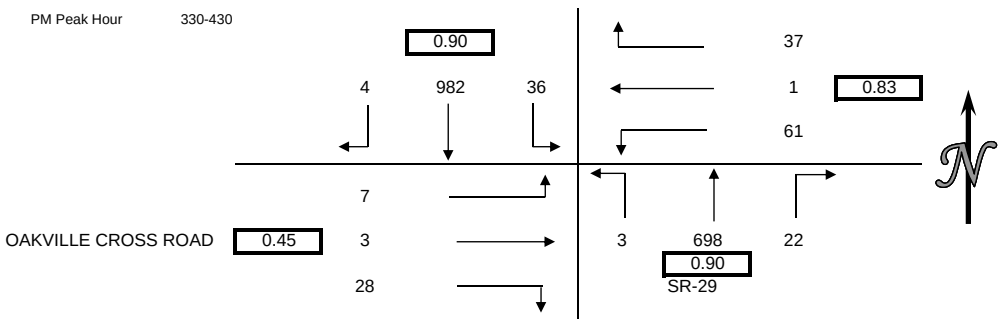
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SR-29
E/W OAKVILLE CROSS ROAD
CITY: NAPA COUNTY

VEHICLE COUNTS

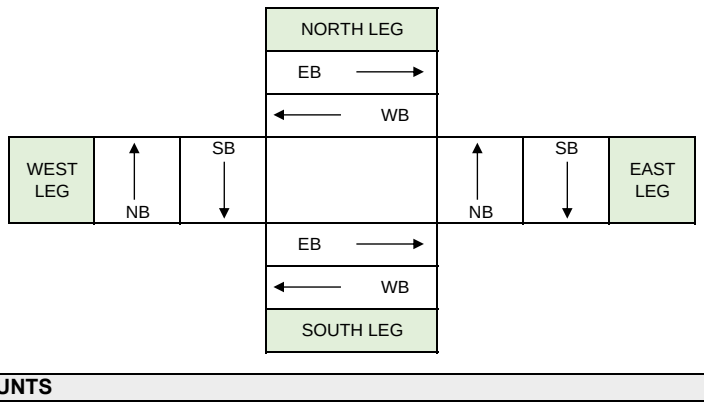
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	2	274	9	11	0	19	7	182	1	18	0	3	526
345-400	1	259	9	4	0	14	2	199	0	2	0	1	491
400-415	0	227	8	11	0	18	7	161	0	3	2	2	439
415-430	1	222	10	11	1	10	6	156	2	5	1	1	426
430-445	0	252	8	17	0	16	7	146	0	4	0	3	453
445-500	0	209	5	6	0	9	5	158	0	1	1	0	394
500-515	0	263	4	7	0	17	4	152	1	3	0	2	453
515-530	0	251	2	3	0	5	8	170	0	1	0	1	441
530-545	0	252	3	8	0	20	6	161	0	0	0	0	450
545-600	0	243	4	1	0	4	2	131	0	1	0	3	389
600-615	0	273	5	2	0	8	5	101	0	2	0	0	396
615-630	0	199	5	3	0	11	8	117	0	0	0	0	343
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	4	982	36	37	1	61	22	698	3	28	3	7	1882
345-445	2	960	35	43	1	58	22	662	2	14	3	7	1809
400-500	1	910	31	45	1	53	25	621	2	13	4	6	1712
415-515	1	946	27	41	1	52	22	612	3	13	2	6	1726
430-530	0	975	19	33	0	47	24	626	1	9	1	6	1741
445-545	0	975	14	24	0	51	23	641	1	5	1	3	1738
500-600	0	1009	13	19	0	46	20	614	1	5	0	6	1733
515-615	0	1019	14	14	0	37	21	563	0	4	0	4	1676
530-630	0	967	17	14	0	43	21	510	0	3	0	3	1578

PM Peak Hour 330-430



PEDESTRIAN COUNTS

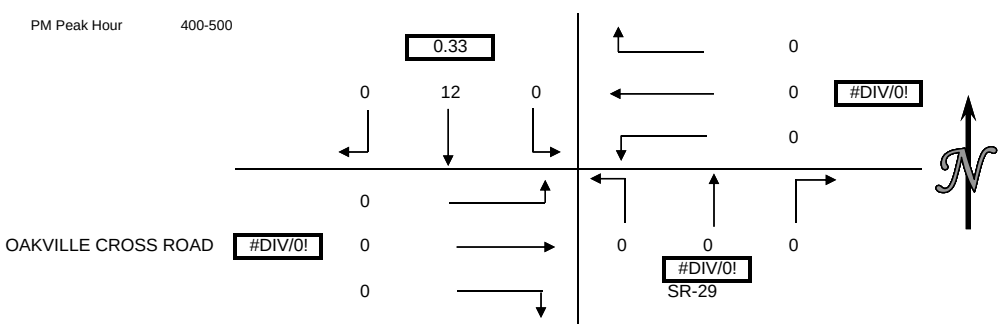
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	1	0	0	0	0	0	0
400-415	0	0	1	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	1	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	2	0	0	0	0	0	0
345-445	0	0	2	0	0	0	0	0	0
400-500	0	0	1	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	1	0	0	0	0	0
500-600	0	0	0	1	0	0	0	0	0
515-615	0	0	0	1	0	0	0	0	0
530-630	0	0	0	1	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	1	0	0	0	0	0	0	0	0	0	0	1
400-415	0	9	0	0	0	0	0	0	0	0	0	0	9
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	1	0	0	0	0	0	0	0	0	0	0	1
445-500	0	2	0	0	0	0	0	0	0	0	0	0	2
500-515	0	0	1	0	0	0	0	0	0	0	0	0	1
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	10	0	0	0	0	0	0	0	0	0	0	10
345-445	0	11	0	0	0	0	0	0	0	0	0	0	11
400-500	0	12	0	0	0	0	0	0	0	0	0	0	12
415-515	0	3	1	0	0	0	0	0	0	0	0	0	4
430-530	0	3	1	0	0	0	0	0	0	0	0	0	4
445-545	0	2	1	0	0	0	0	0	0	0	0	0	3
500-600	0	0	1	0	0	0	0	0	0	0	0	0	1
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78

PM Peak Hour 400-500



WILTEC

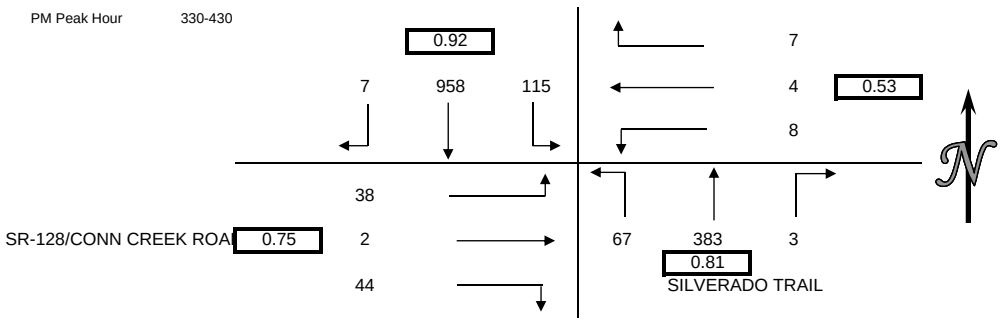
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/CONN CREEK ROAD
CITY: NAPA COUNTY

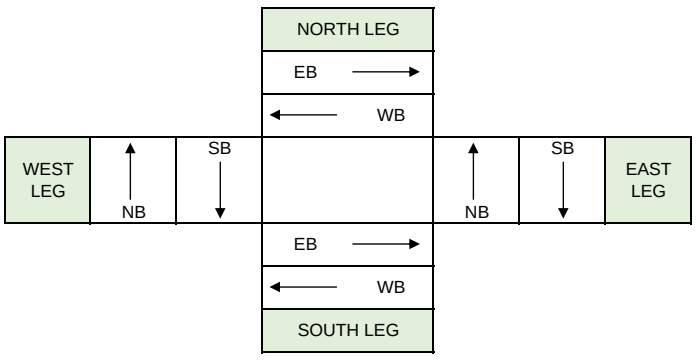
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	2	242	10	3	1	5	1	109	2	7	1	10	393
345-400	0	281	11	0	0	0	1	93	3	9	0	9	407
400-415	2	249	34	1	2	2	1	88	16	16	0	12	423
415-430	3	186	60	3	1	1	0	93	46	12	1	7	413
430-445	1	173	66	1	1	4	0	99	33	7	0	5	390
445-500	1	178	98	2	0	3	0	89	14	1	0	12	398
500-515	1	163	63	2	1	4	0	64	11	5	0	3	317
515-530	1	151	50	3	1	1	0	80	9	5	0	5	306
530-545	0	145	34	0	1	0	0	84	3	1	0	8	276
545-600	0	151	13	0	0	0	0	52	2	8	0	8	234
600-615	0	105	2	0	0	1	0	38	1	1	0	2	150
615-630	1	91	2	0	0	0	0	45	3	3	0	4	149
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	7	958	115	7	4	8	3	383	67	44	2	38	1636
345-445	6	889	171	5	4	7	2	373	98	44	1	33	1633
400-500	7	786	258	7	4	10	1	369	109	36	1	36	1624
415-515	6	700	287	8	3	12	0	345	104	25	1	27	1518
430-530	4	665	277	8	3	12	0	332	67	18	0	25	1411
445-545	3	637	245	7	3	8	0	317	37	12	0	28	1297
500-600	2	610	160	5	3	5	0	280	25	19	0	24	1133
515-615	1	552	99	3	2	2	0	254	15	15	0	23	966
530-630	1	492	51	0	1	1	0	219	9	13	0	22	809



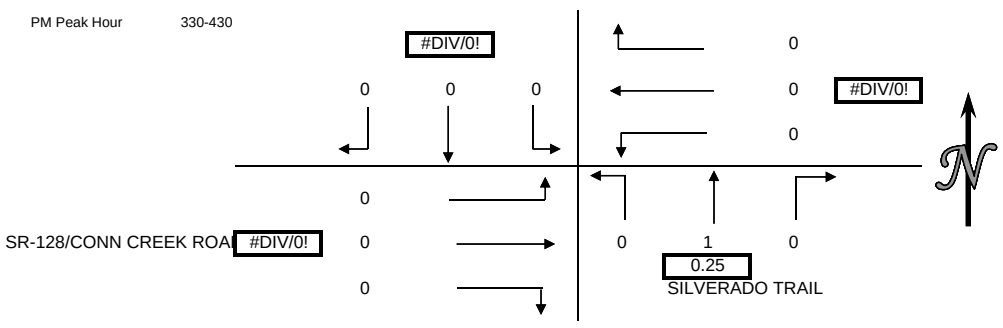
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	1	0	1
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	1	0	1
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	1	0	0	0	0	1
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	1	0	0	0	0	1
345-445	0	0	0	0	0	0	0	1	0	0	0	0	1
400-500	0	0	0	0	0	0	0	1	0	0	0	0	1
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

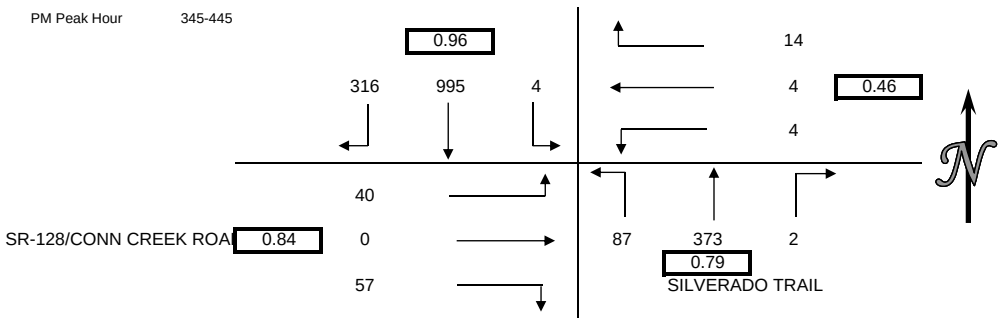
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/CONN CREEK ROAD
CITY: NAPA COUNTY

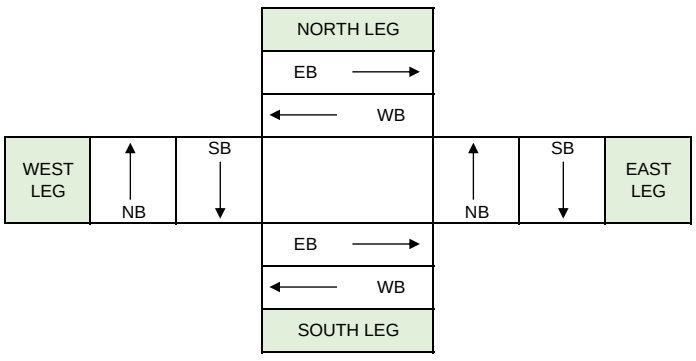
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	8	296	0	3	0	3	0	124	2	6	0	9	451
345-400	26	288	3	1	0	1	0	81	12	13	0	11	436
400-415	58	285	1	1	0	2	0	99	22	20	0	9	497
415-430	112	216	0	9	2	1	2	115	30	9	0	8	504
430-445	120	206	0	3	2	0	0	78	23	15	0	12	459
445-500	148	167	1	0	0	1	0	89	15	2	0	10	433
500-515	124	165	0	1	1	3	0	81	18	5	0	5	403
515-530	80	164	0	0	0	1	0	95	14	3	0	8	365
530-545	55	188	0	1	0	1	0	76	15	8	0	7	351
545-600	38	158	0	0	0	0	0	65	0	4	0	6	271
600-615	3	109	2	2	0	1	0	54	4	3	0	4	182
615-630	1	117	0	0	0	1	0	50	1	5	0	4	179
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	204	1085	4	14	2	7	2	419	66	48	0	37	1888
345-445	316	995	4	14	4	4	2	373	87	57	0	40	1896
400-500	438	874	2	13	4	4	2	381	90	46	0	39	1893
415-515	504	754	1	13	5	5	2	363	86	31	0	35	1799
430-530	472	702	1	4	3	5	0	343	70	25	0	35	1660
445-545	407	684	1	2	1	6	0	341	62	18	0	30	1552
500-600	297	675	0	2	1	5	0	317	47	20	0	26	1390
515-615	176	619	2	3	0	3	0	290	33	18	0	25	1169
530-630	97	572	2	3	0	3	0	245	20	20	0	21	983



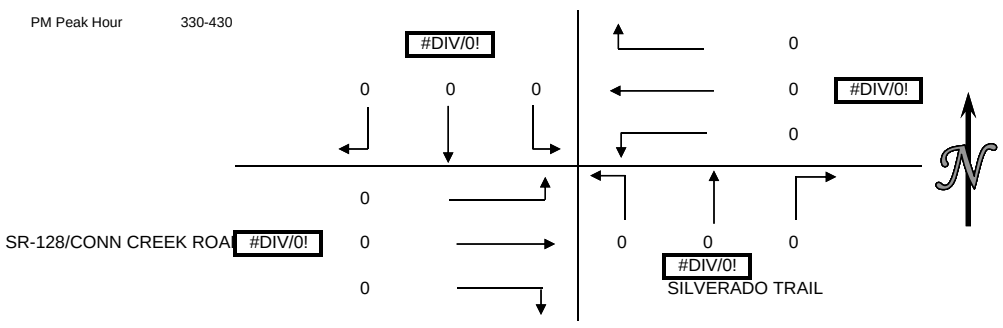
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	1	1	0	2
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	1	1	0	2
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	1	0	0	0	0	1
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	1	0	0	0	0	1
500-600	0	0	0	0	0	0	0	1	0	0	0	0	1
515-615	0	0	0	0	0	0	0	1	0	0	0	0	1
530-630	0	0	0	0	0	0	0	1	0	0	0	0	1
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

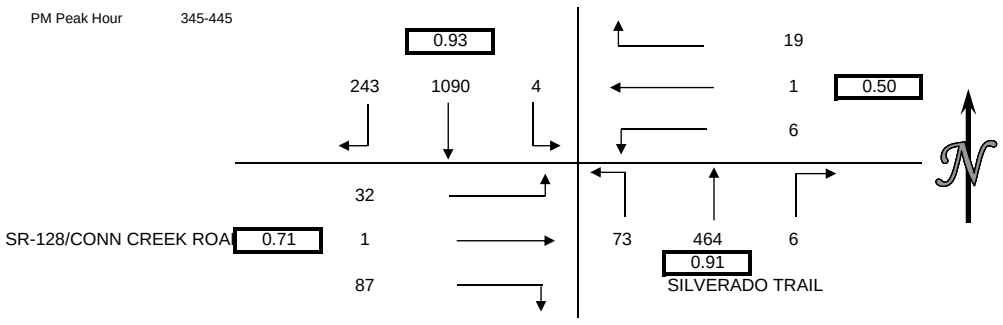
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/CONN CREEK ROAD
CITY: NAPA COUNTY

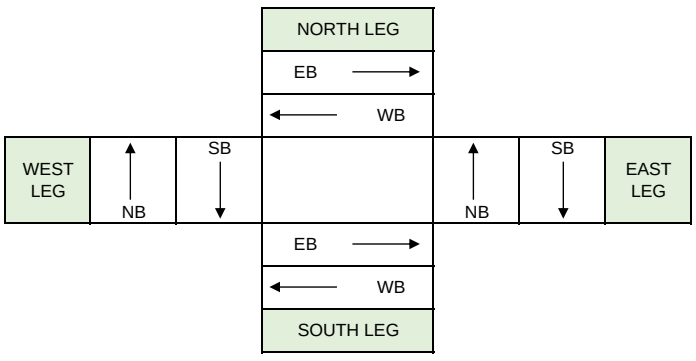
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	6	294	4	3	0	6	0	116	12	7	0	13	461
345-400	17	294	0	0	1	2	1	104	4	17	0	14	454
400-415	43	281	2	6	0	2	3	116	17	34	1	7	512
415-430	70	269	1	11	0	2	2	125	21	19	0	5	525
430-445	113	246	1	2	0	0	0	119	31	17	0	6	535
445-500	119	180	1	1	1	1	1	94	25	10	0	9	442
500-515	94	155	2	4	0	1	0	118	21	9	0	7	411
515-530	76	169	0	2	0	1	2	102	11	8	0	6	377
530-545	52	186	1	0	1	0	0	78	7	13	0	6	344
545-600	20	171	0	0	0	0	0	78	2	3	0	10	284
600-615	6	142	0	0	0	1	1	80	1	3	0	2	236
615-630	6	114	0	0	0	0	0	82	2	3	0	5	212
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	136	1138	7	20	1	12	6	461	54	77	1	39	1952
345-445	243	1090	4	19	1	6	6	464	73	87	1	32	2026
400-500	345	976	5	20	1	5	6	454	94	80	1	27	2014
415-515	396	850	5	18	1	4	3	456	98	55	0	27	1913
430-530	402	750	4	9	1	3	3	433	88	44	0	28	1765
445-545	341	690	4	7	2	3	3	392	64	40	0	28	1574
500-600	242	681	3	6	1	2	2	376	41	33	0	29	1416
515-615	154	668	1	2	1	2	3	338	21	27	0	24	1241
530-630	84	613	1	0	1	1	1	318	12	22	0	23	1076



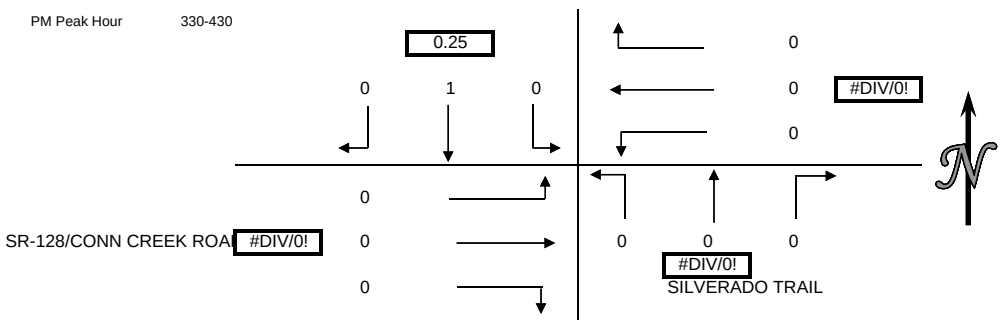
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	1	0	0	0	0	0	0	0	0	0	0	1
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	1	0	0	0	0	1
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	1	0	0	0	0	1
0	1	2	3	4	5	6	7	9	9	10	11	12	79



WILTEC

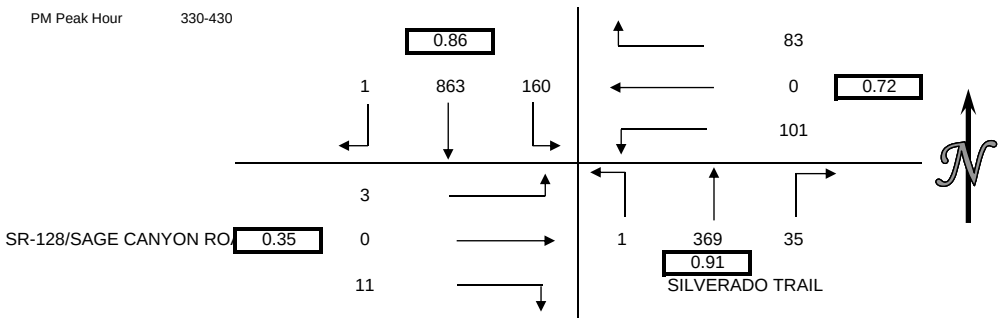
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/SAGE CANYON ROAD
CITY: NAPA COUNTY

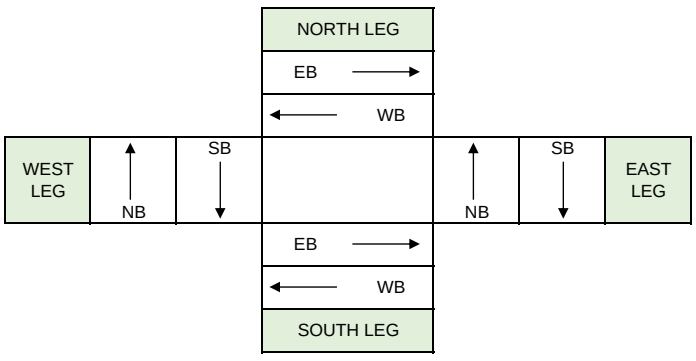
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	210	28	14	0	17	6	92	1	9	0	1	379
345-400	0	254	42	14	0	30	5	86	0	1	0	1	433
400-415	0	232	40	16	0	29	15	89	0	1	0	1	423
415-430	0	167	50	39	0	25	9	102	0	0	0	0	392
430-445	1	134	36	25	0	13	31	101	0	0	0	1	342
445-500	0	172	20	15	0	12	18	90	0	0	0	1	328
500-515	0	154	23	4	0	12	9	61	0	0	0	0	263
515-530	0	150	23	12	0	6	8	77	0	0	0	0	276
530-545	0	124	18	7	0	10	9	74	1	2	0	0	245
545-600	0	158	9	4	0	10	7	52	0	0	0	0	240
600-615	0	102	10	2	0	3	8	37	0	0	0	0	162
615-630	0	81	8	6	0	6	6	43	0	0	0	0	150
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	1	863	160	83	0	101	35	369	1	11	0	3	1627
345-445	1	787	168	94	0	97	60	378	0	2	0	3	1590
400-500	1	705	146	95	0	79	73	382	0	1	0	3	1485
415-515	1	627	129	83	0	62	67	354	0	0	0	2	1325
430-530	1	610	102	56	0	43	66	329	0	0	0	2	1209
445-545	0	600	84	38	0	40	44	302	1	2	0	1	1112
500-600	0	586	73	27	0	38	33	264	1	2	0	0	1024
515-615	0	534	60	25	0	29	32	240	1	2	0	0	923
530-630	0	465	45	19	0	29	30	206	1	2	0	0	797



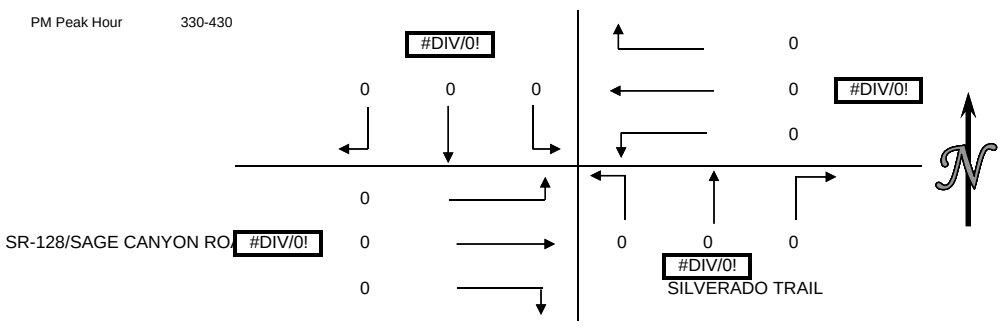
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	1	0	0	0	0	0	0	1	1
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	1	0	0	0	0	0	0	1	1
345-445	1	0	0	0	0	0	0	1	1
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

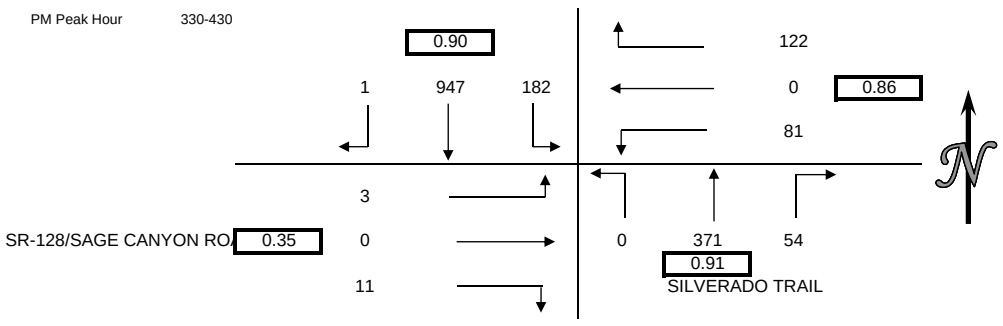
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/SAGE CANYON ROAD
CITY: NAPA COUNTY

VEHICLE COUNTS

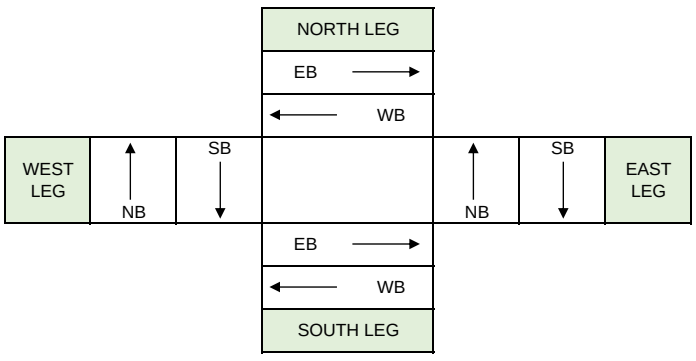
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	248	30	19	0	21	15	102	0	8	0	2	446
345-400	0	264	49	23	0	26	14	75	0	0	0	0	451
400-415	0	260	50	38	0	17	14	95	0	2	0	0	476
415-430	0	175	53	42	0	17	11	99	0	1	0	1	399
430-445	0	165	47	26	0	17	25	82	0	0	0	0	362
445-500	1	135	50	13	0	10	17	83	0	0	0	1	310
500-515	0	132	36	16	0	9	13	82	0	0	0	0	288
515-530	0	135	23	12	0	12	7	91	0	0	0	0	280
530-545	0	167	36	9	0	6	13	85	0	1	0	0	317
545-600	1	140	29	8	0	2	9	57	0	0	0	1	247
600-615	0	126	11	8	0	5	4	49	0	0	0	0	203
615-630	0	106	11	5	0	4	3	47	0	0	0	0	176
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	1	947	182	122	0	81	54	371	0	11	0	3	1772
345-445	0	864	199	129	0	77	64	351	0	3	0	1	1688
400-500	1	735	200	119	0	61	67	359	0	3	0	2	1547
415-515	1	607	186	97	0	53	66	346	0	1	0	2	1359
430-530	1	567	156	67	0	48	62	338	0	0	0	1	1240
445-545	1	569	145	50	0	37	50	341	0	1	0	1	1195
500-600	1	574	124	45	0	29	42	315	0	1	0	1	1132
515-615	1	568	99	37	0	25	33	282	0	1	0	1	1047
530-630	1	539	87	30	0	17	29	238	0	1	0	1	943

PM Peak Hour 330-430



PEDESTRIAN COUNTS

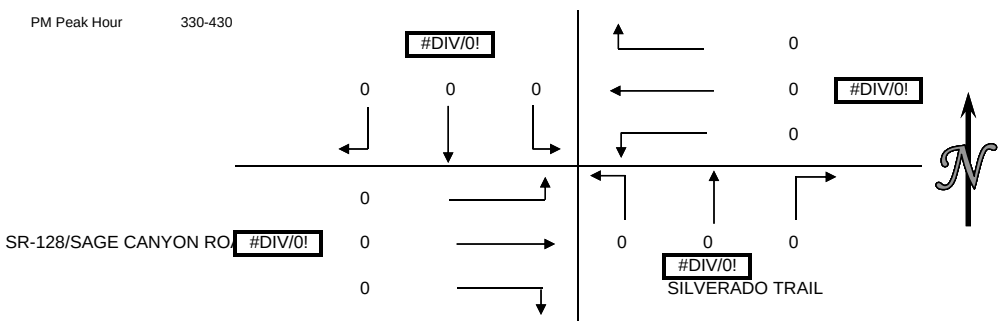
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	0	0	0	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78

PM Peak Hour 330-430



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

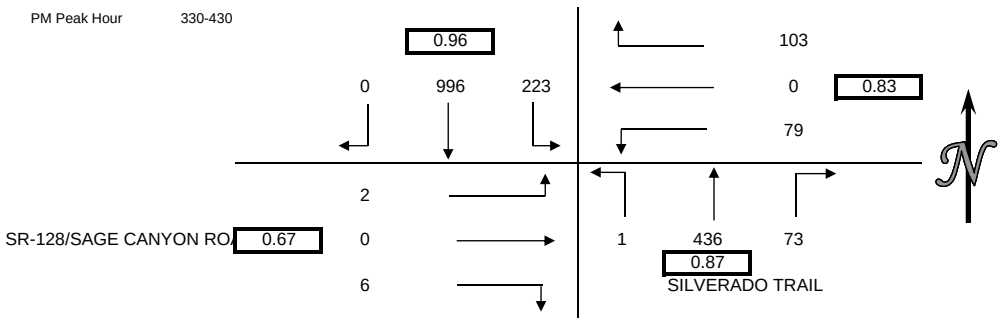
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SR-128/SAGE CANYON ROAD
CITY: NAPA COUNTY

VEHICLE COUNTS

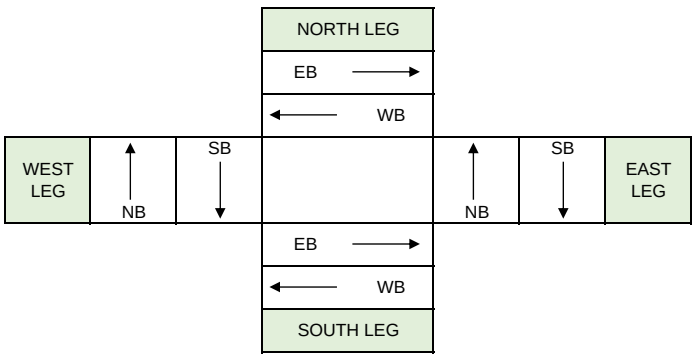
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	264	29	16	0	14	22	113	1	0	0	0	459
345-400	0	265	52	18	0	28	12	95	0	2	0	1	473
400-415	0	240	69	37	0	14	11	109	0	1	0	1	482
415-430	0	227	73	32	0	23	28	119	0	3	0	0	505
430-445	0	173	85	32	0	10	22	122	0	1	0	0	445
445-500	0	154	45	23	0	11	16	105	0	1	0	0	355
500-515	1	149	24	26	0	11	12	110	0	1	0	0	334
515-530	0	144	33	12	0	10	14	102	0	0	0	0	315
530-545	0	169	32	11	0	8	12	83	0	0	0	0	315
545-600	0	155	26	10	0	6	6	73	0	4	0	0	280
600-615	0	128	18	6	0	3	5	53	0	0	0	0	213
615-630	0	103	15	6	0	7	4	52	0	0	0	0	187
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	996	223	103	0	79	73	436	1	6	0	2	1919
345-445	0	905	279	119	0	75	73	445	0	7	0	2	1905
400-500	0	794	272	124	0	58	77	455	0	6	0	1	1787
415-515	1	703	227	113	0	55	78	456	0	6	0	0	1639
430-530	1	620	187	93	0	42	64	439	0	3	0	0	1449
445-545	1	616	134	72	0	40	54	400	0	2	0	0	1319
500-600	1	617	115	59	0	35	44	368	0	5	0	0	1244
515-615	0	596	109	39	0	27	37	311	0	4	0	0	1123
530-630	0	555	91	33	0	24	27	261	0	4	0	0	995

PM Peak Hour 330-430



PEDESTRIAN COUNTS

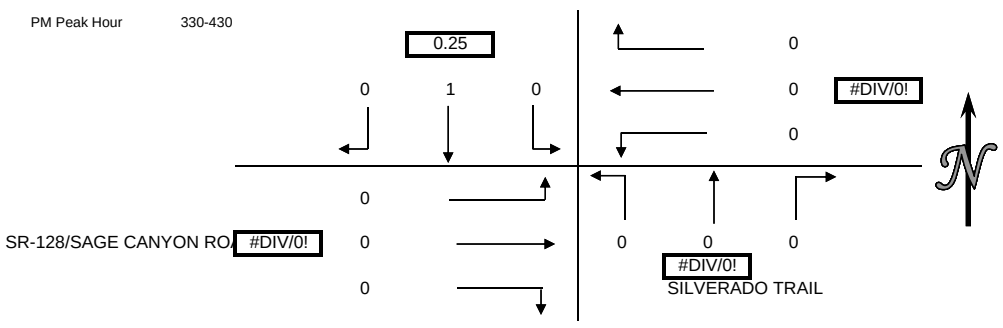
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	1	0	0	0	0	0	0	0	0	0	0	1
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	2	0	0	0	0	0	0	0	0	0	0	2
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	2	0	0	0	0	0	0	0	0	0	0	2
0	1	4	3	4	5	6	7	8	9	10	11	12	80

PM Peak Hour 330-430



WILTEC

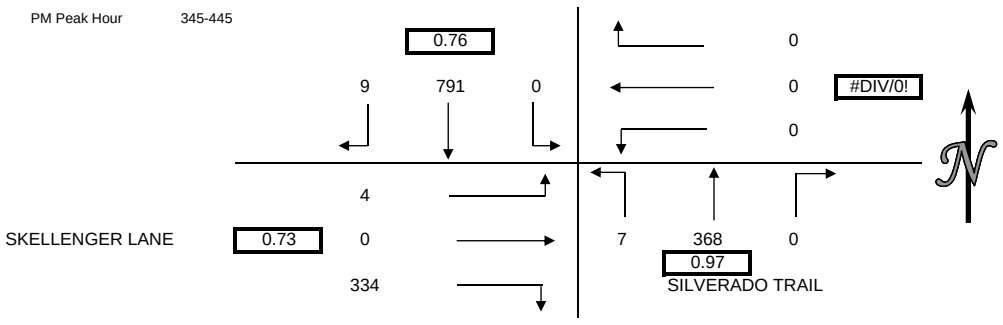
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: TUESDAY MAY 21, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SKELLENGER LANE
CITY: NAPA COUNTY

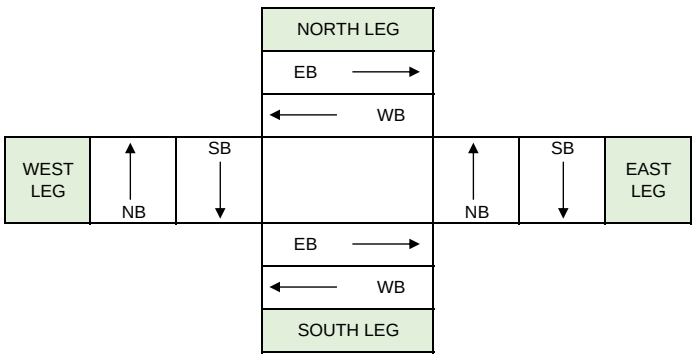
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	230	0	0	0	0	0	100	1	26	0	0	358
345-400	3	259	0	0	0	0	0	90	2	28	0	0	382
400-415	4	183	0	0	0	0	0	95	2	85	0	4	373
415-430	1	171	0	0	0	0	0	94	2	115	0	0	383
430-445	1	178	0	0	0	0	0	89	1	106	0	0	375
445-500	1	178	0	0	0	0	0	89	2	95	0	0	365
500-515	3	186	0	0	0	0	0	57	4	86	0	0	336
515-530	4	177	0	0	0	0	0	85	1	89	0	1	357
530-545	0	210	0	0	0	0	0	78	0	33	0	1	322
545-600	0	182	0	0	0	0	0	56	2	31	0	0	271
600-615	0	106	0	0	0	0	0	40	3	5	0	0	154
615-630	0	87	0	0	0	0	0	49	0	4	0	1	141
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	9	843	0	0	0	0	0	379	7	254	0	4	1496
345-445	9	791	0	0	0	0	0	368	7	334	0	4	1513
400-500	7	710	0	0	0	0	0	367	7	401	0	4	1496
415-515	6	713	0	0	0	0	0	329	9	402	0	0	1459
430-530	9	719	0	0	0	0	0	320	8	376	0	1	1433
445-545	8	751	0	0	0	0	0	309	7	303	0	2	1380
500-600	7	755	0	0	0	0	0	276	7	239	0	2	1286
515-615	4	675	0	0	0	0	0	259	6	158	0	2	1104
530-630	0	585	0	0	0	0	0	223	5	73	0	2	888



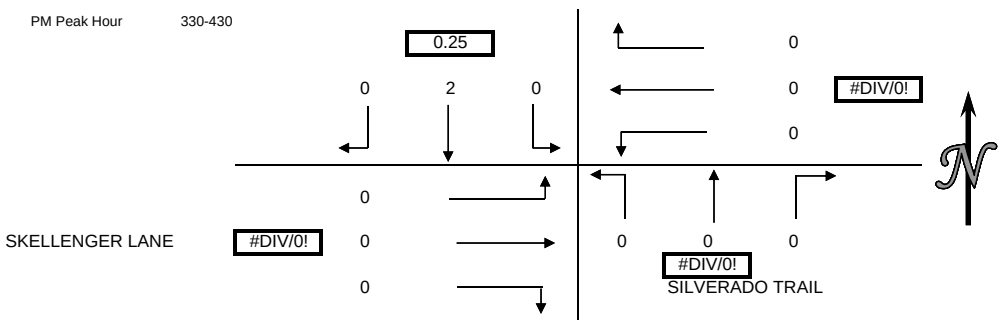
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	2	0	0	0	0	0	0	0	0	0	0	2
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	2	0	0	0	0	0	0	0	0	0	0	2
345-445	0	0	0	0	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

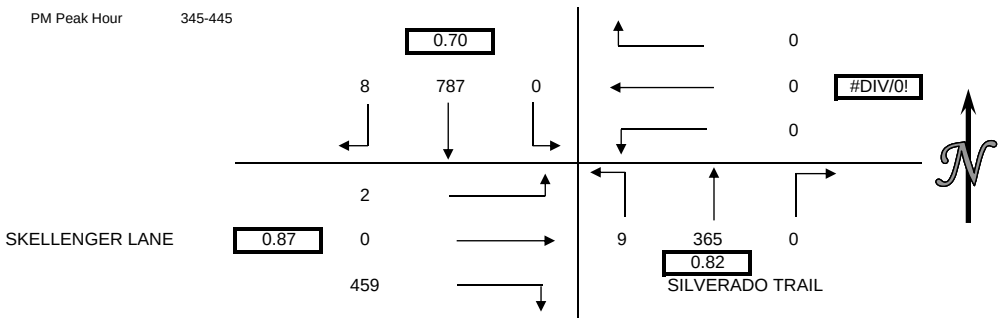
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: WEDNESDAY MAY 22, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SKELLENGER LANE
CITY: NAPA COUNTY

VEHICLE COUNTS

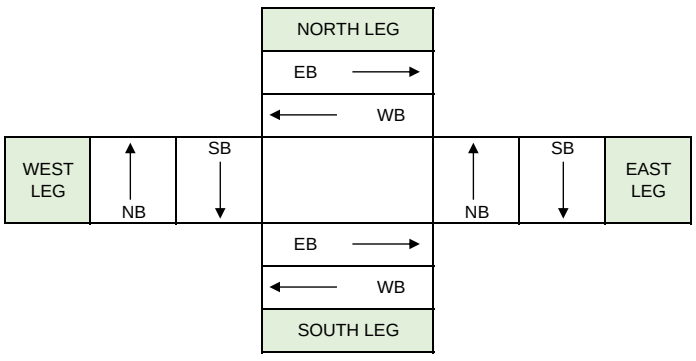
15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	240	0	0	0	0	0	115	0	3	0	2	361
345-400	1	282	0	0	0	0	0	93	3	91	0	0	470
400-415	0	168	0	0	0	0	0	111	3	114	0	1	397
415-430	5	175	0	0	0	0	0	84	2	122	0	1	389
430-445	2	162	0	0	0	0	0	77	1	132	0	0	374
445-500	1	168	0	0	0	0	0	95	2	141	0	0	407
500-515	4	134	0	0	0	0	0	92	3	109	0	0	342
515-530	2	161	0	0	0	0	0	99	3	133	0	4	402
530-545	4	226	0	0	0	0	0	85	1	70	0	1	387
545-600	3	218	0	0	0	0	0	65	1	47	0	0	334
600-615	0	106	0	0	0	0	0	56	0	17	0	0	179
615-630	1	113	0	0	0	0	0	50	0	19	0	0	183
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	7	865	0	0	0	0	0	403	8	330	0	4	1617
345-445	8	787	0	0	0	0	0	365	9	459	0	2	1630
400-500	8	673	0	0	0	0	0	367	8	509	0	2	1567
415-515	12	639	0	0	0	0	0	348	8	504	0	1	1512
430-530	9	625	0	0	0	0	0	363	9	515	0	4	1525
445-545	11	689	0	0	0	0	0	371	9	453	0	5	1538
500-600	13	739	0	0	0	0	0	341	8	359	0	5	1465
515-615	9	711	0	0	0	0	0	305	5	267	0	5	1302
530-630	8	663	0	0	0	0	0	256	2	153	0	1	1083

PM Peak Hour 345-445



PEDESTRIAN COUNTS

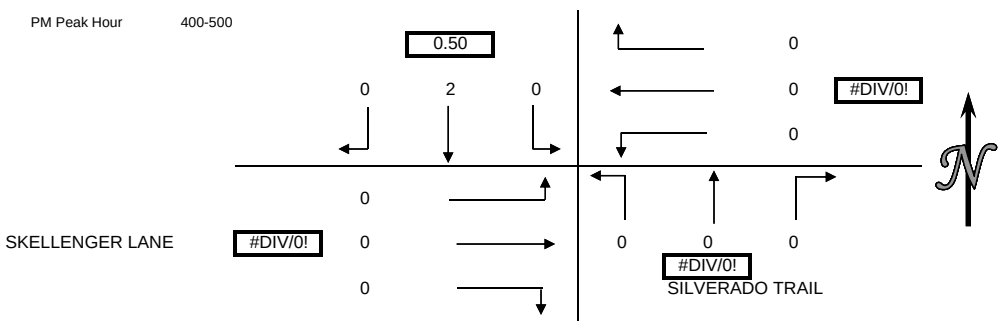
15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	0	0	0	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	1	0	0	0	0	0	0	0	0	0	0	1
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	1	0	0	0	0	0	0	0	0	0	0	1
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	1	0	0	0	0	0	0	0	0	0	0	1
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	2	0	0	0	0	0	0	0	0	0	0	2
415-515	0	1	0	0	0	0	0	0	0	0	0	0	1
430-530	0	1	0	0	0	0	0	0	0	0	0	0	1
445-545	0	1	0	0	0	0	0	0	0	0	0	0	1
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78

PM Peak Hour 400-500



WILTEC

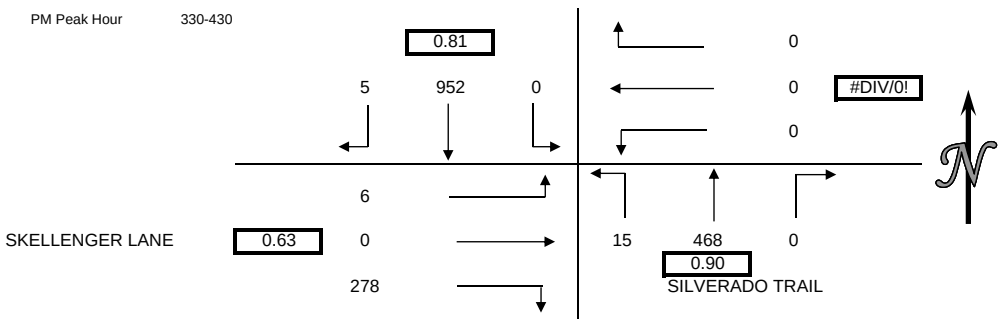
Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: KIMLEY-HORN
PROJECT: NAPA SR-29 AND SILVERADO TRAIL IMPROVEMENTS PROJECT
DATE: THURSDAY MAY 23, 2019
PERIOD" 3:30 PM TO 6:30 PM
INTERSECTION: N/S SILVERADO TRAIL
E/W SKELLENGER LANE
CITY: NAPA COUNTY

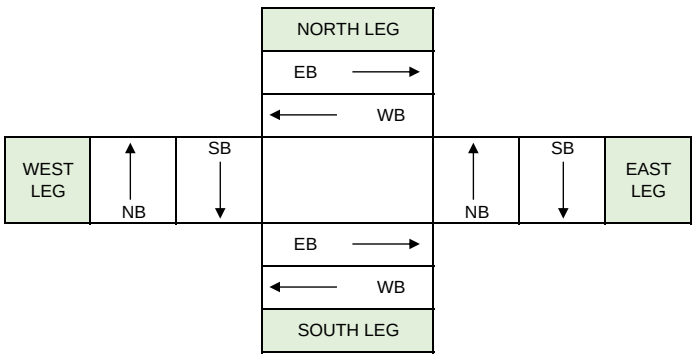
VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	1	274	0	0	0	0	0	115	4	34	0	4	432
345-400	1	296	0	0	0	0	0	110	5	28	0	0	440
400-415	1	242	0	0	0	0	0	112	3	111	0	2	471
415-430	2	140	0	0	0	0	0	131	3	105	0	0	381
430-445	3	178	0	0	0	0	0	113	0	111	0	0	405
445-500	1	169	0	0	0	0	0	88	2	130	0	2	392
500-515	4	172	0	0	0	0	0	101	1	117	0	0	395
515-530	9	195	0	0	0	0	0	119	3	83	0	0	409
530-545	1	219	0	0	0	0	0	64	4	60	0	0	348
545-600	2	213	0	0	0	0	0	68	4	54	0	1	342
600-615	0	134	0	0	0	0	0	52	1	13	0	1	201
615-630	2	106	0	0	0	0	0	49	0	10	0	0	167
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	5	952	0	0	0	0	0	468	15	278	0	6	1724
345-445	7	856	0	0	0	0	0	466	11	355	0	2	1697
400-500	7	729	0	0	0	0	0	444	8	457	0	4	1649
415-515	10	659	0	0	0	0	0	433	6	463	0	2	1573
430-530	17	714	0	0	0	0	0	421	6	441	0	2	1601
445-545	15	755	0	0	0	0	0	372	10	390	0	2	1544
500-600	16	799	0	0	0	0	0	352	12	314	0	1	1494
515-615	12	761	0	0	0	0	0	303	12	210	0	2	1300
530-630	5	672	0	0	0	0	0	233	9	137	0	2	1058



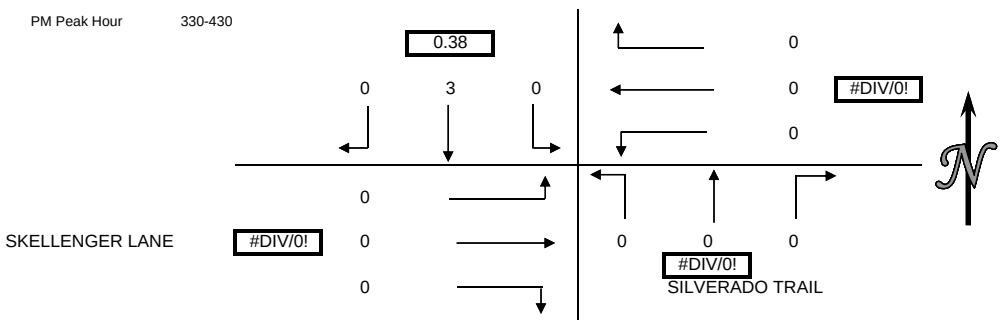
PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-345	0	0	0	0	0	0	0	0	0
345-400	0	0	0	0	0	0	0	0	0
400-415	0	0	0	0	0	0	0	0	0
415-430	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0
HOUR TOTALS	NORTH LEG		EAST LEG		SOUTH LEG		WEST LEG		TOTAL
PERIOD	EB	WB	NB	SB	EB	WB	NB	SB	
330-430	0	0	0	0	0	0	0	0	0
345-445	0	0	0	0	0	0	0	0	0
400-500	0	0	0	0	0	0	0	0	0
415-515	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0



BICYCLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-345	0	2	0	0	0	0	0	0	0	0	0	0	2
345-400	0	0	0	0	0	0	0	0	0	0	0	0	0
400-415	0	1	0	0	0	0	0	0	0	0	0	0	1
415-430	0	0	0	0	0	0	0	0	0	0	0	0	0
430-445	0	0	0	0	0	0	0	0	0	0	0	0	0
445-500	0	0	0	0	0	0	0	0	0	0	0	0	0
500-515	0	0	0	0	0	0	0	0	0	0	0	0	0
515-530	0	0	0	0	0	0	0	0	0	0	0	0	0
530-545	0	0	0	0	0	0	0	0	0	0	0	0	0
545-600	0	0	0	0	0	0	0	0	0	0	0	0	0
600-615	0	0	0	0	0	0	0	0	0	0	0	0	0
615-630	0	0	0	0	0	0	0	0	0	0	0	0	0
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
330-430	0	3	0	0	0	0	0	0	0	0	0	0	3
345-445	0	1	0	0	0	0	0	0	0	0	0	0	1
400-500	0	1	0	0	0	0	0	0	0	0	0	0	1
415-515	0	0	0	0	0	0	0	0	0	0	0	0	0
430-530	0	0	0	0	0	0	0	0	0	0	0	0	0
445-545	0	0	0	0	0	0	0	0	0	0	0	0	0
500-600	0	0	0	0	0	0	0	0	0	0	0	0	0
515-615	0	0	0	0	0	0	0	0	0	0	0	0	0
530-630	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9	10	11	12	78



Appendix B: SimTraffic Outputs

1: SR-29 & Inglenook/Rutherford Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.4	1.0	0.0	0.2	0.6	1037.2	945.8	934.0	471.7
Total Del/Veh (s)	128.8	384.5	36.2	878.7	867.0	8.5	13.9	9.9	136.7	138.3	119.5	163.1

2: SR-29 & Robert Mondavi Winery Drivway Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	7.6	71.0	3.4
Total Del/Veh (s)	23.3	10.7	2.9	1.5	296.1	294.2	125.4

3: SR-29 & Oakville Grocery Driveway Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.0	0.1	0.0
Total Del/Veh (s)	14.1	8.3	2.4	0.6	3.9	0.8	1.8

4: SR-29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.1	0.4	0.1	4.1	6.7	3.6	3.8	0.0	0.0	0.0
Total Del/Veh (s)	17.5	17.0	5.2	42.9	10.5	10.3	9.7	7.6	4.6	3.1	1.4	0.0

4: SR-29 & Walnut Lane/Oakville Cross Road Performance by movement

Movement	All
Denied Del/Veh (s)	2.0
Total Del/Veh (s)	7.4

5: Silverado Trail & Conn Creek Road Performance by movement

Movement	EBL	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.7	4.2	0.1	0.2	0.0	0.0	0.0	1318.0	1022.7	1039.3	737.5
Total Del/Veh (s)	73.3	40.6	103.6	13.4	30.8	3.1	2.3	68.8	72.3	65.1	48.2

6: Silverado Trail & Sage Cayon Road Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	4.2	0.9	3.7	0.0	0.2	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	5.7	8.2	30.3	11.5	9.4	8.3	5.0	6.9	6.0	2.5	8.6

7: Silverado Trail & Skellenger Lane Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.9	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	15.4	37.3	2.6	0.5	57.0	47.2	32.8

22: Silverado Trail Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	3.2	0.0	2.1
Total Del/Veh (s)	30.0	0.6	20.0

29: Silverado Trail Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	0.0	1.3	0.5
Total Del/Veh (s)	5.8	1.1	4.2

31: SR-29 Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	74.9	0.0	30.3
Total Del/Veh (s)	148.8	0.9	61.1

33: SR-29 Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	10.2	1.8	5.1

35: SR-29 Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	64.6	0.0	26.7
Total Del/Veh (s)	253.2	1.2	106.3

37: SR-29 Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	7.2	9.3	8.5

Total Network Performance

Denied Del/Veh (s)	515.6
Total Del/Veh (s)	325.2

Arterial Level of Service: NW SR-29

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Oakville Cross Road	4	7.6	26.4	0.2	34
Oakville Grocery Dri	3	2.5	7.0	0.1	33
	33	1.8	10.0	0.1	40
	31	0.9	10.1	0.1	45
Robert Mondavi Winer	2	1.5	11.9	0.1	45
	37	9.3	83.3	1.1	46
	35	1.2	6.5	0.1	40
Rutherford Road	1	13.9	33.7	0.3	30
Total		38.8	188.9	2.1	40

Arterial Level of Service: SB SR-29

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Inglenook	1	138.3	2077.8	0.2	5
	35	242.3	338.2	0.3	4
	37	7.2	33.7	0.1	8
Robert Mondavi Winer	2	296.1	376.4	1.1	10
	31	148.5	236.7	0.1	3
	33	10.2	55.6	0.1	8
Oakville Grocery Dri	3	0.8	13.8	0.1	29
Walnut Lane	4	1.4	5.9	0.1	39
Total		844.7	3138.2	2.1	7

Arterial Level of Service: NW Silverado Trail

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	29	1.1	8.3	0.1	47
	22	0.6	8.5	0.1	51
Skellenger Lane	7	0.5	9.0	0.1	53
	25	0.6	11.4	0.2	52
	27	4.6	65.1	0.9	51
	24	2.7	30.1	0.4	50
	26	0.9	9.6	0.1	49
Sage Cayon Road	6	8.3	45.5	0.6	46
	5	3.6	9.7	0.1	34
Total		23.0	197.4	2.6	49

Arterial Level of Service: SE Silverado Trail

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Conn Creek Road	5	72.3	1948.8	0.3	11
	6	6.4	12.5	0.1	26
	26	17.4	55.3	0.6	38
	24	19.4	28.0	0.1	17
	27	132.0	158.2	0.4	10
	25	631.8	682.4	0.9	5
Skellenger Lane	7	57.0	67.2	0.2	9
	22	30.8	44.8	0.1	12
	29	5.8	48.7	0.1	9
Total		972.9	3045.9	2.8	9

Intersection: 1: SR-29 & Inglenook/Rutherford Road

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	74	1564	66	30	170	1196
Average Queue (ft)	24	1089	31	8	57	570
95th Queue (ft)	59	1680	72	27	175	1415
Link Distance (ft)	1116	2209		1430		1195
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)			25		145	
Storage Blk Time (%)		95	21		0	36
Queuing Penalty (veh)		59	20		0	27

Intersection: 2: SR-29 & Robert Mondavi Winery Drivway

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	118	30	2985
Average Queue (ft)	25	5	1468
95th Queue (ft)	67	22	2991
Link Distance (ft)	330		5559
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SR-29 & Oakville Grocery Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	50	31
Average Queue (ft)	8	2
95th Queue (ft)	32	15
Link Distance (ft)	81	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR-29 & Walnut Lane/Oakville Cross Road

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	LT	R	L	TR	L
Maximum Queue (ft)	53	182	55	23	41	25
Average Queue (ft)	26	55	27	1	5	9
95th Queue (ft)	48	125	50	8	22	27
Link Distance (ft)	634	860			1110	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			240	145		100
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Silverado Trail & Conn Creek Road

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	173	50	64	120	39	23	76
Average Queue (ft)	55	39	17	44	1	1	33
95th Queue (ft)	126	64	46	95	13	8	71
Link Distance (ft)	738		353		402		1378
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		110		70	
Storage Blk Time (%)	50	35		2			1
Queuing Penalty (veh)	31	15		6			0

Intersection: 6: Silverado Trail & Sage Cayon Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	LT	R	L	TR	L
Maximum Queue (ft)	29	37	198	50	21	11	56
Average Queue (ft)	1	11	65	43	1	1	23
95th Queue (ft)	10	38	137	56	7	6	45
Link Distance (ft)	143		1275			3018	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		25	110		170
Storage Blk Time (%)	0	2	35	11			
Queuing Penalty (veh)	0	0	43	9			

Intersection: 7: Silverado Trail & Skellenger Lane

Movement	EB	EB	NB	SB	B25	B27	B24	B26
Directions Served	L	R	L	TR	T	T	T	T
Maximum Queue (ft)	350	67	28	80	4866	2200	56	56
Average Queue (ft)	139	51	5	50	3782	667	12	8
95th Queue (ft)	304	57	21	71	5909	1916	50	40
Link Distance (ft)	2426			802	4775	2149	639	3018
Upstream Blk Time (%)					29	1		
Queuing Penalty (veh)					291	12		
Storage Bay Dist (ft)		25	70					
Storage Blk Time (%)	1	76						
Queuing Penalty (veh)	3	3						

Intersection: 22: Silverado Trail

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 29: Silverado Trail

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 31: SR-29

Movement	SE
Directions Served	T
Maximum Queue (ft)	740
Average Queue (ft)	693
95th Queue (ft)	717
Link Distance (ft)	740
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 33: SR-29

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 35: SR-29

Movement	SE
Directions Served	T
Maximum Queue (ft)	1419
Average Queue (ft)	1331
95th Queue (ft)	1468
Link Distance (ft)	1430
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 37: SR-29

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 521

GHD