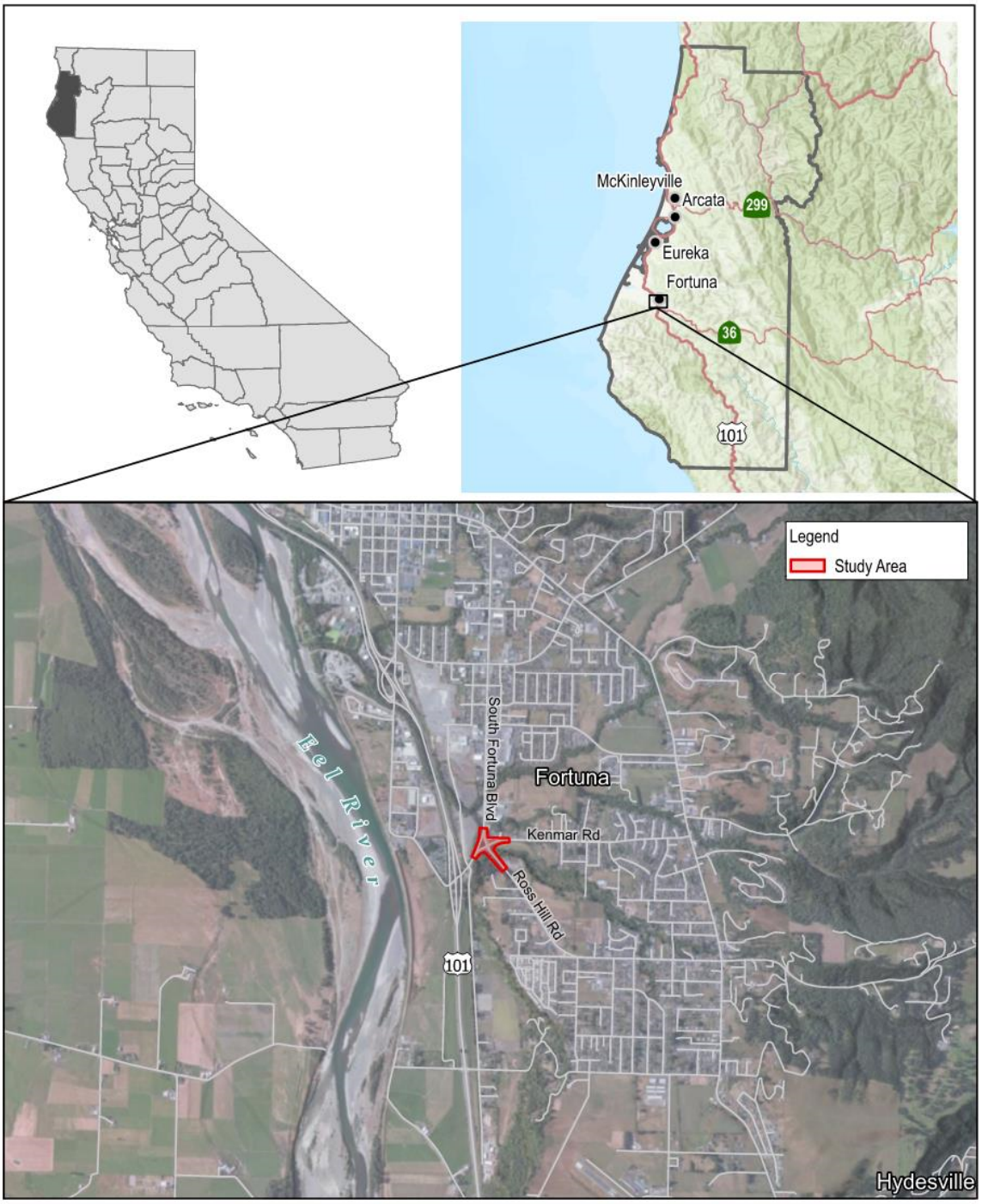
Project Study Report-Project Development Support (PSR-PDS)

Kenmar Road and S. Fortuna Boulevard/Ross Hill Road Intersection

APPROVED:

Brendan E. Byrd City Engineer City of Fortuna	Date

Vicinity Map



Paper Size ANSI A
0 1,000 2,000 3,000
Feet
Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

GHD

City of Fortuna
Kenmar and Ross Hill Road
PSR

Vicinity Map

Project No. 12577588
Revision No. -
Date Mar 2022

FIGURE 1

This project study report-project development support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

2/29/24

REGISTERED CIVIL ENGINEER *DATE*

Table of Contents

1. INTRODUCTION....5
2. BACKGROUND....5
3. PURPOSE AND NEED....7
4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT....7
5. DEFICIENCIES....13
6. CORRIDOR AND SYSTEM COORDINATION....13
7. ALTERNATIVES....14
8. RIGHT-OF-WAY....16
9. STAKEHOLDER INVOLVEMENT....17
10. ENVIRONMENTAL COMPLIANCE....17
11. FUNDING....19
12. DELIVERY SCHEDULE....20
13. RISKS....20
14. EXTERNAL AGENCY COORDINATION....21
15. PROJECT REVIEWS....21
16. PROJECT PERSONNEL....21
17. ATTACHMENTS....21

Attachments

A. Location Map
B. Conceptual Design Drawings
C. Assessor Parcel Maps
D. Environmental Constraints Map
E. Environmental Database Search Results
F. Cost Estimates

1. INTRODUCTION

Project Description

The project proposes to improve traffic, pedestrian, and bicycle operations at the intersection of Kenmar Road and S. Fortuna Boulevard/Ross Hill Road in Fortuna in Humboldt County, California. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic result in poor traffic operation at and near the intersection. Proposed project components include a roundabout at the intersection as well as crosswalks and sidewalks for pedestrians. Refer to Figure 1 and **Attachment A** for a location map.

The full closure of the Drake Hill Road intersection with US 101 in 2010 resulted in an increase in traffic volume to the US 101-Kenmar Road interchange and the Kenmar Road and S. Fortuna Boulevard/Ross Hill Road Intersection. The additional traffic volume contributed operational issues and safety concerns at the intersection.

Improvements to the Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection were identified as a priority project in the City of Fortunas 2021 Local Road Safety Plan (LRSP).

Table 1: Project Summary

Project Limits	Kenmar Road – between Eel River Drive and Renee Avenue S. Fortuna Boulevard – to 400 feet north of Kenmar Road Ross Hill Road – to 700 feet south of Kenmar Road
Number of Alternatives	2
Escalated Outlay Support Cost	$2.6M
Escalated Capital Outlay Cost	$6.1M
Funding Source	TBD (Federal Funding is Assumed)
Type of Facility	Kenmar Road east of Ross Hill Road: Major Collector Kenmar Road west of Ross Hill Road: Other Principal Arterial S. Fortuna Boulevard: Other Principal Arterial Ross Hill Road: Minor Arterial
Number of Structures	0
Anticipated Environmental Determination or Document	CEQA Mitigated Negative Declaration NEPA CE
Legal Description	On Kenmar Road between Eel River Drive and Renee Avenue; on S. Fortuna Boulevard from Kenmar Road to 400 feet north of Kenmar Road; and on Ross Hill Road from Kenmar Road to 700 feet south of Kenmar Road;

2. BACKGROUND

Existing Conditions

The project study area is focused on the intersection of Kenmar Road and S. Fortuna Boulevard/Ross Hill Road. Along Kenmar Road from Eel River Drive and Renee Avenue and along S. Fortuna Boulevard/Ross Hill Road from 400 feet north of the intersection to 700 feet south of the intersection. Refer to **Figure 2** for the existing intersection configuration, control and traffic counts.

Kenmar Road is 100 feet wide on the west side of the intersection with an eastbound through-left lane, and a right turn lane. On the east side of the intersection, Kenmar Road is the same configuration with a westbound through-left lane, and a right turn lane. West of the intersection Kenmar Road is listed as an Other Principal Arterial per the California Road System (CRS) – Functional Classification. East of the intersection Kenmar Road is a major collector.

Ross Hill Road is the south leg of the intersection and is 55 feet wide at the intersection with a northbound left turn lane, a through lane, and a through-right lane. S. Fortuna Boulevard is the north leg of the intersection and is 55 feet wide at the intersection with a southbound left turn lane, two through lanes, and a right turn slip-lane that begins approximately 250 feet north of the intersection. Per the CRS, Ross Hill Road is classified as a Minor Arterial and S. Fortuna Boulevard is classified as an Other Principal Arterial.

Also, according to CRS, S. Fortuna Boulevard, and Kenmar Road east of the intersection, are both part of the National Highway System (NHS).

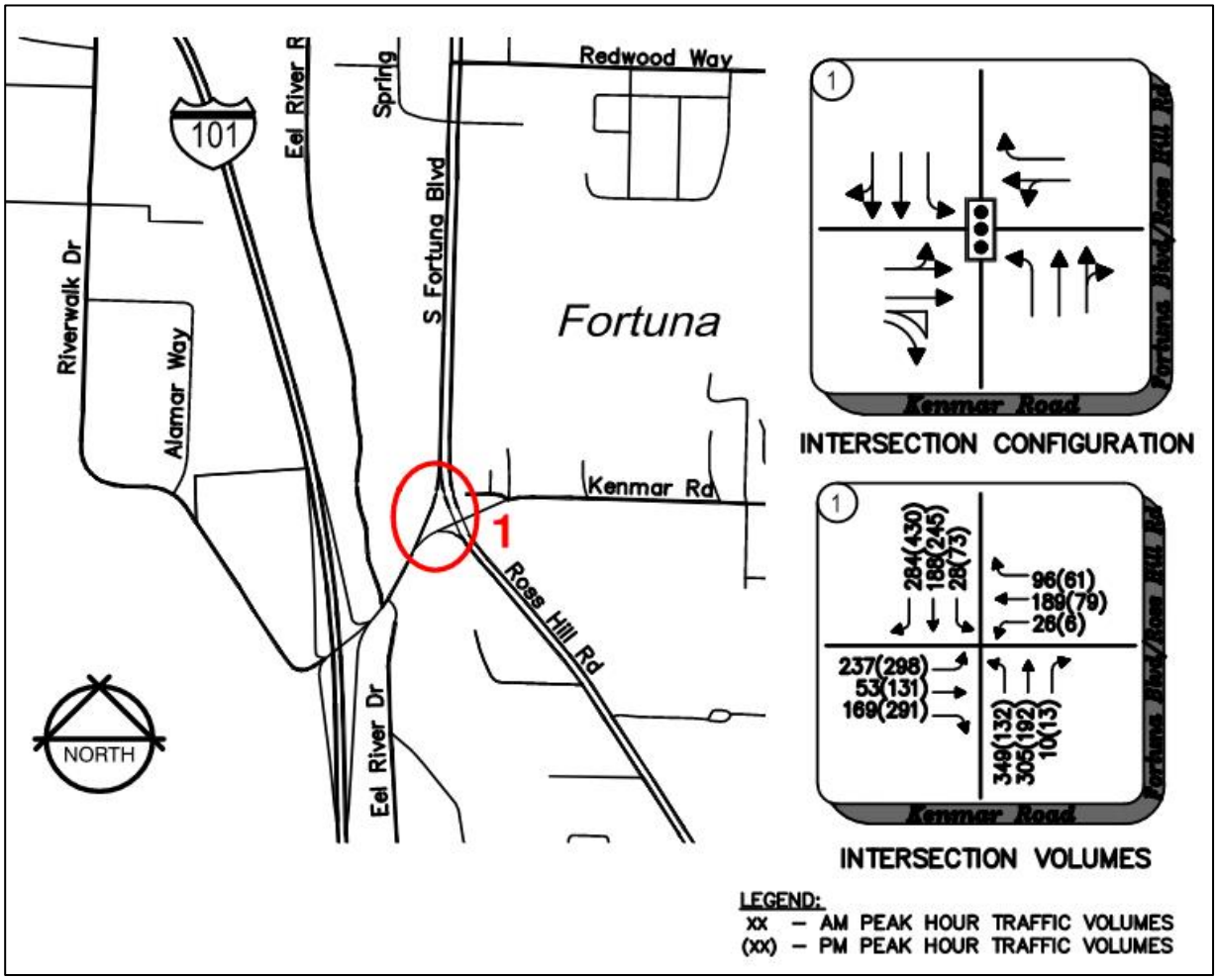


Figure 2 – Existing Intersection Configuration, Control and Traffic Counts (2016)

3. PURPOSE AND NEED

Purpose:

- Simplify and improve navigation and traffic operations through the Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection;
- Improve operations, reduce congestion, and minimize conflicts intersection;
- Improve intersection safety; and
- Improve bicycle and pedestrian facilities through the intersection.

Need:

- Poor traffic operations and safety concerns resulting from high volumes and insufficient storage; and
- Limited bicycle and pedestrian facilities resulting in a barrier to bicycle and pedestrian circulation and connectivity.

4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

This section provides the results of the operations analysis for the intersection of Kenmar Road and S. Fortuna Boulevard/Ross Hill Road & Kenmar Road. The term project as used in this section refers to the intersection improvements being proposed for the study intersection.

Traffic Operations

A traffic operations analysis was prepared by GHD Inc. to analyze the existing and future performance of the Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection. The operational analysis used the traffic counts that were collected in March 2016 for the Highway 101, Fortuna Downtown and Riverwalk Area Complete Streets and Connectivity Planning Study. These counts were adjusted upwards utilizing growth factors to reflect Year 2022, 2025, and 2045 traffic volumes. Year 2022 represents existing conditions that are experienced in the AM and PM peak hour. Year 2025 volumes represent Opening Year conditions after the stated improvements are expected to be built. Year 2045 volumes represent the design year approximately 20 years in the future after intersection improvements are completed.

The growth rate applied to Year 2016 counts to develop Year 2022, 2025, and 2045 volumes was provided by the City of Fortuna General Plan. The growth rate was identified as 1.6% per year. Applying this growth rate over a 6-, 9-, and 29-year period yields growth rates of 10%, 15%, and 47%, respectively.

The operations analysis utilized the following technical parameters:

- Peak Hour Factor (PHF) comes from traffic counts. Based on information obtained from traffic counts, the PHF was determined to be 0.84 for AM and 0.99 for the PM peak hours.
- The environmental factor in SIDRA was based on the guidelines provided by Caltrans memorandum titled *SIDRA Settings and Related Parameters for US HCM and SIDRA Roundabout Capacity Model (Dec 20, 2017)*. Based on the guidelines, environmental factors have been set for 1.05 for design year conditions.
- A peak hour truck percentage for the study intersection was estimated to be 2% for the AM and PM peak hours.
- Signal analysis was performed in Synchro 11 for the LOS and SimTraffic for the queues.
- Roundabout analysis was performed in Sidra 9 for both the LOS and Queues.

The following three alternatives were analyzed in the operations analysis:

- Existing Conditions (No Project).
- Signal Alternative (including Minimum Build, opening year 2025).
- Roundabout Alternative.

Existing Conditions (No Project)

Existing conditions quantify the current traffic operations at the study intersection. For the purposes of this analysis, Existing Conditions is considered Year 2022. Existing Conditions establishes the baseline traffic conditions. **Tables 1 and 2** present the Existing level of service and 95th percentile queues.

Table 1 – Existing Intersection Operations

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS[1]	Delay	LOS[1]
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	45.5	D	25.2	C
Eastbound		40.4	D	21.5	C
Westbound		41.9	D	34.0	C
Northbound		51.2	D	27.7	C
Southbound		40.2	D	27.1	C

1. LOS = Delay based on average of all approaches for Signal

Table 2 – Existing Intersection 95th Percentile Queues

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		95th Percentile Queue	Available Storage	95th Percentile Queue	Available Storage
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	-	-	-	-
Eastbound Through		276	500	482	500
Eastbound Right		143	180	**282**	180
Westbound Through		218	-	100	-
Westbound Right		123	95	41	95
Northbound Left		**633**	475	134	475
Northbound Through		645	1200	103	-
Southbound Left		53	90	89	90
Southbound Through		126	-	138	-
Southbound Right		66	100	49	100

Note: Values in red indicate queue exceeds available storage length

As indicated in the table above, the intersection currently operates at LOS D in the AM peak hour and LOS C in the PM peak hour. LOS D indicates that traffic conditions are approaching an unstable flow with high delays. As the LOS is currently a mid-D, it will worsen to an LOS E in the future. Additionally, the intersection has the following movements that have current 95th percentile queues that exceed available storage (as indicated by the red text in the **Table 2**):

- AM Peak Hour
  - Northbound Left
- PM Peak Hour
  - Eastbound Right

Full Build Conditions

The full build conditions refer to an analysis scenario in which the identified improvement(s) were built. Two different improvements were analyzed in this scenario. The first improvement was to improve the existing signal with additional lane channelization's, turn pocket extensions to provide improved operations. The second improvement was to convert the signalized intersection to a roundabout controlled intersection.

Signal Alternative (including Minimum Build)

The signal alternative analyzed the current signalized intersection with the addition of key improvements that would provide improved conditions over "No Build" for the AM and PM peak hours.

Opening Year 2025 (Minimum Build)

Under Year 2025 conditions, an additional eastbound left turn pocket of 300 feet was added, converting the existing left/through lane to a through only, and the westbound approach was re-striped to convert the left/through lane and right turn pocket to a left turn pocket and through/right lane. This lane addition and restriping allows for an update to the signal timing plan that provides full phasing for the eastbound and westbound approaches instead of the existing split phases. To keep within the existing paved footprint and not extend into the creek for the extra lane, eliminating the southbound right slip lane may be necessary. The signal would then need to be modified to have a southbound right at the intersection. **Tables 3 and 4** present the Opening Year level of service and 95th percentile queues for the AM and PM peak hours.

Table 3 – Opening Year 2025 Intersection Operations – Signal Alternative (Minimum Build)

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS[1]	Delay	LOS[1]
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	44.9	D	24.6	C
Eastbound		47.6	D	22.1	C
Westbound		53.9	D	29.5	C
Northbound		37.9	D	26.0	C
Southbound		49.5	D	25.4	C

1. *LOS = Delay based on average of all approaches for Signal*

Table 4 – Opening Year 2025 95th Percentile Queues – Signal Alternative (Minimum Build)

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		95th Percentile Queue	Available Storage	95th Percentile Queue	Available Storage
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	-	-	-	-
Eastbound Left		272	300	241	300
Eastbound Through		114	500	108	500
Eastbound Right		70	180	90	180
Westbound Through		95	95	44	95
Westbound Right		377	-	146	-
Northbound Left		369	475	147	475
Northbound Through		214	-	118	-
Southbound Left		66	90	**100**	90
Southbound Through		170	-	139	-
Southbound Right		**155**	100	98	100

Notes: Values in red indicate queue exceeds available storage length

As presented in the tables above with the addition of a second eastbound left turn pocket, the intersection is projected to operate at LOS D for the AM and LOS C for the PM peak hours. This build alternative also greatly reduces the eastbound queue lengths compared to the existing condition. The 95th percentile queues for the following turning movement is projected to exceed the available storage:

- Southbound Left
- Southbound Right

The eastbound and northbound queues are projected to be within the available storage.

Design Year 2045 (Full Build)

Year 2045 refers to an analysis scenario approximately 23 years in the future as is known as the Design Year. The improvements identified to provide stable intersection operations are the following:

- A second northbound left turn pocket. This will require a receiving (second) lane on the west side of the intersection.
- Provide a 300-foot protected left turn pocket, a through lane and a 100-foot right lane for Eastbound approach, same as the 2025 minimum build scenario.
- Provide a 100-foot left turn pocket, a through lane and a 100-foot right lane for Westbound approach.
- Convert split phase to protected left turn phasing for Eastbound and Westbound approaches, same as in the 2025 minimum build scenario.
- Extend the left turn pocket for the southbound approach to 120-feet.
- Remove the Channelization from the southbound right pocket and extend the storage length to 200 feet.

Tables 5 and 6 present the Design Year level of service and 95th percentile queues for the AM and PM peak hours.

Table 5 – Design Year 2045 Intersection Operations – Signal Alternative (Full Build)

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		Delay	LOS[1]	Delay	LOS[1]
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	33.9	C	25.6	C
Eastbound		34.8	C	24.2	C
Westbound		40.9	D	31.8	C
Northbound		30.6	C	25.0	C
Southbound		34.9	C	26.6	C

1. *LOS = Delay based on average of all approaches for Signal*

Table 6 – Design Year 2045 95th Percentile Queues – Signal Alternative (Full Build)

Intersection	Control Type	AM Peak Hour		PM Peak Hour	
		95th Percentile Queue	Available Storage	95th Percentile Queue	Available Storage
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	Signal	-	-	-	-
Eastbound Left		267	300	262	300
Eastbound Through		116	540	149	540
Eastbound Right		64	100	114	130
Westbound Left		96	100	38	100
Westbound Through		285	-	121	-
Westbound Right		**167**	100	60	100
Northbound Left		256	475	114	475
Northbound Through		194	-	122	-
Southbound Left		74	100	106	120
Southbound Through		145	-	141	-
Southbound Right		180	200	**209**	200

As presented in the tables on the previous page with the identified improvements, the intersection is projected to operate at LOS C for the AM and PM peak hours. As it operates acceptably in the design year, it would also operate acceptably in the opening year if it were constructed in place of the 2025 minimum build. The 95th percentile queues for the following turning movement are projected to exceed the available storage:

- Westbound Right
- Southbound Right

The eastbound and northbound queues are projected to be well within the available storage.

Roundabout Alternative

The roundabout alternative would convert the signalized intersection to a four-legged roundabout intersection.

Opening Year 2025

Table 7 presents the Opening Year level of service and 95th percentile queues for the AM and PM peak hours.

Table 7 – Opening Year 2025 Intersection Operations – Roundabout Alternative

Intersection	Control Type[1]	AM Peak Hour			PM Peak Hour		
		Delay	LOS[2]	95th Percentile Queue	Delay	LOS[2]	95th Percentile Queue
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	RNDBT	8.0	A	-	6.1	A	-
Northbound		8.6	A	-	6.6	A	-
Lane 1		8.2	A	79.2	6.9	A	29.2
Lane 2		9.1	A	78.6	6.4	A	40.8
Westbound		9.8	A	-	5.1	A	-
Lane 1		11.4	B	62.3	5.3	A	12.8
Lane 2		6.4	A	21.9	4.8	A	9.5
Southbound		8.4	A	-	5.7	A	-
Lane 1		7.8	A	59.1	5.2	A	44.0
Lane 2		8.9	A	77.3	6.0	A	61.9
Eastbound		5.5	A	-	6.4	A	-
Lane 1		6.1	A	55.9	7.2	A	72.9
Lane 2		4.6	A	28.7	5.2	A	40.6

1. *RNDBT = Roundabout*
2. *LOS = Delay based on average of all approaches for RNBT*

As presented in **Table 7**, the roundabout alternative is projected to operate at LOS A overall for the AM and PM peak hours. The projected 95th percentile queues are expected to be less than five vehicles.

Design Year 2045

Table 8 presents the Design Year level of service and 95th percentile queues for the AM and PM peak hours.

Table 8 – Design Year 2045 Intersection Operations – Roundabout Alternative

Intersection	Control Type[1]	AM Peak Hour			PM Peak Hour		
		Delay	LOS[2]	95th Percentile Queue	Delay	LOS[2]	95th Percentile Queue
Kenmar Rd & Ross Hill Rd/S Fortuna Blvd	RNDBT	10.5	B	-	8.1	A	-
Northbound		10.8	B	-	9.5	A	-
Lane 1		10.1	B	118.3	9.8	A	50.2
Lane 2		11.6	B	12.9	9.2	A	70.1
Westbound		13.7	B	-	6.3	A	-
Lane 1		16.3	B	99.6	6.6	A	19.9
Lane 2		7.8	A	32.7	5.9	A	15.9
Southbound		11.7	B	-	7.4	A	-
Lane 1		10.6	B	90.5	6.5	A	64.8
Lane 2		12.5	B	135.7	8.0	A	95.1
Eastbound		6.5	A	-	8.7	A	-
Lane 1		7.3	A	75.4	10.2	B	137.2
Lane 2		5.1	A	36.9	6.5	A	61.1

1. *RNDBT = Roundabout*
2. *LOS = Delay based on average of all approaches for RNBT*

As presented in **Table 8**, the roundabout alternative is projected to operate at LOS B overall for the AM and LOS A for the PM peak hours. Additionally, the projected 95th percentile queues are expected to be less than seven vehicles. The roundabout site layout utilized to analyze 2025 and 2045 conditions is provided in **Figure 3**.

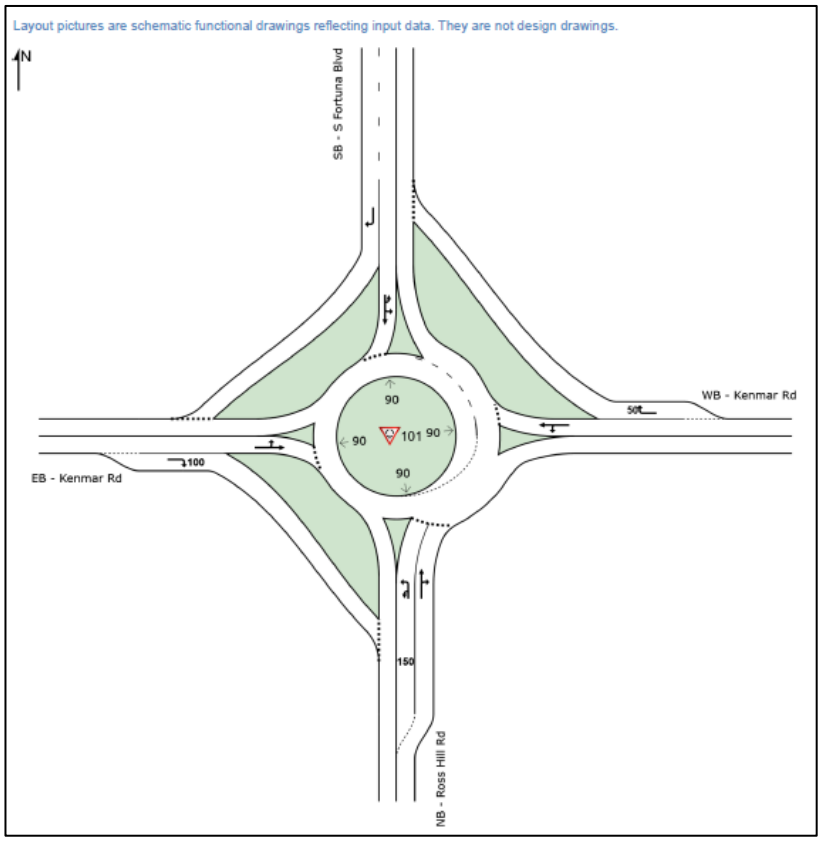


Figure 3 – Roundabout site layout

Traffic Collision Analysis

Collision data for the City of Fortuna was gathered using the Statewide Integrated Traffic Records System (SWITRS), Transportation Injury Mapping System (TIMS), and collision data from the Fortuna Police Department. Each data set was analyzed, crosschecked, and compiled into one complete comprehensive data set. This process was done to ensure that all reported collisions occurring at the project location are accounted for and to provide additional information that one system may not have captured. The data set analyzed contains collisions between January 1, 2015, and December 31, 2019 (5 years).

During this period, a total of 14 collisions were reported. Many of these collisions were rear ends and low severity. Intersection congestion can increase the likelihood of rear end collisions as there are more vehicles operating in a specific area. A summary of the collisions is shown in **Table 9** below.

Table 9 – Intersection Collisions between 2015 and 2019

Severity					Type										Year						
Fatal	Injury (Severe)	Injury (Other Visible)	Injury (Complaint of Pain)	Property Damage Only	Head-on	Sideswipe	Rear End	Broadside	Hit Object	Overturned	Vehicle/ Pedestrian	Other/Not Listed	Pedestrian	Bicycle	2015	2016	2017	2018	2019	EPDO	Total
0	0	0	2	12	1	1	10	1	1	0	0	0	0	0	4	3	3	3	1	24	14

5. DEFICIENCIES

The existing conditions analysis shows that the intersection is operating below a LOS of C (below Fortuna's minimum standard). The tables above also show that currently there is not enough storage to meet the peak hour demands on multiple legs of the intersection. In the AM peak hour, the northbound left turn lane has 95th percentile queues that exceed the available storage. In the PM peak hour, the eastbound right turn and the southbound left turn have 95th percentile queues that exceed the available storage.

The poor level of service and intersection congestion may be contributing to the number of rear end collisions occurring at the intersection.

The existing intersection also lacks adequate pedestrian and bicycle facilities.

6. CORRIDOR AND SYSTEM COORDINATION

The following discussion highlights the state, regional and local planning considerations for the proposed project improvements.

State Planning

Complete Streets

Caltrans Director Policy 37 (DP-37) requires in locations with current and/or future pedestrian, bicycle, or transit needs, all transportation projects funded or overseen by Caltrans to provide comfortable, convenient, and connected complete streets facilities for people walking, biking, and taking transit or passenger rail unless an exception is documented and approved.

Regional Planning

The City of Fortuna plans to add the project to the next update of the Humboldt County Associations of Governments (HCAOG) Regional Transportation Plan (RTP).

Local Planning

General Plan

The City of Fortuna General Plan 2030 (General Plan) formalizes a long-term vision for the City's physical development. The Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection improvements would fulfill many policies set forth in the General Plan, including the policies are detailed below.

Roadways and Highways

Policy TC-1.1 Reducing Mode Conflicts – The City shall seek to minimize conflicts between pedestrians, automobiles, and bicycles.

Policy TC-1.2 New Roadway Improvements – The City shall design and phase roadway improvements so that a level of service (LOS) C or better is maintained on all City streets, except that LOS D or better shall be maintained on Main Street.

Policy TC-1.3 Balanced Transportation System – The City shall strive to meet the level of service standard through a balanced transportation system that provides alternatives to the automobile and by promoting pedestrian, bicycle, and transit connections between employment areas and major residential and commercial areas.

Policy TC-1.4 Improved LOS – The City shall identify economic, design, and planning solutions to improve levels of service currently below LOS C. Where physical mitigation is infeasible, the City shall consider developing programs that enhance alternative access or otherwise reduce automobile travel demand.

Bicycle and Trail Facilities

Policy TC-5.2 Bicycle System – The City shall develop and maintain a safe, convenient, and effective bicycle system that encourages increased bicycle use.

Pedestrian Facilities

Policy TC-4.2 New Developments – The City shall continue to require new development to finance and install sidewalks and pedestrian pathways connecting them to existing sidewalks or widening the right-of-way fronting the development to accommodate new sidewalks.

Policy TC-4.3 Specific Plans – The City shall encourage specific development plans to include design continuity of pedestrian access that enables residents to walk from their homes to places of work, recreation, and shopping.

Local Road Safety Plan

Improvements to the Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection were identified as a priority project in the City of Fortuna's 2021 LRSP.

7. ALTERNATIVES

Unless noted otherwise, the alternatives identified below address the purpose and need of the project.

The "No Build" Alternative

This is the "No Build" condition, where the study intersections would remain unaltered with respect to intersection geometrics and stop control. This alternative does not meet the purpose and need.

Signal (including Minimum Build) Alternative

As a supplement to the adjacent on-going US101/Kenmar Road interchange project to the west of this intersection, it may become necessary to support potential queuing going eastbound into the intersection. As such, a minimum build signal alternative that provides an extended left turn lane and new right turn lane with a bike lane has been provided. This alternative could potentially be further modified to eliminate the existing southbound slip right, dependent on timing of improvements and availability of funding. See

Attachment B for conceptual drawings of the minimum build signal alternative with and without the current adjacent interchange geometrics for context.

The full build signal alternative would add a second left turn lane heading north on Ross Hill Road. This would reduce wait times and provide more storage for cars turning left. The west leg of Kenmar Road would be widened to add another receiving lane for the two left turn lanes on Ross Hill Road. The East leg of Kenmar Road would also be widened to provide for a bike lane. The bike lane addition would change the lane configuration at the intersection separating the right turn lane from the through lane with the bike lane. This alternative also includes bicycle facilities for all legs of the intersections providing connectivity to cyclists in the area. See **Attachment B** for conceptual drawings of the full build signal alternative with and without the current adjacent interchange geometrics for context.

Although the full build signal alternative does offer several operational and safety improvements compared to the no build, the full build signal alternative would provide inferior intersection operations compared to the roundabout alternative and would require substantial geometric changes to accommodate and provide improved operations for Year 2025 and 2045 conditions.

Note that in order to accommodate the required lane configurations on Kenmar Road, west of the intersection, the existing box culvert on Mill Creek would need to be extended or replaced, and approximately 250 feet of the Mill Creek channel north of Kenmar Road would need to be relocated. These required culvert and channel modifications would likely face significant regulatory challenges, including the need to provide for fish passage through the culvert crossing. Before advancing with the alternative, consultation with regulatory agencies should occur to ensure to ensure that work would be allowable.

Roundabout Alternative

The roundabout alternative would provide increased safety and circulation for the intersection. Roundabouts reduce speed at intersections which reduces the impact intensity of collisions that occur; they also reduce the number of potential conflict/collision points at the intersection. With the roundabout alternative, the available movements at the intersection have been maintained, while the number of lanes has been reduced. The roundabout alternative includes pedestrian crossings on each leg of the intersection providing connectivity to existing facilities to help close the gap in pedestrian facilities. Bicycle ramps and paths are also proposed for each leg of the roundabout allowing cyclists to travel through the intersection without entering the roundabout if they feel more comfortable being physically separated from the cars. See **Attachment B** for conceptual drawings of the roundabout alternative.

The roundabout alternative would provide better intersection operations compared to the signal alternative, as well as acceptable 95th percentile queues through Design Year 2045. The roundabout alternative would provide a single lane approach in the southbound, eastbound, and westbound directions with dedicated right turn pockets. The northbound approach would require a dedicated left turn lane with a through-right lane due to the heavy demand to the US 101 highway interchange to the west.

Cost Estimates

Capital, support, and total estimated costs for each alternative are summarized in **Table 10 on the following page**. The costs presented are escalated to the expected year of expenditure. The total capital costs include traffic control, mobilization, right-of-way, utility relocation, and contingencies. The total support costs include costs for environmental clearance, plans, specifications, and estimates (PS&E), right-of-way engineering and acquisitions, and construction support and management. Costs for the Minimum Build signal differ from the alternative shown in **Attachment B** and are based on the smallest potential footprint for the alternative, which would not include a realigned southbound slip lane, but rather a new southbound right that would be added as part of the westbound thru realignment/widening. Refer to **Attachment F** for detailed costs estimates for each alternative.

Table 10: Cost Estimate Summary

Alternative	Total Capital Cost	Total Support Cost	Total Estimated Cost (Rounded)
Signal (Minimum Build)	$2.1M	$0.8M	$2.9M
Signal (Full Build)	$8.9M	$3.7M	$12.6M
Roundabout	$6.1M	$2.6M	$8.7M

8. RIGHT-OF-WAY

Right-of-Way

The initial conceptual design relied on assessor parcel lines to approximate the public right-of-way and property lines as existing survey-level right-of-way information was not available at the time of this study. Refer to **Attachment C** for copies of the assessor parcel maps for the project area.

Based on the assessor parcel lines, it appears that both the signal and roundabout alternatives can be constructed entirely within the existing City right of way with the exception of one discrete location northeast of the project intersection (APN # 202-021-004).

If the project advances, research should be conducted to determine accurate right-of-way widths, property lines, parcel ownerships, and maintenance responsibilities. Right-of-Way Data Sheets will need to be prepared during the right-of-way phase of the project.

In addition to permanent acquisitions, temporary permissions/easements and/or encroachment permits will need to be obtained during the Right-of-Way phase of the project.

Utilities

Existing underground and above ground utilities in the vicinity of the project may need to be modified or relocated to accommodate the proposed improvements. The relocation of non-City owned utilities is not expected to be required. During the Project Approval and Environmental Document (PA&ED) phase the City should request utility mapping from the utility companies identified in **Table 11** and identify potential conflicts with the proposed work.

Table 11: Utilities in Project Vicinity

Utility	Owner
Storm Drain	City of Fortuna
Cable Television	Optimum
Telephone	AT&T
Electrical	Pacific Gas & Electric
Natural Gas	Pacific Gas & Electric
Water	City of Fortuna

Railroad

A railroad corridor owned by the Great Redwood Trail Agency (formerly North Coast Railroad Authority) roughly parallels the east side of US 101 and crosses through Kenmar Road East of the project area. At the time of this study the railroad corridor was in the process of being railbanked, allowing the corridor to be utilized for a trail system until rail operation become viable. There are no railroad facilities in the project area.

9. STAKEHOLDER INVOLVEMENT

As part of the outreach conducted to support the development of the City of Fortuna's 2021 LRSP, the City solicited public input on road safety concerns through an online interactive map and a survey. The Kenmar Road and S. Fortuna Boulevard/Ross Hill Road intersection received some of the most comments on the City's online interactive map. The common comment theme for the project intersection were as follows:

- Merging onto Kenmar Road from S. Fortuna Boulevard
- Red light running

According to the results of the public survey, the primary safety concern in the City of Fortuna is intersections, followed by a lack of infrastructure (sidewalks, bike lanes, turn lanes, etc.). Refer to **Figure 4** below for a chart of all responses provided. Both of these items have been identified as specific needs for this project.

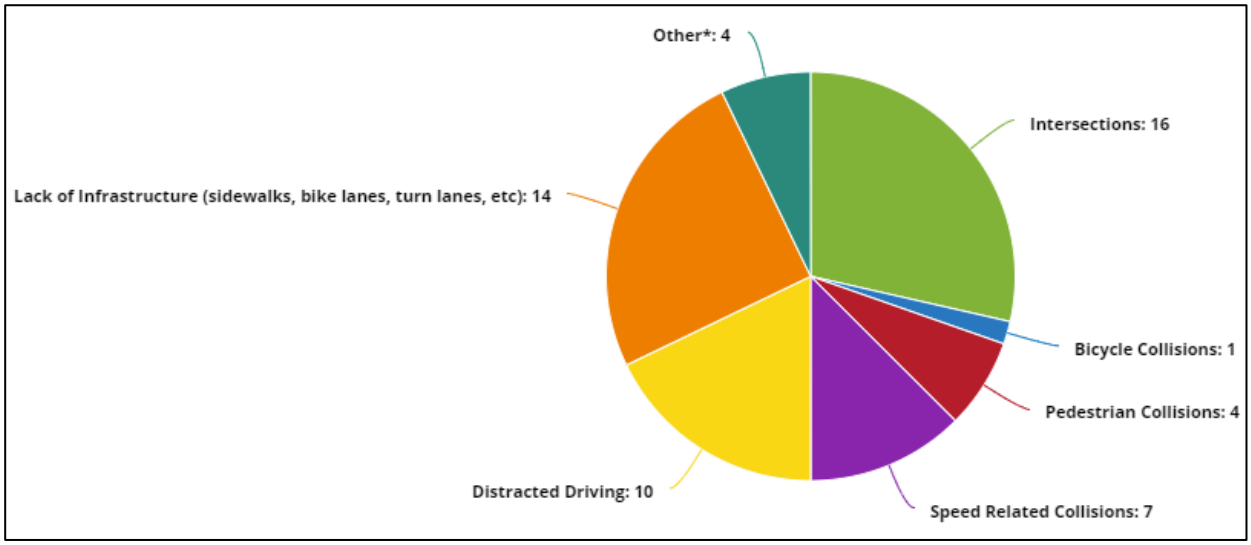


Figure 4 – Public-Identified Roadway Safety Issues (Fortuna LRSP, 2011)

10. ENVIRONMENTAL COMPLIANCE

Preliminary Environmental Analysis

In 2022, an initial environmental evaluation of the project and alternatives was conducted to help anticipate potential environmental constraints that may affect project design, alternatives, cost, schedule, and delivery. The evaluation included a reconnaissance-level site investigation of existing conditions in the project area to identify the presence or potential presence of biological resources listed under the Federal Endangered Species Act (ESA), the presence of wetlands and Waters of the US as regulated by the US Army Corps of Engineers (USACE), the presence or potential presence of species listed as endangered or threatened under the California Endangered Species Act (CESA) or considered a species of special concern (SSC) by the California Department of Fish and Wildlife (CDFW), or the potential for special-status plant species having a rare plant ranking as determined by the California Native Plant Society (CNPS) rare plant inventory, and to present the potential of sensitive habitats as listed by the CDFW. A map of the potential environmental constraints is included in **Attachments D.**

NEPA, CEQA and Permitting

During the PA&ED phase, the project will need to be evaluated for potential impacts on the environment in compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Feasible opportunities to avoid or reduce impacts will need to be pursued and mitigation

measures developed to reduce potentially significant impacts as appropriate. The draft CEQA document would be made available to the public for review and comment.

Based on the information currently available, the expected compliance pathways are a Mitigated Negative Declaration of environmental impact for CEQA and a Categorical Exclusion for NEPA in conformance with the Federal Highways Administration/Caltrans programmatic process.

During the initial environmental evaluation, potential riparian habitat was identified along the Kenmar Road, South Fortuna Road, and Ross Hill Road margins. This potential riparian habitat is largely associated with Mill Creek, which crosses under Ross Hill Road via a 72 inch culvert and under Kenmar Road via a ten foot by five foot box culvert. Potential wetlands were identified in the upland ditch island between Kenmar Road and South Fortuna Boulevard, along with a ditch on the south side of Kenmar Road.

Mill Creek is an anadromous waterway. Replacement or alteration of the two Mill Creek culverts could affect special status anadromous salmonids and other aquatic organisms. Sediment and erosion control Best Management Practices would need to be implemented during construction to reduce the likelihood of impacts to Mill Creek and aquatic organisms.

The wetland and riparian habitats in the project area have a moderate to high likelihood of supporting listed reptile, frog and fish species including Western Pond Turtle *Emys (Actinymys) marmorata*, Northern Red-legged Frog Rana aurora, and Foothill Yellow-legged Frog *Rana boylii, along with other special status species*. Several sensitive plant species and Sensitive Natural Communities also have a moderate likelihood of occurring in the study area. The following database searches are included in **Attachment E**:

- California Natural Diversity Database
- Fortuna California Native Plant Society Database
- National Marine Fisheries Service Species List
- United States Fish and Wildlife Service Species List

Subsequent environmental investigations, including a wetland delineation, will be needed to be completed to identify any sensitive species and habitats in the project area, and to identify any necessary protection and minimization measures. Additionally, a variety of permits and related environmental review will be necessary for project planning and design.

Anticipated Environmental Permitting and Compliance Requirements are presented in **Table 12**.

Table 12. Anticipated Environmental Permitting and Compliance Requirements

Law/Regulation	Permit/Approval	Authority
CEQA	Mitigated Negative Declaration	Lead Agency
NEPA	Categorical Exclusion	Caltrans on behalf of Federal Highways Administration
Clean Water Act Section 404	Nationwide Permit	US Army Corps of Engineers
Porter-Cologne/Clean Water Act Section 401	401 Certification and/or Waste Discharge Requirements (WDR)	North Coast Regional Water Quality Control Board
National Historic Preservation Act Section 106	Letter of Concurrence	State Historic Preservation Office & Tribal Historic Preservation Office

A Preliminary Environmental Study (PES) Form will need to be prepared during the PA&ED phase of the project to identify the required technical studies. The following technical studies and plans are anticipated to be required based on available information:

- Natural Environmental Study (NES) of Biological Resources
- Wetland Delineation and Special Status Botanical Resources Survey
- Initial Site Assessment (ISA)
- Visual Impact Assessment (VIA), Minor VIA, or Visual Technical Memorandum
- Floodplain Evaluation & Location Hydraulic Study
- Geotechnical Investigation
- Historic Property Survey Report (HPSR) and Archaeological Survey Report (ASR)
- Preliminary Hydraulics/Hydrology Study

Note that if the project does not include federal funds, several of the special studies noted above would not be required.

11. FUNDING

Funding to advance the project has not yet been programmed, however the City of Fortuna intends to request funding to advance the PA&ED phase of the project utilizing the funding from the State Transportation Improvement Program (STIP), the Active Transportation Program (ATP), the federal RAISE program, local funds, or an alternative funding source.

Because of the likely cost of the project, a portion of funding would likely be in the form of federal funds. It has been determined that this project is eligible for Federal-aid funding.

Capital Outlay Cost Estimate

Table 13 presents a summary of the escalated capital outlay estimates for the proposed alternatives. Detailed estimates for the two alternatives are presented in **Attachment F**.

Table 13: Summary of Capital Outlay Estimate

Alternative	Estimated Capital Cost		
	Construction	Right-of-Way	Utilities
Signal (Minimum Build)	$2.03M	None	TBD
Signal (Full Build)	$8.80M	$60K	TBD
Roundabout	$6.03M	$30K	TBD

Note: The above costs are escalated to the anticipated year of expenditure.

The level of detail available to develop these capital outlay project estimates is useful for long-range planning purposes only. The potential cost of utility relocation work is not known at this time. The capital outlay project estimates should not be used to program or commit capital outlay funds.

Outlay Support Cost Estimate

Estimated escalated outlay support for programming PA&ED for the preferred project (Roundabout Alternative) for this project is $521,000. Estimated support costs for other phases of work is presented in **Table 14**.

Table 14: Summary of Outlay Support Estimate

Alternative	Estimated Support Cost			
	PA&ED Support	PS&E Support	Right-of-Way Support	Construction Support
Signal (Minimum Build)	$209K	$260k	None	$350K
Signal (Full Build)	$782K	$1,146K	$217K	$1,527K
Roundabout	$521K	$782K	$163K	$1,075K

Note: The above costs are escalated to the anticipated year of expenditure.

The level of detail available to develop outlay support cost estimates for the PS&E, right-of-way, and construction is useful for long-range planning purposes only.

12. DELIVERY SCHEDULE

The potential delivery schedule for the proposed alternative is outlined below in **Table 15**. Once project funding his identified, the delivery schedule should be reviewed and updated as appropriate.

Table 15: Project Delivery Schedule

Project Milestones	Scheduled Delivery Date
Program Project	December 2023
Begin Environmental (PA&ED) Phase	July 2024
Circulate Draft Environmental Document	February 2025
Draft Project Report	February 2025
End Environmental Milestone	July 2025

The anticipated funding fiscal year for construction is 2025/26.

13. RISKS

A risk register and risk analysis will be completed for the project during the PA&ED phase of the project.

14. EXTERNAL AGENCY COORDINATION

This project does not anticipate needing coordination with the Federal Highway Administration (FHWA). Coordination between the City of Fortuna and Caltrans will be required throughout all phases of this project as Caltrans will likely be the lead agency under NEPA and could be responsible for overseeing the funding, depending on the source. In addition, the project will require the following coordination:

US Army Corps of Engineers
Department of the Army Permit for:
Clean Water Act Section 404

California Department of Fish and Wildlife
California Fish and Game Code Section 1602
Lake or Streambed Alteration Agreement

Regional Water Quality Control Board
Clean Water Act Section 401
Water Quality Certification

15. PROJECT REVIEWS

City of Fortuna Engineering/Public Works ___*Brendan Byrd*_____Date _____
City of Fortuna General Services _____*Bob Natt*_____Date _____

Since the project is not on the State Highway System, review and approval by Caltrans is not required.

16. PROJECT PERSONNEL

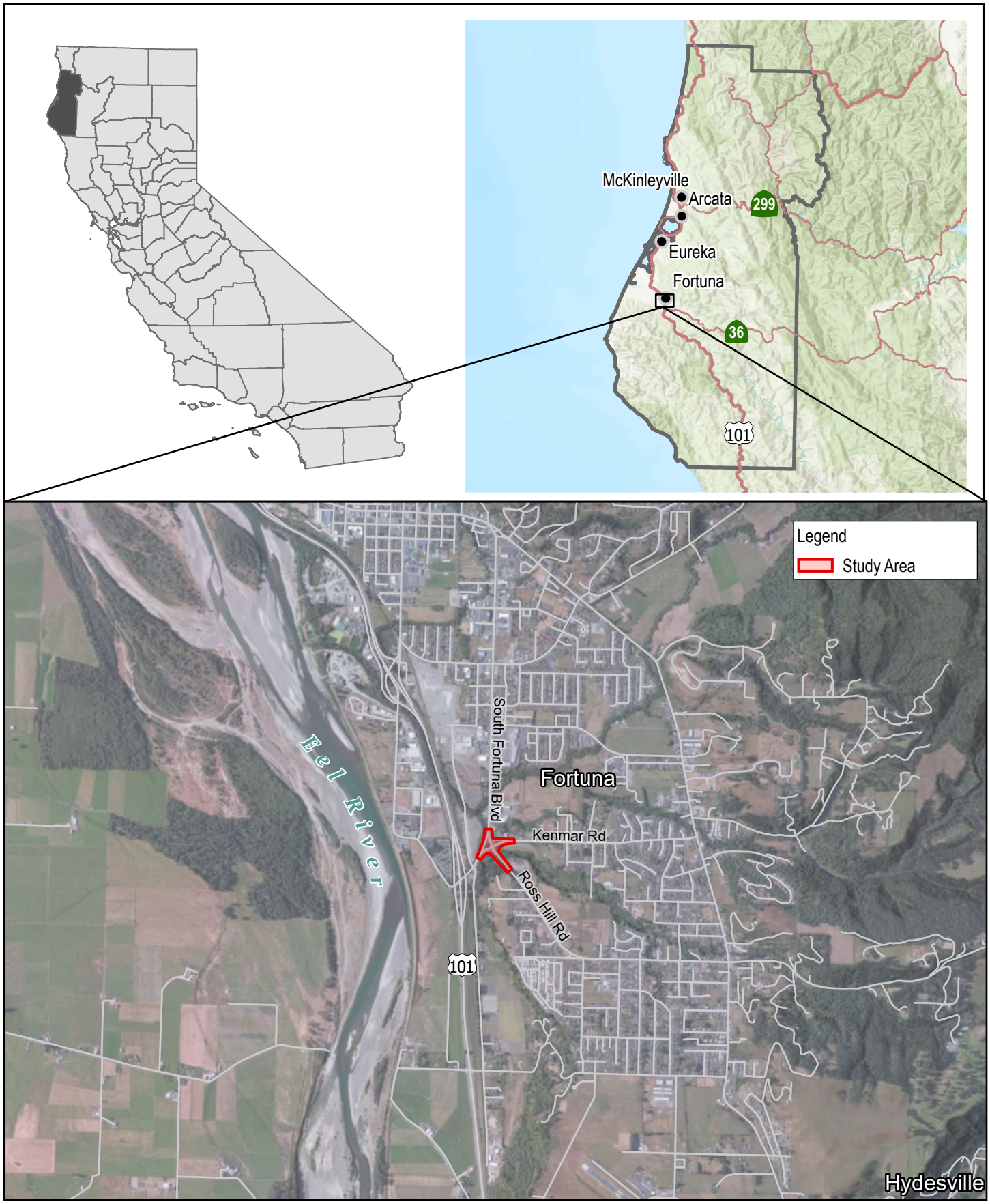
City of Fortuna
Brendan Byrd, City Engineer, 707-725-1469

GHD (Consultant)
Erin Gibbs, Staff Engineer, 949-648-5247
Andrea Hilton, Environmental Planner, 707-443-8326
Heather Anderson, Civil Engineer, 916-256-2685
Misha Schwarz, Environmental Scientist, 707-443-8326
Josh Wolf, PE, Project Manager/Civil Engineer, 707-443-8326

17. ATTACHMENTS (Number of Pages)

A. Location Map (1)
B. Conceptual Design Drawings (6)
C. Assessor Parcel Maps (3)
D. Environmental Constraints Map (1)
E. Environmental Database Search Results (76)
   1. California Natural Diversity Database
   2. Fortuna California Native Plant Society Database
   3. National Marine Fisheries Service Species List
   4. United States Fish and Wildlife Service Species List
F. Cost Estimates (33)

Attachment A - Location map



Paper Size ANSI A

0 1,000 2,000 3,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

GHD

City of Fortuna
Kenmar and Ross Hill Road
PSR

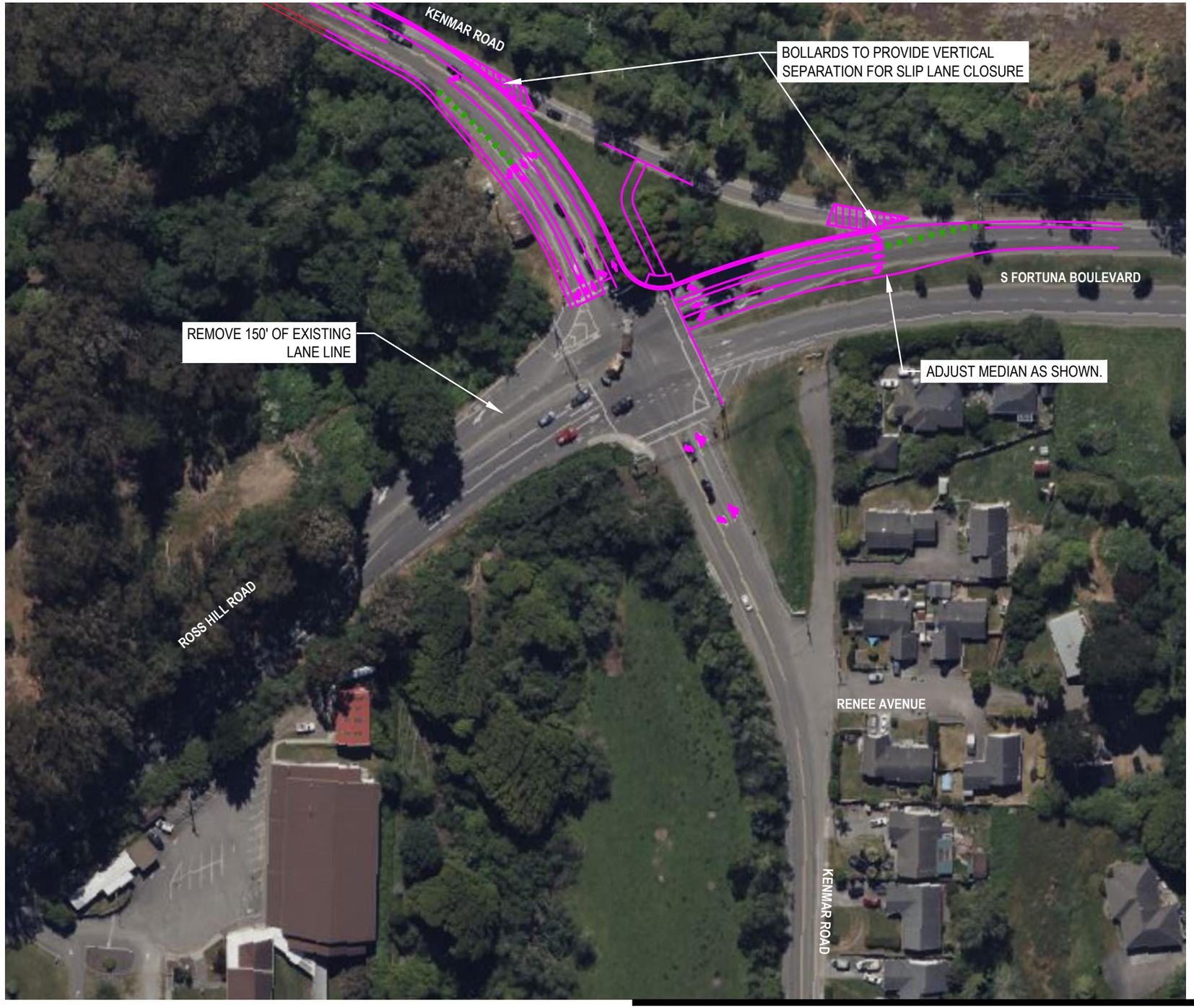
Project No. **12577588**
Revision No. **-**
Date **Mar 2022**

Vicinity Map

\ \ghdnet\ghd\US\Eureka\Projects\561\12577588\GIS\Maps\Deliverables\12577588_Project_Description\12577588_Project_D - 12577588_001_Vicinity Print date: 30 Mar 2022 - 14:52

Data source: transportation: USGS The National Map: National Transportation Dataset; U.S. Census Bureau – TIGER/Line; U.S. Forest Service. Data Refreshed January, 2022.; World Imagery (Clarity): This work is licensed under the Esri Master License Agreement.View Summary | View Terms of UseExport: This layer is not intended to be used to export tiles for offline. Data Collection and Editing: This layer may be used in various ArcGIS apps to support data collection and editing, with the results used internally or shared with others, as described for these use cases.; World Hillshade: Esri, NASA, NGA, USGS, FEMA; World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS; World Hillshade: Esri, USGS. Created by: jlopez4

Attachment B - Conceptual Design Drawings



N

0 50' 100'

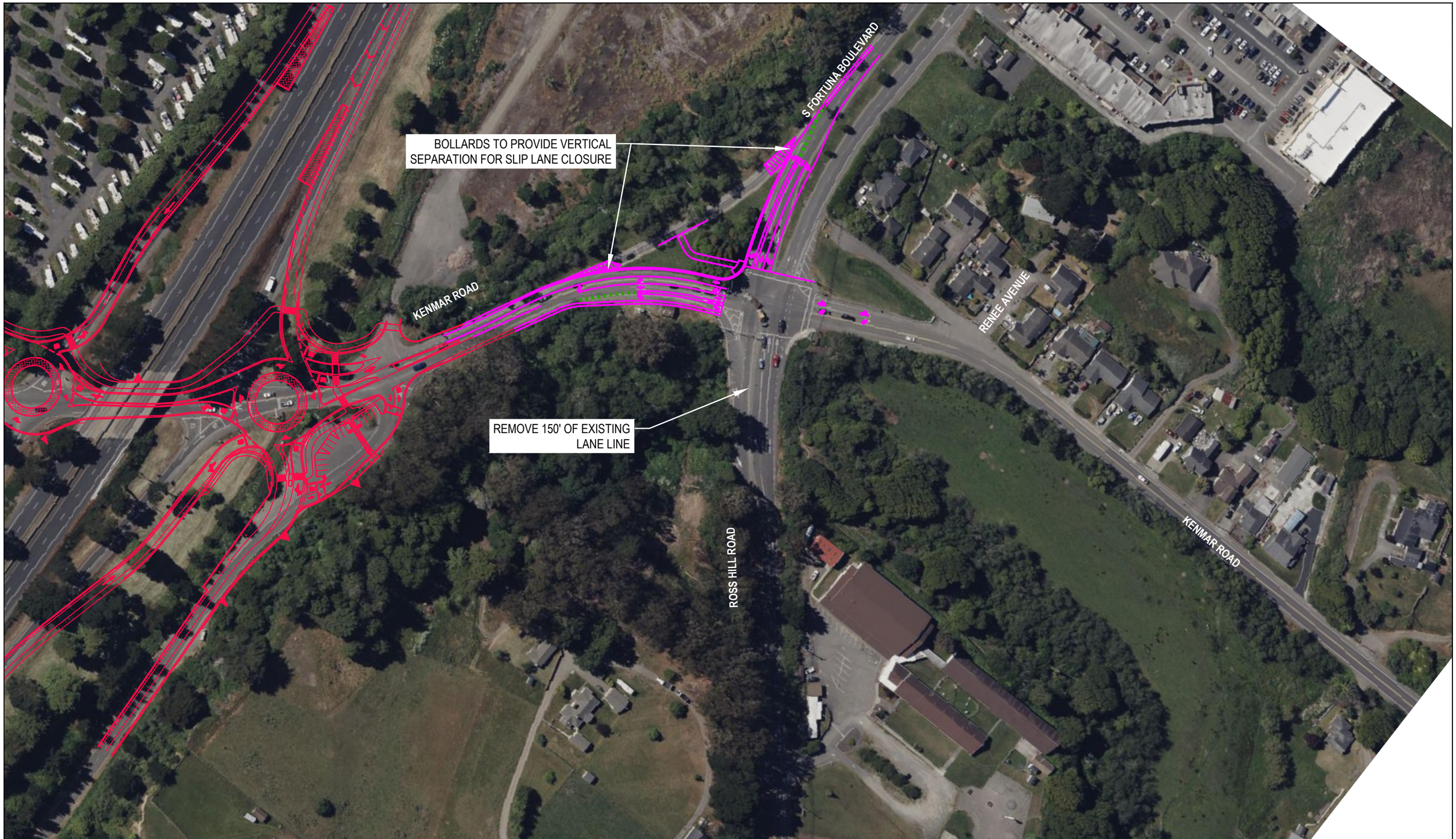
GHD

City of Fortuna
Kenmar Rd and Ross Hill Rd

INTERIM CONDITION-
SIGNAL ALTERNATIVE

Project No. **12577588**
Date **March 2025**

Filename: N:\US\Eureka\Projects\561\12577588\Digital_Design\ACAD\XREFS\12577588_Signal-MERGED.dwg
Plot Date: 3/31/2025



N

GHD

City of Fortuna
Kenmar Rd and Ross Hill Rd

INTERIM CONDITION-
SIGNAL ALTERNATIVE

Project No. 12577588
Date March 2025

Filename: N:\US\Eureka\Projects\561\12577588\Digital_Design\ACAD\XREFS\12577588_Signal-MERGED.dwg
Plot Date: 3/31/2025

N

0 50' 100'

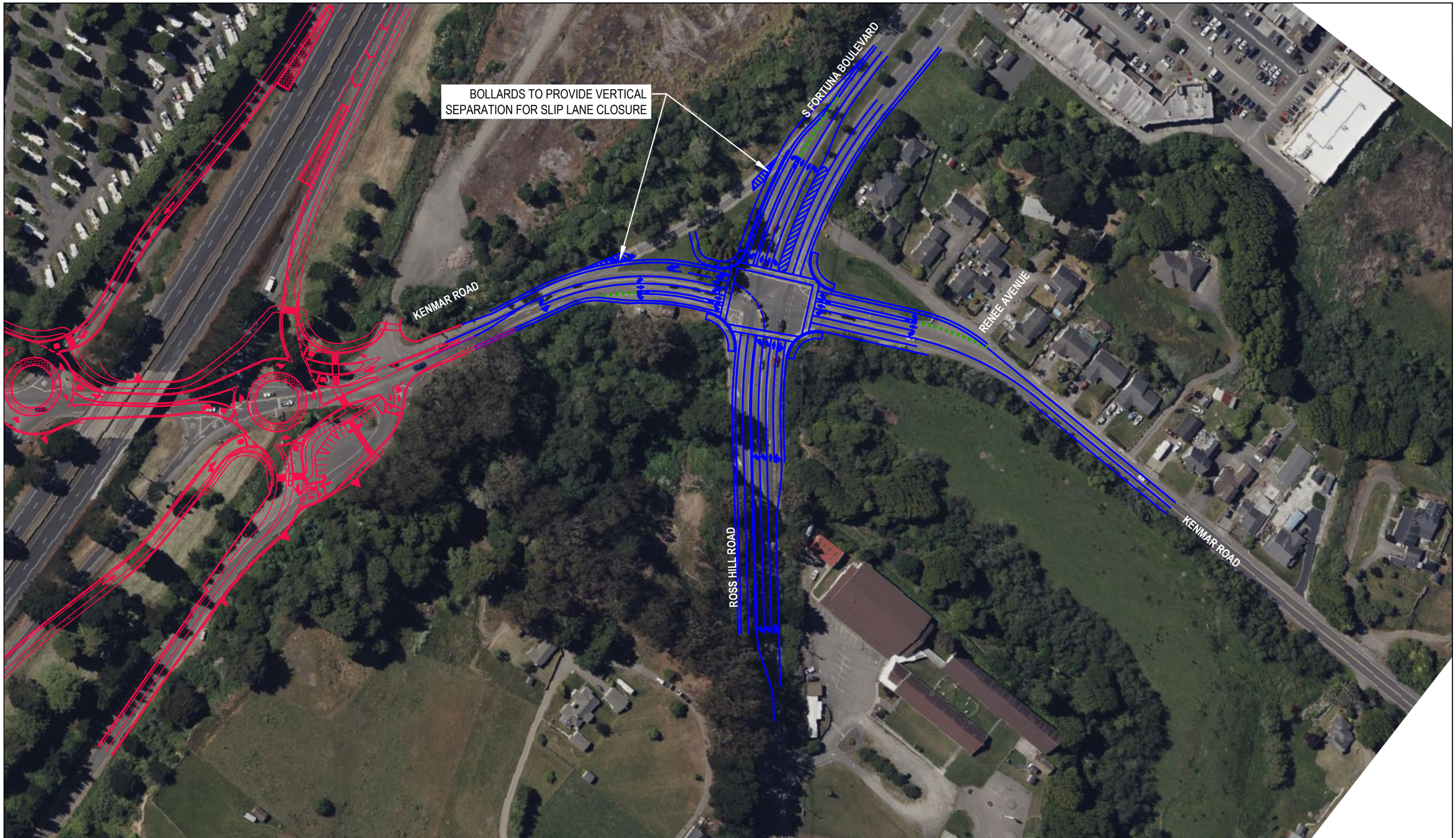
GHD

City of Fortuna
Kenmar Rd and Ross Hill Rd

FULL BUILD OUT-
SIGNAL ALTERNATIVE

Project No. **12577588**
Date **March 2025**

Filename: N:\US\Eureka\Projects\561\12577588\Digital_Design\ACAD\XREFS\12577588_Signal-MERGED.dwg
Plot Date: 3/31/2025



N

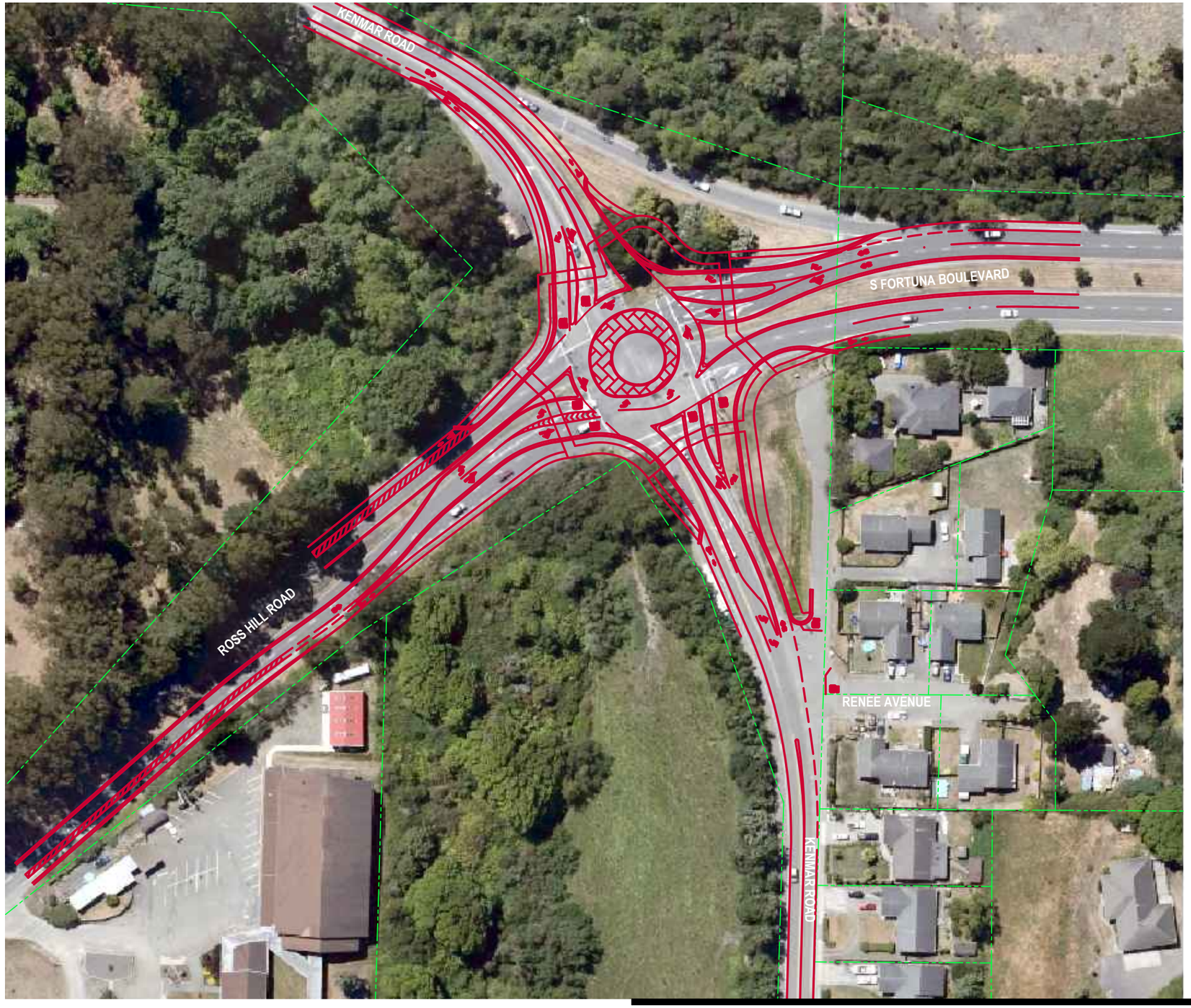
GHD

City of Fortuna
Kenmar Rd and Ross Hill Rd

FULL BUILD OUT-
SIGNAL ALTERNATIVE

Project No. 12577588
Date March 2025

Filename: N:\US\Eureka\Projects\561\12577588\Digital_Design\ACAD\XREFS\12577588_Signal-MERGED.dwg
Plot Date: 3/31/2025



N

0 50' 100'

GHD

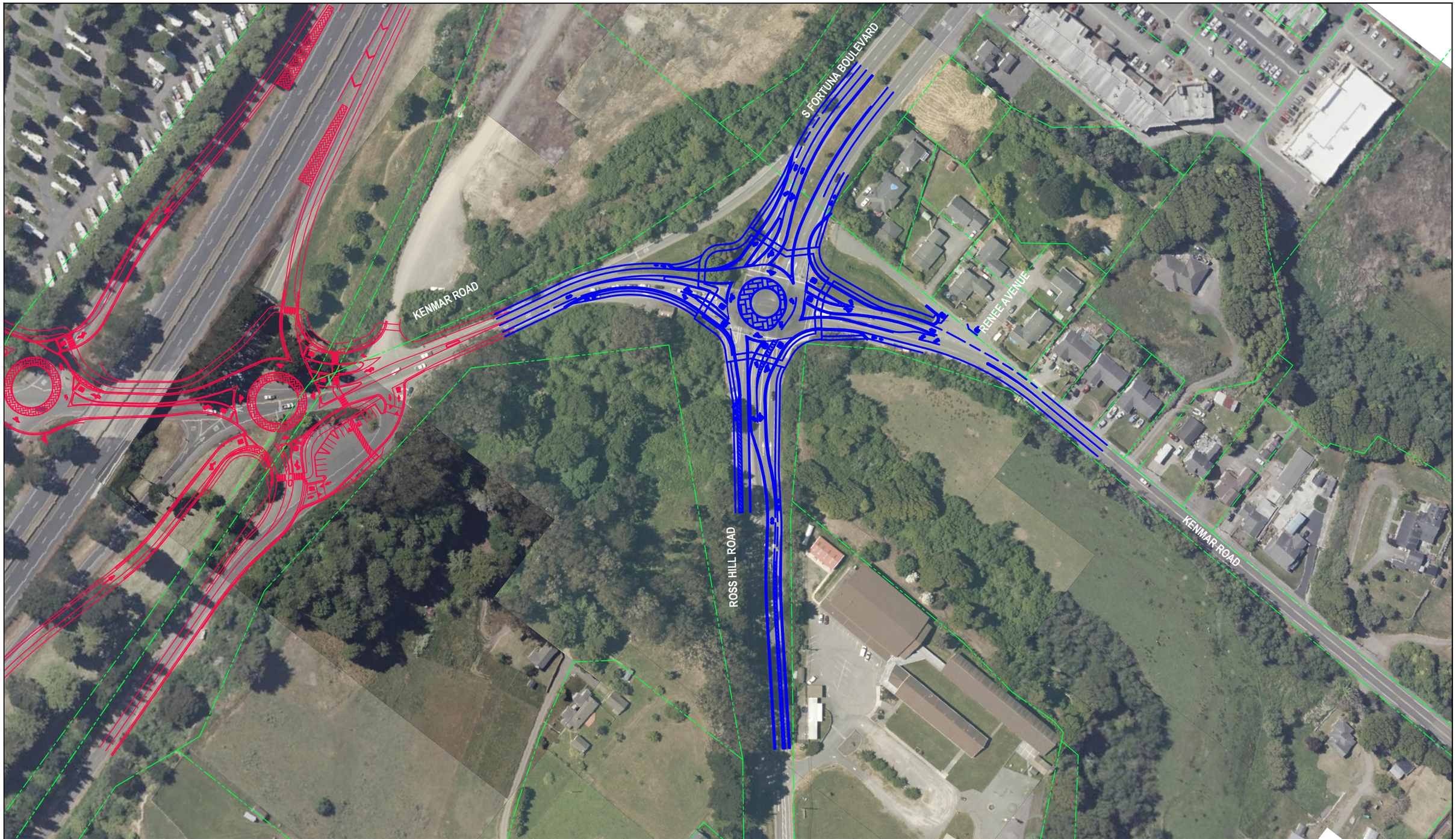
City of Fortuna
Kenmar Rd and Ross Hill Rd

ROUNDABOUT
ALTERNATIVE

Project No. 12577588
Date October 2022

PRELIMINARY - SUBJECT TO CHANGE

Filename: G:\561\12577588\Digital_Design\ACAD\XREFS\12577588_Roundabout Alternative.dwg
Plot Date: 10/14/2022



City of Fortuna
Kenmar Rd and Ross Hill Rd

ROUNDABOUT
ALTERNATIVE

Project No. 12577588
Date February 2024

Filename: \\ghdnet\ghd\US\Eureka\Projects\561\12577588\Digital_Design\ACAD\XREFS\12577588_Signal.dwg
Plot Date: 2/29/2024

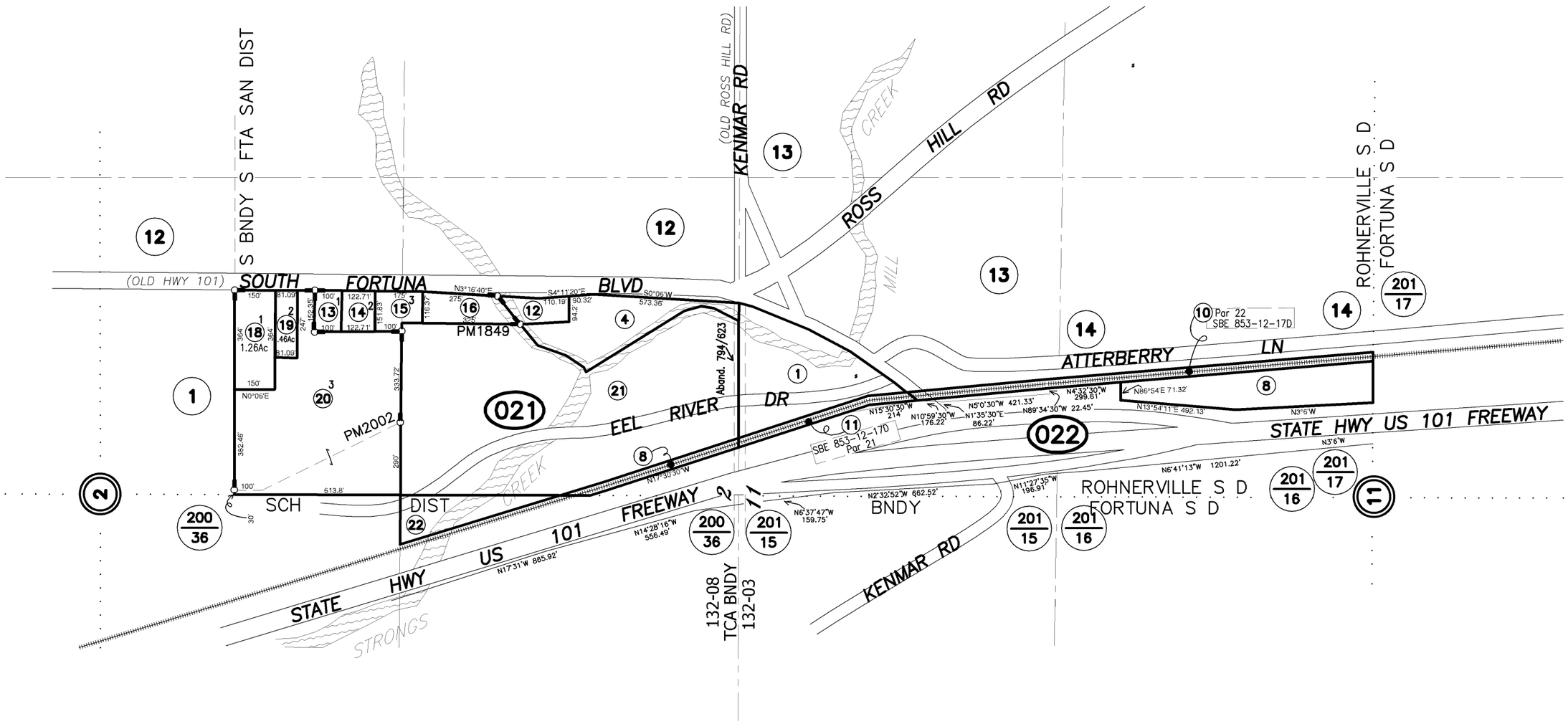
Attachment C - Assessor Parcel Maps

Assessor's Map Bk.202, Pg.2
County of Humboldt, CA.

PTN SECS 2 & 11 T2N R1W

202–02

H.B.&M.
1"= 400'



ASSESSOR'S PARCEL MAP

1. THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY.
2. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN.
3. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL LOT–SPLIT OR BUILDING SITE ORDINANCES.

PM 1849 BK.16 OF PARCEL MAPS, PG 53
PM 2002 BK.17 OF PARCEL MAPS, PG 118

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

100' 200' 400'

Feb. 20, 2020
JASON THISSELL

Assessor's Map Bk.202, Pg.12
County of Humboldt, CA.

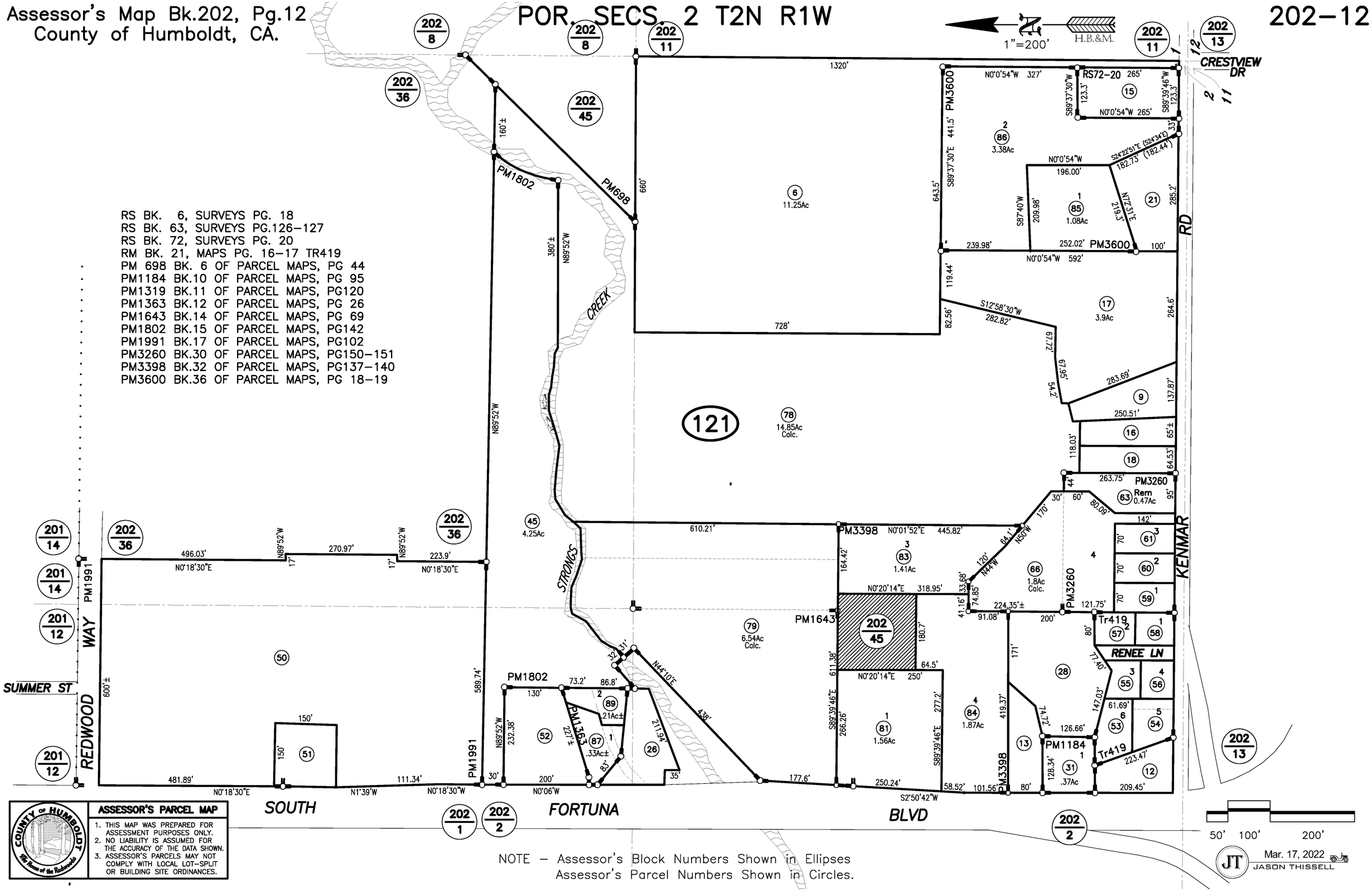
POR. SECS. 2 T2N R1W

202–12

1"=200'

H.B.&M.

RS BK. 6, SURVEYS PG. 18
RS BK. 63, SURVEYS PG.126–127
RS BK. 72, SURVEYS PG. 20
RM BK. 21, MAPS PG. 16–17 TR419
PM 698 BK. 6 OF PARCEL MAPS, PG 44
PM1184 BK.10 OF PARCEL MAPS, PG 95
PM1319 BK.11 OF PARCEL MAPS, PG120
PM1363 BK.12 OF PARCEL MAPS, PG 26
PM1643 BK.14 OF PARCEL MAPS, PG 69
PM1802 BK.15 OF PARCEL MAPS, PG142
PM1991 BK.17 OF PARCEL MAPS, PG102
PM3260 BK.30 OF PARCEL MAPS, PG150–151
PM3398 BK.32 OF PARCEL MAPS, PG137–140
PM3600 BK.36 OF PARCEL MAPS, PG 18–19



ASSESSOR'S PARCEL MAP

1. THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY.
2. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN.
3. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES.

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

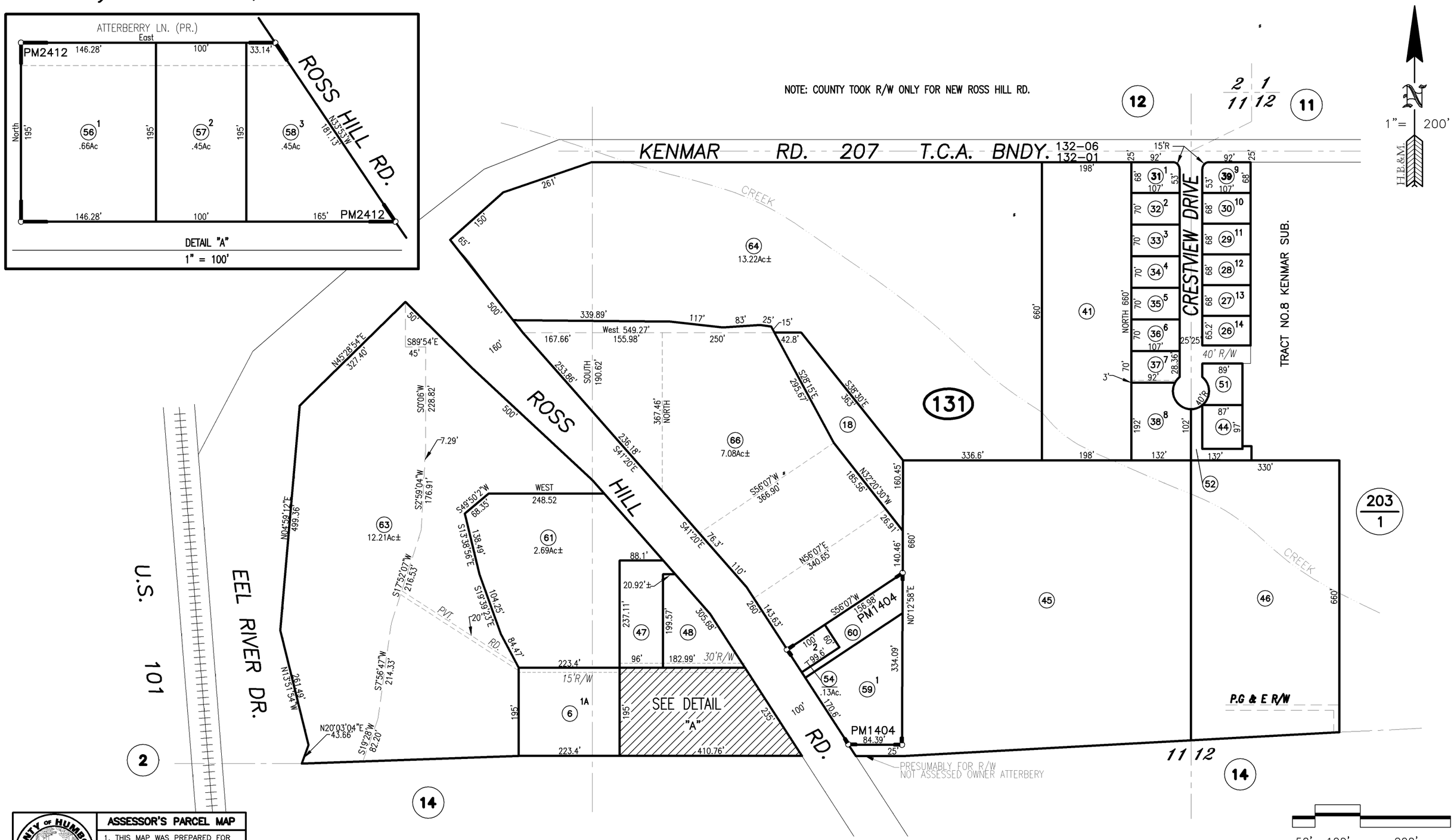
50' 100' 200'

Mar. 17, 2022
JASON THISSELL

Assessor's Map Bk. 202, Pg.13
County of Humboldt, CA.

PTN SECS. 11 & 12 T2N, R1W

202–13



COUNTY OF HUMBOLDT
The Home of the Redwoods

ASSESSOR'S PARCEL MAP

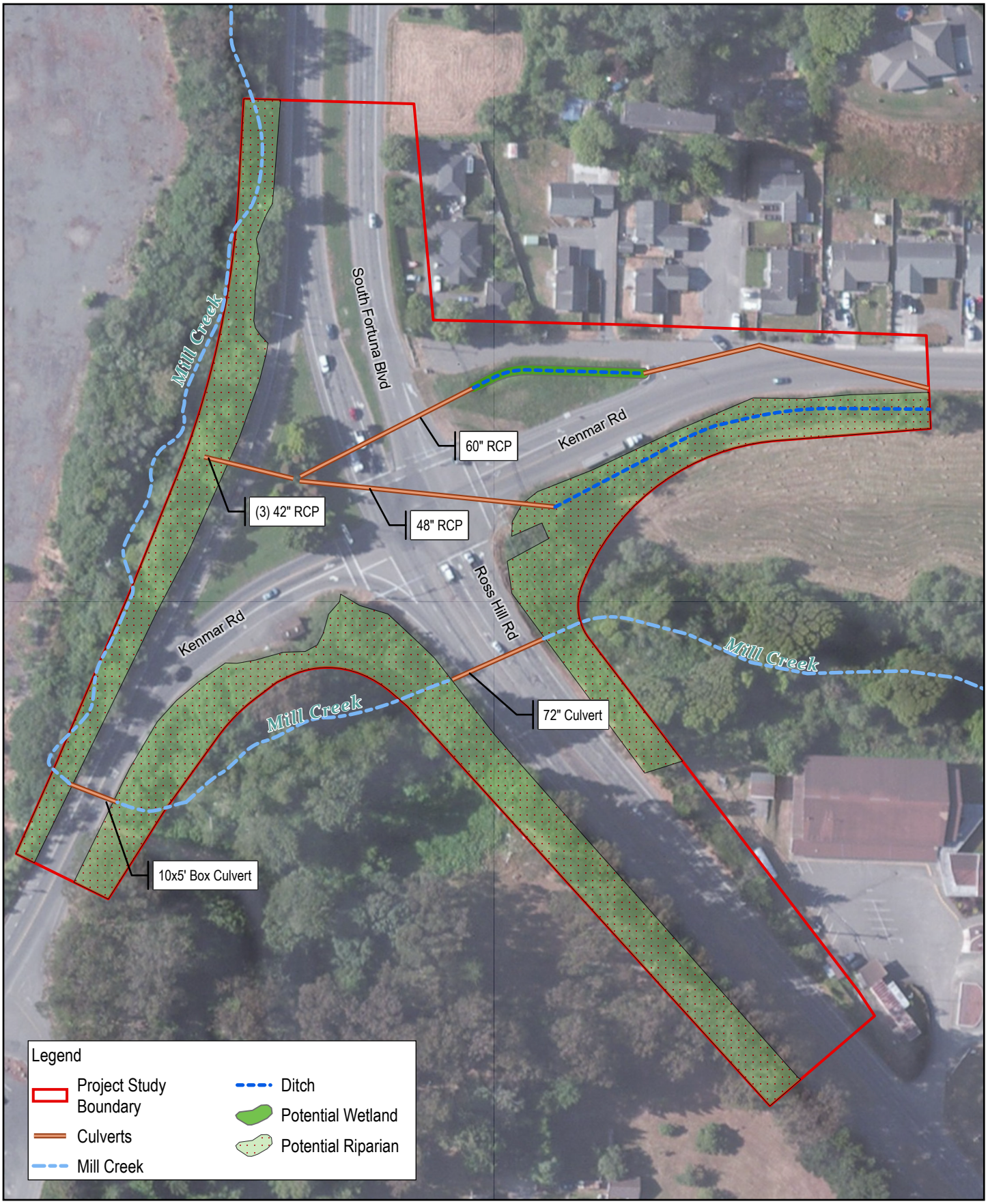
1. THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY.
2. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN.
3. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL LOT–SPLIT OR BUILDING SITE ORDINANCES.

RS. BK. 18, SURVEYS PG. 52
RM. BK. 13, MAPS PG. 131 (NO.8 KENMAR)
PM 1404 BK.12 OF PARCEL MAPS, PG 74
PM 2412 BK.21 OF PARCEL MAPS, PG 86

NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles.

JT
May, 21, 2021
JASON THISSELL

Attachment D - Environmental Constraints Map



Paper Size ANSI A

0 50 100 150

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

GHD

City of Fortuna
Kenmar Road and Ross Hill Road
Project Study Report

Project No. **12577588**
Revision No. **-**
Date **Apr 2022**

Environmental Constraints

\\ghdnet\ghd\US\Eureka\Projects\561\12577588\GIS\Maps\Deliverables\12577588_Project_Description\12577588_Project_Description.aprx
Print date: 15 Apr 2022 - 09:33

Data source: World Imagery (Clarity): This work is licensed under the Esri Master License Agreement.View Summary | View Terms of UseExport: This layer is not intended to be used to export tiles for offline. Data Collection and Editing: This layer may be used in various ArcGIS apps to support data collection and editing, with the results used internally or shared with others, as described for these use cases.
World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community. Created by: jlopez4

Attachment E – Environmental Database Search Results

SciName	ComName	FedList	CalList	GRank	SRank	CRPR	Othr Status	Habitats	GenHab	MicroHab
Abronia umbellata var. breviflora	pink sand-verbena	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive | SB_CalBG/RSABG-California/ Rancho Santa Ana Botanic Garden	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. A. umbellata var. breviflora is usually the plant closest to the ocean. 0-75 m.
Accipiter cooperii	Cooper's hawk	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.

Accipiter striatus	sharp-shinned hawk	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.
Acipenser medirostris	green sturgeon	Threatened	None	G3	S2		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NMFS_SC-Species of Concern	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.

Agelaius tricolor	tricolored blackbird	None	Threatened	G1G2	S1S2		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Marsh & swamp | Swamp | Wetland	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.
Ammodramus savannarum	grasshopper sparrow	None	None	G5	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Valley & foothill grassland	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes.	Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.

Anodonta californiensis	California floater	None	None	G3Q	S2?		USFS_S-Sensitive	Aquatic	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Generally in shallow water.
Anomobryum julaceum	slender silver moss	None	None	G5?	S2	4.2		Broadleaved upland forest | Lower montane coniferous forest | North coast coniferous forest	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest.	Moss which grows on damp rocks and soil; acidic substrates. Usually seen on roadcuts. 100-1000 m.

Antrozous pallidus	pallid bat	None	None	G4	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
Aplodontia rufa humboldtiana	Humboldt mountain beaver	None	None	G5TNR	SNR			Coastal scrub | Redwood | Riparian forest	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.

Aquila chrysaetos	golden eagle	None	None	G5	S3		BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Cismontane woodland | Coastal prairie | Great Basin grassland | Great Basin scrub | Lower montane coniferous forest | Pinon & juniper woodlands | Upper montane coniferous forest | Valley & foothill grassland	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.

Arborimus pomo	Sonoma tree vole	None	None	G3	S3		CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | Redwood	North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.
Ardea alba	great egret	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.
Ardea herodias	great blue heron	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.

Ascaphus truei	Pacific tailed frog	None	None	G4	S3S4		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	None	None	G2T2	S2	1B.2	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden | SB_UCBG-UC Botanical	Coastal dunes | Coastal scrub | Marsh & swamp | Wetland	Coastal dunes,marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.

Bombus caliginosus	obscure bumble bee	None	None	G4?	S1S2		IUCN_VU-Vulnerable		Coastal areas from Santa Barabara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.
Bombus occidentalis	western bumble bee	None	Candidate Endangered	G2G3	S1		USFS_S-Sensitive		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	
Brachyramphus marmoratus	marbled murrelet	Threatened	Endangered	G3	S2		CDF_S-Sensitive | IUCN_EN-Endangered | NABCI_RWL-Red Watch List	Lower montane coniferous forest | Oldgrowth | Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.

Cardamine angulata	seaside bittercress	None	None	G4G5	S3	2B.1		Lower montane coniferous forest | North coast coniferous forest | Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 5-515 m.
Carex leptalea	bristle-stalked sedge	None	None	G5	S1	2B.2		Bog & fen | Freshwater marsh | Marsh & swamp | Meadow & seep | Wetland	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.
Carex lyngbyei	Lyngbye's sedge	None	None	G5	S3	2B.2		Marsh & swamp | Wetland	Marshes and swamps (brackish or freshwater).	0-200 m.
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Marshes and swamps.	In coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.

Castilleja litoralis	Oregon coast paintbrush	None	None	G3	S3	2B.2		Coastal bluff scrub | Coastal dunes | Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.
Charadrius montanus	mountain plover	None	None	G3	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.
Charadrius nivosus nivosus	western snowy plover	Threatened	None	G3T3	S2		CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.

Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.
Clarkia amoena ssp. whitneyi	Whitney's farewell-to-spring	None	None	G5T1	S1	1B.1	SB_CalBG/RSABG-California/ Rancho Santa Ana Botanic Garden | SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub | Coastal scrub	Coastal bluff scrub, coastal scrub.	5-125 m.
Coastal Terrace Prairie	Coastal Terrace Prairie	None	None	G2	S2.1			Coastal prairie		
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1		BLM_S-Sensitive | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Riparian forest	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.

Corynorhinus townsendii	Townsend's big-eared bat	None	None	G4	S2		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.

Coturnicops noveboracensis	yellow rail	None	None	G4	S1S2		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.
Downingia willamettensis	Cascade downingia	None	None	G4	S2	2B.2		Cismontane woodland | Valley & foothill grassland | Vernal pool	Cismontane woodland, valley and foothill grasslands, vernal pools.	Lake margins. 15-1110 m.
Egretta thula	snowy egret	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | Wetland	Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.

Emys marmorata	western pond turtle	None	None	G3G4	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.

Entosphenus tridentatus	Pacific lamprey	None	None	G4	S4		AFS_VU-Vulnerable | BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.
Erethizon dorsatum	North American porcupine	None	None	G5	S3		IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.

Erysimum menziesii	Menzies' wallflower	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_UCBG-UC Botanical Garden at	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 1-25 m.
Erythronium oregonum	giant fawn lily	None	None	G4G5	S2	2B.2		Cismontane woodland | Meadow & seep | Ultramafic	Cismontane woodland, meadows and seeps.	Openings. Sometimes on serpentine; rocky sites. 300-1435 m.
Erythronium revolutum	coast fawn lily	None	None	G4G5	S3	2B.2		Bog & fen | Broadleaved upland forest | North coast coniferous forest | Wetland	Bogs and fens, broadleafed upland forest, north coast coniferous forest.	Mesic sites; streambanks. 60-1405 m.

Eucyclogobius newberryi	tidewater goby	Endangered	None	G3	S3		AFS_EN-Endangered | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.
Fissidens pauperculus	minute pocket moss	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest | Redwood	North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30-1025 m.
Gilia capitata ssp. pacifica	Pacific gilia	None	None	G5T3	S2	1B.2		Chaparral | Coastal bluff scrub | Coastal prairie | Valley & foothill grassland	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.
Gilia millefoliata	dark-eyed gilia	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes	Coastal dunes.	1-60 m.

Gonidea angulata	western ridged mussel	None	None	G3	S1S2			Aquatic	Primarily creeks & rivers & less often lakes. Originally in most of state, now extirpated from Central & Southern Calif.	
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	G5	S3		BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.
Hesperevax sparsiflora var. brevifolia	short-leaved evax	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-640 m.

Lampetra richardsoni	western brook lamprey	None	None	G4G5	S3S4		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive			
Lasiurus cinereus	hoary bat	None	None	G3G4	S4		IUCN_LC-Least Concern | WBWG_M-Medium Priority	Broadleaved upland forest | Cismontane woodland | Lower montane coniferous forest | North coast coniferous forest	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
Layia carnosa	beach layia	Endangered	Endangered	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic	Coastal dunes | Coastal scrub	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 3-30 m.

Lilium occidentale	western lily	Endangered	Endangered	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank	Bog & fen | Coastal bluff scrub | Coastal prairie | Coastal scrub | Freshwater marsh | Marsh & swamp | North coast coniferous forest | Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.
Lycopodium clavatum	running-pine	None	None	G5	S3	4.1		Lower montane coniferous forest | Marsh & swamp | North coast coniferous forest | Wetland	Lower montane coniferous forest, north coast coniferous forest, marshes and swamps.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.
Margaritifera falcata	western pearlshell	None	None	G4G5	S1S2			Aquatic	Aquatic.	Prefers lower velocity waters.

Martes caurina humboldtensis	Humboldt marten	Proposed Threatened	Endangered	G4G5T1	S1		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Redwood	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.
Montia howellii	Howell's montia	None	None	G3G4	S2	2B.2		Meadow & seep | North coast coniferous forest | Vernal pool | Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1215 m.
Myotis yumanensis	Yuma myotis	None	None	G5	S4		BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_LM-Low-Medium Priority	Lower montane coniferous forest | Riparian forest | Riparian woodland | Upper montane coniferous forest	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	None	None	G3	S3.2			Marsh & swamp | Wetland		

Nycticorax nycticorax	black-crowned night heron	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.
Oenothera wolfii	Wolf's evening-primrose	None	None	G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.	Sandy substrates; usually mesic sites. 0-125 m.
Oncorhynchus clarkii clarkii	coast cutthroat trout	None	None	G5T4	S3		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.

Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	G5T2Q	S2		AFS_TH-Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Threatened	None	G5T2T3Q	S2S3		AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	
Packera bolanderi var. bolanderi	seacoast ragwort	None	None	G4T4	S2S3	2B.2		Coastal scrub | North coast coniferous forest	Coastal scrub, north coast coniferous forest.	Sometimes along roadsides. 30-915 m.

Pandion haliaetus	osprey	None	None	G5	S4		CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Pekania pennanti	Fisher	None	None	G5	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Riparian forest	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.
Piperia candida	white-flowered rein orchid	None	None	G3	S3	1B.2		Broadleaved upland forest | Lower montane coniferous forest | North coast coniferous forest | Ultramafic	North Coast coniferous forest, lower montane coniferous forest, broadleafed upland forest.	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m.

Polemonium carneum	Oregon polemonium	None	None	G3G4	S2	2B.2		Coastal prairie | Coastal scrub | Lower montane coniferous forest	Coastal prairie, coastal scrub, lower montane coniferous forest.	15-1525 m.
Puccinellia pumila	dwarf alkali grass	None	None	G4?	SH	2B.2		Marsh & swamp | Wetland	Marshes and swamps.	Mineral spring meadows and coastal salt marshes. 1-10 m.
Rana aurora	northern red-legged frog	None	None	G4	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Klamath/North coast flowing waters | Riparian forest | Riparian woodland	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.

Rana boylii	foothill yellow-legged frog	None	Endangered	G3	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFS_S-Sensitive	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.

Rhyacotriton variegatus	southern torrent salamander	None	None	G3G4	S2S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forest	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.
Riparia riparia	bank swallow	None	Threatened	G5	S2		BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.

Sidalcea malachroides	maple-leaved checkerbloom	None	None	G3	S3	4.2		Broadleaved upland forest | Coastal prairie | Coastal scrub | North coast coniferous forest | Riparian forest	Broadleafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian forest.	Woodlands and clearings near coast; often in disturbed areas. 4-765 m.
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	None	None	G5T2	S2	1B.2		Coastal bluff scrub | Coastal prairie | North coast coniferous forest	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.
Sidalcea oregana ssp. eximia	coast checkerbloom	None	None	G5T1	S1	1B.2		Lower montane coniferous forest | Meadow & seep | North coast coniferous forest | Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.
Sisyrinchium hitchcockii	Hitchcock's blue-eyed grass	None	None	G2	S1	1B.1		Cismontane woodland | Valley & foothill grassland	Cismontane woodland, valley and foothill grassland.	Openings in woodland or in grassland. 305 m in California.

Sitka Spruce Forest	Sitka Spruce Forest	None	None	G1	S1.1					
Spergularia canadensis var. occidentalis	western sand-spurrey	None	None	G5T4	S1	2B.1		Marsh & swamp | Wetland	Marshes and swamps (coastal salt marshes).	0-3 m.
Spirinchus thaleichthys	longfin smelt	Candidate	Threatened	G5	S1			Aquatic | Estuary	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.
Thaleichthys pacificus	eulachon	Threatened	None	G5	S2			Aquatic | Klamath/North coast flowing waters	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.

Usnea longissima	Methuselah's beard lichen	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest | North coast coniferous forest | Oldgrowth | Redwood	North coast coniferous forest, broadleafed upland forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.

Scientific Name	Common Name	Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	Micro Habitat
Abronia umbellata var. breviflora	pink sand-verbena	Nyctaginaceae	perennial herb	1B.1	G4G5T2	S2	None	None	Jun-Oct	Coastal dunes	
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	G2T2	S2	None	None	(Apr)Jun-Oct	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	2B.2	G5	S1	None	None	Mar-Jul	Bogs and fens, Meadows and seeps (mesic), Marshes and swamps	
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	2B.2	G5	S3	None	None	Apr-Aug	Marshes and swamps (brackish or freshwater)	
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	1B.2	G4T2	S2	None	None	Apr-Aug	Marshes and swamps (coastal salt)	
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	2B.2	G3	S3	None	None	Jun-Jul	Coastal bluff scrub, Coastal dunes, Coastal scrub	sandy
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	G4?T2	S2	None	None	Jun-Oct	Marshes and swamps (coastal salt)	

Clarkia amoena ssp. whitneyi	Whitney's farewell-to-spring	Onagraceae	annual herb	1B.1	G5T1	S1	None	None	Jun-Aug	Coastal bluff scrub, Coastal scrub	
Downingia willamettensis	Cascade downingia	Campanulaceae	annual herb	2B.2	G4	S2	None	None	Jun-Jul(Sep)	Cismontane woodland (lake margins), Valley and foothill grassland (lake margins), Vernal pools	
Erysimum menziesii	Menzies? wallflower	Brassicaceae	perennial herb	1B.1	G1	S1	CE	FE	Mar-Sep	Coastal dunes	
Erythronium oregonum	giant fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S2	None	None	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss	1B.2	G3?	S2	None	None		North Coast coniferous forest (damp coastal soil)	

Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	None	None	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	1B.2	G2	S2	None	None	Apr-Jul	Coastal dunes	
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	G4T3	S2	None	None	Mar-Jun	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	1B.2	G2G3	S2S3	None	None	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland	usually serpentinite
Layia carnosa	beach layia	Asteraceae	annual herb	1B.1	G2	S2	CE	FE	Mar-Jul	Coastal dunes, Coastal scrub (sandy)	

Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	1B.1	G1	S1	CE	FE	Jun-Jul	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest (openings)	
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	G3G4	S2	None	None	(Jan-Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	1B.1	G2	S1	None	None	May-Oct	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	sandy, usually mesic
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	2B.2	G4T4	S2S3	None	None	(Jan-Apr)May-Jul(Aug)	Coastal scrub, North Coast coniferous forest	Sometimes roadsides

Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	1B.2	G3	S3	None	None	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	G3G4	S2	None	None	Apr-Sep	Coastal prairie, Coastal scrub, Lower montane coniferous forest	
Puccinellia pumila	dwarf alkali grass	Poaceae	perennial herb	2B.2	G4?	SH	None	None	Jul	Marshes and swamps (coastal salt)	
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	G5T2	S2	None	None	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	often roadcuts
Sidalcea oregana ssp. eximia	coast checkerbloom	Malvaceae	perennial herb	1B.2	G5T1	S1	None	None	Jun-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	

Sisyrinchium hitchcockii	Hitchcock's blue-eyed grass	Iridaceae	perennial rhizomatous herb	1B.1	G2	S1	None	None	Jun	Cismontane woodland (openings), Valley and foothill grassland	
Spergularia canadensis var. occidentalis	western sand-spurrey	Caryophyllaceae	annual herb	2B.1	G5T4	S1	None	None	Jun-Aug	Marshes and swamps (coastal salt)	

Quad Name **Fortuna**
Quad Number **40124-E2**

1. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

2. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

3. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

4. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

5. ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

6. ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

7. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

8. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

9. MMPA Species (See list at left)

10. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Cannibal Island**
Quad Number **40124-F3**

11. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

12. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

13. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

14. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

15. ESA Sea Turtles

East Pacific Green Sea Turtle (T) - **X**
Olive Ridley Sea Turtle (T/E) - **X**
Leatherback Sea Turtle (E) - **X**
North Pacific Loggerhead Sea Turtle (E) -

16. ESA Whales

Blue Whale (E) - **X**
Fin Whale (E) - **X**
Humpback Whale (E) - **X**
Southern Resident Killer Whale (E) - **X**
North Pacific Right Whale (E) - **X**
Sei Whale (E) - **X**
Sperm Whale (E) - **X**

17. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

18. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

19. MMPA Species (See list at left)

20. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - **X**
MMPA Pinnipeds - **X**

Quad Name **Fields Landing**
Quad Number **40124-F2**

21. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

22. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

23. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

24. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

25. ESA Sea Turtles

East Pacific Green Sea Turtle (T) - **X**
Olive Ridley Sea Turtle (T/E) - **X**
Leatherback Sea Turtle (E) - **X**
North Pacific Loggerhead Sea Turtle (E) -

26. ESA Whales

Blue Whale (E) - **X**
Fin Whale (E) - **X**
Humpback Whale (E) - **X**
Southern Resident Killer Whale (E) - **X**
North Pacific Right Whale (E) - **X**
Sei Whale (E) - **X**
Sperm Whale (E) - **X**

27. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

28. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

29. MMPA Species (See list at left)

30. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - **X**
MMPA Pinnipeds - **X**

Quad Name **McWhinney Creek**
Quad Number **40124-F1**

31. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

32. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

33. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

34. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

35. ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

36. ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

37. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

38. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

39. MMPA Species (See list at left)

40. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Ferndale**
Quad Number **40124-E3**

41. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

42. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

43. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

44. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

45. ESA Sea Turtles

East Pacific Green Sea Turtle (T) - **X**
Olive Ridley Sea Turtle (T/E) - **X**
Leatherback Sea Turtle (E) - **X**
North Pacific Loggerhead Sea Turtle (E) -

46. ESA Whales

Blue Whale (E) - **X**
Fin Whale (E) - **X**
Humpback Whale (E) - **X**
Southern Resident Killer Whale (E) - **X**
North Pacific Right Whale (E) - **X**
Sei Whale (E) - **X**
Sperm Whale (E) - **X**

47. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

48. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

49. MMPA Species (See list at left)

50. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - **X**
MMPA Pinnipeds - **X**

Quad Name **Hydesville**
Quad Number **40124-E1**

51. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

52. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

53. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

54. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

55. ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

56. ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

57. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

58. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

59. MMPA Species (See list at left)

60. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Capetown**
Quad Number **40124-D3**

61. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

62. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

63. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

64. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

65. ESA Sea Turtles

East Pacific Green Sea Turtle (T) - **X**
Olive Ridley Sea Turtle (T/E) - **X**
Leatherback Sea Turtle (E) - **X**
North Pacific Loggerhead Sea Turtle (E) -

66. ESA Whales

Blue Whale (E) - **X**
Fin Whale (E) - **X**
Humpback Whale (E) - **X**
Southern Resident Killer Whale (E) - **X**
North Pacific Right Whale (E) - **X**
Sei Whale (E) - **X**
Sperm Whale (E) - **X**

67. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

68. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH - **X**
Highly Migratory Species EFH -

69. MMPA Species (See list at left)

70. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - **X**
MMPA Pinnipeds - **X**

Quad Name **Taylor Peak**
Quad Number **40124-D2**

71. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

72. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

73. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

74. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

75. ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

76. ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

77. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

78. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

79. MMPA Species (See list at left)

80. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Scotia**
Quad Number **40124-D1**

81. ESA Anadromous Fish

SONCC Coho ESU (T) - **X**
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) - **X**
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) - **X**
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

82. ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - **X**
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat - **X**
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat - **X**
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

83. ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

84. ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

85. ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

86. ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

87. ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

88. Essential Fish Habitat

Coho EFH - **X**
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH -
Highly Migratory Species EFH -

89. MMPA Species (See list at left)

90. ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To: March 30, 2022
Project Code: 2022-0026242
Project Name: Kenmar Road and Highway 101 Interchange Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Project Code: 2022-0026242
Event Code: None
Project Name: Kenmar Road and Highway 101 Interchange Project
Project Type: Road/Hwy - Maintenance/Modification
Project Description: The Kenmar Road and Highway 101 Interchange project (project) proposes to improve traffic, pedestrian, and bicycle operations at the Kenmar Road interchange with US 101 in Fortuna in Humboldt County. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic on Kenmar Road result in poor traffic operation at and near the interchange. Proposed project components intersections with the US 101 interchange, modifications to the US 101 on-ramps and off-ramps, and the realignment of Eel River Drive. In addition to the proposed roadway improvements, the project includes a segment of Class I bike path through the project area in addition to other at-grade pedestrian and bicycle improvements to enhance pedestrian connections and promote regional bicycle network continuity. The project will simplify and improve navigation and traffic operations on Kenmar Road and Eel River Drive, including the Kenmar Road/US 1010 interchange. The project will also improve operations, reduce congestion, and minimize conflicts at the Kenmar Road intersections to improve safety.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.574861049999996,-124.14977938033243,14z

Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. 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.

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Lily *Lilium occidentale* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/998	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

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.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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.

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* 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/1626	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

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.

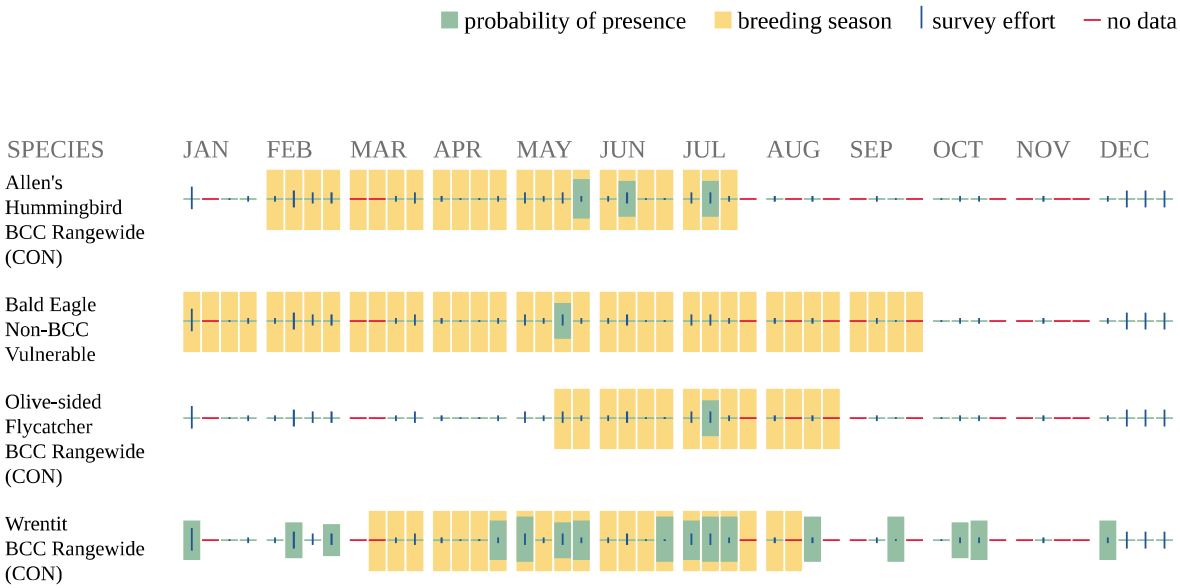
Breeding Season (■)

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.

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.

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.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

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 migratory birds potentially occurring 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 AKN Phenology 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, migrating or present year-round in my project 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 refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. 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 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 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.

Wetlands

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1C

IPaC User Contact Information

Agency: California Department of Transportation
Name: Elizabeth Meisman
Address: 718 Third Street
City: Eureka
State: CA
Zip: 95503
Email elizabeth.meisman@ghd.com
Phone: 7072672217

Lead Agency Contact Information

Lead Agency: Department of Transportation

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.

NOT FOR CONSULTATION

Location

Humboldt County, California

Local office

Arcata Fish And Wildlife Office

(707) 822-7201

(707) 822-8411

1655 Heindon Road
Arcata, CA 95521-4573

NOT FOR CONSULTATION

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. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. 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.

---

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

NOT FOR CONSULTATION

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* Wherever found There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS

NOT FOR CONSULTATION

Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Lily Lilium occidentale Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/998	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.

NOT FOR CONSULTATION

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.

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.

NOT FOR CONSULTATION

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
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* 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.	Breeds Jan 1 to Sep 30

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

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.

NOT FOR CONSULTATION

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.

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.

NOT FOR CONSULTATION

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

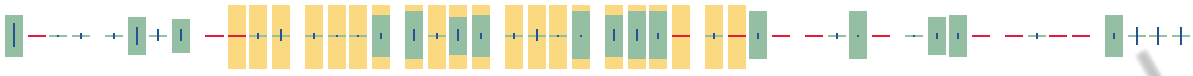
No Data (–)
A week is marked as having no data if there were no survey events for that week.

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.

NOT FOR CONSULTATION

Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION

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 migratory birds potentially occurring 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 AKN Phenology 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, migrating or present year-round in my project 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 refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. 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 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

NOT FOR CONSULTATION

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 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.

NOT FOR CONSULTATION

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

NOT FOR CONSULTATION

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.

Wetlands in the National Wetlands Inventory

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.

NOT FOR CONSULTATION

Attachment F - Cost Estimates

PROJECT
PLANNING COST ESTIMATE ©

EA: N/A PID: N/A

EA: N/A

PID: N/A

District-County-Route: 01-HUM-Kenmar

PM: N/A

Type of Estimate : Planning Level Estimate

Program Code : N/A

Project Limits : The intersection of Kenmar Rd and Ross Hill Road

Project Description: Fortuna Kenmar and Ross Hill Road PSR

Scope : Signal Alternative - Min

Alternative : 1

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 1,722,200	$ 2,030,273
TOTAL STRUCTURES COST	$ -	$ -
SUBTOTAL CONSTRUCTION COST	$ 1,722,200	$ 2,030,273
TOTAL RIGHT OF WAY COST	$ -	$ -
TOTAL CAPITAL OUTLAY COSTS	$ 1,723,000	$ 2,031,000
PA/ED SUPPORT	$ 200,000	$ 208,400
PS&E SUPPORT	$ 250,000	$ 260,500
RIGHT OF WAY SUPPORT	$ -	$ -
CONSTRUCTION SUPPORT	$ 350,000	$ 395,978
TOTAL SUPPORT COST	$ 800,000	$ 865,000
TOTAL PROJECT COST	$ 2,530,000	$ 2,900,000

Programmed Amount

	Month	/	Year
Date of Estimate (Month/Year)	7	/	2022
Estimated Construction Start (Month/Year)	2	/	2025

Number of Working Days = 100

Estimated Mid-Point of Construction (Month/Year)		/
Estimated Construction End (Month/Year)		/

Number of Plant Establishment Days

Estimated Project Schedule

PID Approval

PA/ED Approval

PS&E

RTL

Begin Construction

Approved by Project Manager	Josh Wolf	2/29/2024	(707) 267-2264
	Project Manager	**Date**	**Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	20,000
2	**Pavement Structural Section**	$	768,200
3	**Drainage**	$	40,000
4	**Specialty Items**	$	25,000
5	**Environmental**	$	75,800
6	**Traffic Items**	$	143,000
7	**Detours**	$	-
8	**Minor Items**	$	107,200
9	**Roadway Mobilization**	$	118,000
10	**Supplemental Work**	$	59,000
11	**State Furnished**	$	21,500
12	**Time-Related Overhead**	$	-
13	**Roadway Contingency**	$	344,500
	TOTAL ROADWAY ITEMS	**$**	**1,722,200**

Estimate Prepared By : Erin Gibbs 7/22/2022 (916) 865-0932

Name and Title Date Phone

Estimate Reviewed By : Daniel Kehrer 7/22/2022 (916) 918-0614

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

EA: N/A PID: N/A

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY	200	x	100.00	=	$	20,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**20,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
390132	Hot Mix Asphalt (Type A)	TON	1,685	x	145.00	=	$	244,325
26020X	Class 2 Aggregate Base	CY	305	x	110.00	=	$	33,550
397005	Tack Coat	TON	5	x	1,265.00	=	$	6,325
390100	Prime Coat	TON	3	x	1,565.00	=	$	4,695
371623	Minor Concrete (Curb Ramp)	CY	54	x	1,580.00	=	$	85,320
731504	Minor Concrete (Curb and Gutter)	CY	11	x	1,085.00	=	$	11,935
731521	Minor Concrete (Sidewalk)	CY	34	x	1,015.00	=	$	34,510
730020	Minor Concrete (Curb)	CY	100	x	2,200.00	=	$	220,000
398200	Cold Plane Asphalt Concrete Pavement	SQYD	7,500	x	17.00	=	$	127,500

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	**$**	**768,200**

EA: N/A PID: N/A

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Additional Drainage	LS	1	x	40,000.00	=	$	40,000

TOTAL DRAINAGE ITEMS	**$**	**40,000**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Reconstruct City of Fortuna Sign	LS	1	x	25,000.00	=	$	25,000

TOTAL SPECIALTY ITEMS	**$**	**25,000**

EA: N/A PID: N/A

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
160110	Temporary High Visibility Fence	LF	250	x	13.00	=	$	3,250		
								Subtotal Environmental Mitigation	*$*	*3,250*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
								Subtotal Landscape and Irrigation	*$*	*-*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost		
210010	Move In/Move Out (Erosion Control)	EA	*$ 1*	x	20000	=	$	20,000		
								Subtotal Erosion Control	*$*	*20,000*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost		
130300	Prepare SWPPP	LS	1	x	3,000.00	=	$	3,000		
130100	Job Site Management	LS	1	x	20,000.00	=	$	20,000		
130330	Storm Water Annual Report	EA	1	x	2,000.00	=	$	2,000		
130310	Rain Event Action Plan (REAP)	EA	10	x	500.00	=	$	5,000		
130320	Storm Water Sampling and Analysis Day	EA	5	x	500.00	=	$	2,500		
XXXXXX	Temporary Erosion Control	LS	1	x	20,000.00	=	$	20,000		
								Subtotal NPDES	*$*	*52,500*

TOTAL ENVIRONMENTAL	**$**	**75,800**

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

EA: N/A PID: N/A

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
860201	Signal and Lighting	LS	1	x	50,000.00	=	$	50,000

Subtotal Traffic Electrical $ 50,000

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
820480	Roadside Sign - One Post	EA	10	x	500.00	=	$	5,000
820250	Remove Roadside Sign	EA	10	x	200.00	=	$	2,000
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night	LF	4,000	x	2.00	=	$	8,000
846012	Thermoplastic Crosswalk and Pavement Marking (	SQFT	800	x	10.00	=	$	8,000
120090	Construction Area Signs	LS	1	x	5,000.00	=	$	5,000
027072	Bollards	EA	10	x	500.00	=	$	5,000

Subtotal Traffic Signing and Striping $ 33,000

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost
12865X	Portable Changeable Message Signs	LS	1	x	$ 10,000	=	$	10,000

Subtotal Traffic Management Plan $ 10,000

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	50,000.00	=	$	50,000

Subtotal Stage Construction and Traffic Handling $ 50,000

TOTAL TRAFFIC ITEMS $ 143,000

EA: N/A PID: N/A

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price ($)	Cost
* Includes constructing, maintaining, and removal				

TOTAL DETOURS	**$**	**-**

SUBTOTAL SECTIONS 1 through 7	$	1,072,000

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items								
ADA Items				5.0%		$	53,600	
8B - Bike Path Items								
Bike Path Items				0.0%		$	-	
8C - Other Minor Items								
Other Minor Items				5.0%		$	53,600	
Total of Section 1-7	$	1,072,000	x	10.0%	=	$	107,200	

TOTAL MINOR ITEMS	**$**	**107,200**

SECTIONS 9: ROADWAY MOBILIZATION

Item code								
999990	Total Section 1-8	$	1,179,200	x	10%	=	$	117,920

TOTAL ROADWAY MOBILIZATION	**$**	**118,000**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity	Unit Price ($)		Cost
	Total Section 1-8	$	1,179,200	5%	=	$ 58,960

TOTAL SUPPLEMENTAL WORK	**$**	**59,000**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066901	Water Expenses	LS	1	x	1,000.00	=	$1,000
XXXXXX	Agency Permit Fee	LS	1	x	20,000.00	=	$20,000
066916	Annual Construction General Permit Fee	LS	1	x	500.00	=	$500
	Total Section 1-8	$	1,179,200		0%	=	$ -

TOTAL STATE FURNISHED $21,500

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $1,179,200 (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency) $1,377,700 (used to check if project is greater than $5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **0%**

Item code	Unit	Quantity	Unit Price ($)	Cost

TOTAL TIME-RELATED OVERHEAD $0

SECTION 13: ROADWAY CONTINGENCY

Total Section 1-12	$	1,377,700	x	**25%**	=	$344,425

TOTAL CONTINGENCY $344,500

PROJECT
PLANNING COST ESTIMATE ©

EA: N/A PID: N/A

EA: N/A

PID: N/A

District-County-Route: 01-HUM-Kenmar

PM: N/A

Type of Estimate : Planning Level Estimate

Program Code : N/A

Project Limits : The intersection of Kenmar Rd and Ross Hill Road

Project Description: Fortuna Kenmar and Ross Hill Road PSR

Scope : Signal Alternative

Alternative : 1

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 7,466,700	$ 8,802,369
TOTAL STRUCTURES COST	$ -	$ -
SUBTOTAL CONSTRUCTION COST	$ 7,466,700	$ 8,802,369
TOTAL RIGHT OF WAY COST	$ 50,000	$ 60,000
TOTAL CAPITAL OUTLAY COSTS	$ 7,517,000	$ 8,863,000
PA/ED SUPPORT	$ 750,000	$ 781,500
PS&E SUPPORT	$ 1,100,000	$ 1,146,200
RIGHT OF WAY SUPPORT	$ 200,000	$ 217,153
CONSTRUCTION SUPPORT	$ 1,350,000	$ 1,527,344
TOTAL SUPPORT COST	$ 3,400,000	$ 3,673,000
TOTAL PROJECT COST	$ 10,950,000	$ 12,550,000

Programmed Amount

	Month	/	Year
Date of Estimate (Month/Year)	7	/	2022
Estimated Construction Start (Month/Year)	2	/	2025
Number of Working Days =			100
Estimated Mid-Point of Construction (Month/Year)		/	
Estimated Construction End (Month/Year)		/	
Number of Plant Establishment Days			

Estimated Project Schedule

PID Approval

PA/ED Approval

PS&E

RTL

Begin Construction

Approved by Project Manager

Project Manager	Date	Phone
Josh Wolf	10/14/2022	(707) 267-2264

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	28,000
2	**Pavement Structural Section**	$	1,056,900
3	**Drainage**	$	3,140,000
4	**Specialty Items**	$	25,000
5	**Environmental**	$	100,800
6	**Traffic Items**	$	354,200
7	**Detours**	$	-
8	**Minor Items**	$	470,500
9	**Roadway Mobilization**	$	517,600
10	**Supplemental Work**	$	258,800
11	**State Furnished**	$	21,500
12	**Time-Related Overhead**	$	-
13	**Roadway Contingency**	$	1,493,400
	TOTAL ROADWAY ITEMS	**$**	**7,466,700**

Estimate Prepared By : Erin Gibbs 7/22/2022 (916) 865-0932

Name and Title Date Phone

Estimate Reviewed By : Daniel Kehrer 7/22/2022 (916) 918-0614

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

EA: N/A PID: N/A

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY	350	x	80.00	=	$	28,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**28,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
390132	Hot Mix Asphalt (Type A)	TON	3,300	x	145.00	=	$	478,500
26020X	Class 2 Aggregate Base	CY	335	x	110.00	=	$	36,850
397005	Tack Coat	TON	5	x	1,265.00	=	$	6,325
371623	Minor Concrete (Curb Ramp)	CY	50	x	1,580.00	=	$	79,000
731521	Minor Concrete (Sidewalk)	CY	20	x	1,015.00	=	$	20,300
730020	Minor Concrete (Curb)	CY	100	x	2,200.00	=	$	220,000
398200	Cold Plane Asphalt Concrete Pavement	SQYD	12,700	x	17.00	=	$	215,900

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	**$**	**1,056,900**

EA: N/A PID: N/A

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
15080X	Remove Culvert	LS	1	x	100,000.00	=	$	100,000
XXXXXX	Box Culvert	LS	1	x	2,500,000.00	=	$	2,500,000
XXXXXX	Channel Relocation	LS	1	x	500,000	=	$	500,000
XXXXXX	Additional Drainage	LS	1	x	40,000.00	=	$	40,000

TOTAL DRAINAGE ITEMS $ 3,140,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Reconstruct City of Fortuna Sign	LS	1	x	25,000.00	=	$	25,000

TOTAL SPECIALTY ITEMS $ 25,000

EA: N/A PID: N/A

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
XXXXXX	Biological Mitigation	LS	1	x	25,000.00	=	$	25,000		
160110	Temporary High Visibility Fence	LF	250	x	13.00	=	$	3,250		
								Subtotal Environmental Mitigation	*$*	*28,250*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
								Subtotal Landscape and Irrigation	*$*	*-*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost		
210010	Move In/Move Out (Erosion Control)	EA	*$ 1*	x	20000	=	$	20,000		
								Subtotal Erosion Control	*$*	*20,000*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost		
130300	Prepare SWPPP	LS	1	x	3,000.00	=	$	3,000		
130100	Job Site Management	LS	1	x	20,000.00	=	$	20,000		
130330	Storm Water Annual Report	EA	1	x	2,000.00	=	$	2,000		
130310	Rain Event Action Plan (REAP)	EA	10	x	500.00	=	$	5,000		
130320	Storm Water Sampling and Analysis Day	EA	5	x	500.00	=	$	2,500		
XXXXXX	Temporary Erosion Control	LS	1	x	20,000.00	=	$	20,000		
								Subtotal NPDES	*$*	*52,500*

TOTAL ENVIRONMENTAL	**$**	**100,800**

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

EA: N/A PID: N/A

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
860201	Signal and Lighting	LS	1	x	200,000.00	=	$	200,000

Subtotal Traffic Electrical $ *200,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
820480	Roadside Sign - One Post	EA	20	x	500.00	=	$	10,000
820250	Remove Roadside Sign	EA	20	x	200.00	=	$	4,000
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night \	LF	9,185	x	2.00	=	$	18,370
846012	Thermoplastic Crosswalk and Pavement Marking (E	SQFT	1,679	x	10.00	=	$	16,790
120090	Construction Area Signs	LS	1	x	5,000.00	=	$	5,000

Subtotal Traffic Signing and Striping $ *54,160*

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost
12865X	Portable Changeable Message Signs	LS	1	x	$ 10,000	=	$	10,000

Subtotal Traffic Management Plan $ *10,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	90,000.00	=	$	90,000

Subtotal Stage Construction and Traffic Handling $ *90,000*

TOTAL TRAFFIC ITEMS $ 354,200

EA: N/A PID: N/A

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price ($)	Cost
* Includes constructing, maintaining, and removal				

TOTAL DETOURS	**$**	**-**

SUBTOTAL SECTIONS 1 through 7	$	4,704,900

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
ADA Items				5.0%	$	235,245	
8B - Bike Path Items							
Bike Path Items				0.0%	$	-	
8C - Other Minor Items							
Other Minor Items				5.0%	$	235,245	
Total of Section 1-7	$	4,704,900	x	10.0%	= $	470,490	

TOTAL MINOR ITEMS	**$**	**470,500**

SECTIONS 9: ROADWAY MOBILIZATION

Item code								
999990	Total Section 1-8	$	5,175,400	x	10%	= $	517,540	

TOTAL ROADWAY MOBILIZATION	**$**	**517,600**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity	Unit Price ($)	Cost
	Total Section 1-8	$	5,175,400	5% = $	258,770

TOTAL SUPPLEMENTAL WORK	**$**	**258,800**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066901	Water Expenses	LS	1	x	1,000.00	=	$1,000
XXXXXX	Agency Permit Fee	LS	1	x	20,000.00	=	$20,000
066916	Annual Construction General Permit Fee	LS	1	x	500.00	=	$500
	Total Section 1-8	$	5,175,400		0%	=	$ -

TOTAL STATE FURNISHED $21,500

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization	$5,175,400	(used to calculate TRO)
Total Construction Cost (excluding TRO and Contingency)	$5,973,300	(used to check if project is greater than $5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **0%**

Item code	Unit	Quantity	Unit Price ($)	Cost

TOTAL TIME-RELATED OVERHEAD $0

SECTION 13: ROADWAY CONTINGENCY

Total Section 1-12	$	5,973,300	x	**25%**	=	$1,493,325	

TOTAL CONTINGENCY $1,493,400

EA: N/A PID: N/A

II. STRUCTURE ITEMS

DATE OF ESTIMATE	00/00/00		00/00/00		00/00/00
Name	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX		57-XXX		57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0 LF		0 LF		0 LF
Total Length (Feet)	0 LF		0 LF		0 LF
Total Area (Square Feet)	0 SQFT		0 SQFT		0 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0		$0		$0
COST OF EACH	**$0**		**$0**		**$0**

TOTAL COST OF BRIDGES	**$0**
TOTAL COST OF BUILDINGS	**$0**
STRUCTURES MOBILIZATION 10%	**$0**

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total recommended percentages includes any quantified risk based contingency from the risk register.

STRUCTURES CONTINGENCY 10%	**$0**
TOTAL COST OF STRUCTURES	**$0**

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXXX ------ Division of Structures Date

EA: N/A PID: N/A

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	$	50,000
	A2)	SB-1210	$	0
B)		Acquisition of Offsite Mitigation	$	0
C)	C1)	Utility Relocation (State Share)	$	0
	C2)	Potholing (Design Phase)	$	0
D)		Railroad Acquisition	$	0
E)		Clearance / Demolition	$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	0
G)		Title and Escrow	$	0
H)		Environmental Review	$	0
I)		Condemnation Settlements 0%	$	0
J)		Design Appreciation Factor 0%	$	0
K)		Utility Relocation (Construction Cost)	$	0

L)	**TOTAL RIGHT OF WAY ESTIMATE**	**$50,000**
M)	**TOTAL R/W ESTIMATE: Escalated**	**$60,000**
N)	**RIGHT OF WAY SUPPORT**	**$217,153**

Support Cost Estimate Prepared By _____
Project Coordinator[1] Phone

Utility Estimate Prepared By _____
Utility Coordinator[2] Phone

R/W Acquisition Estimate Prepared By _____
Right of Way Estimator[3] Phone

Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

PROJECT
PLANNING COST ESTIMATE ©

EA: N/A PID: N/A

EA: N/A

PID: N/A

District-County-Route: 01-HUM-Kenmar

PM: N/A

Type of Estimate : Planning Level Estimate

Program Code : N/A

Project Limits : The intersection of Kenmar Rd and Ross Hill Road

Project Description: Fortuna Kenmar and Ross Hill Road PSR

Scope : Roundabout Alternative

Alternative : 2

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 5,117,500	$ 6,032,936
TOTAL STRUCTURES COST	$ -	$ -
SUBTOTAL CONSTRUCTION COST	$ 5,117,500	$ 6,032,936
TOTAL RIGHT OF WAY COST	$ 25,000	$ 30,000
TOTAL CAPITAL OUTLAY COSTS	$ 5,143,000	$ 6,063,000
PA/ED SUPPORT	$ 500,000	$ 521,000
PS&E SUPPORT	$ 750,000	$ 781,500
RIGHT OF WAY SUPPORT	$ 150,000	$ 162,865
CONSTRUCTION SUPPORT	$ 950,000	$ 1,074,798
TOTAL SUPPORT COST	$ 2,350,000	$ 2,541,000
TOTAL PROJECT COST	$ 7,500,000	$ 8,650,000

Programmed Amount

	Month	/	Year
Date of Estimate (Month/Year)	7	/	2022
Estimated Construction Start (Month/Year)	2	/	2025

Number of Working Days = 180

Estimated Mid-Point of Construction (Month/Year) _____ /

Estimated Construction End (Month/Year) _____ /

Number of Plant Establishment Days

Estimated Project Schedule

PID Approval

PA/ED Approval

PS&E

RTL

Begin Construction

Approved by Project Manager

Josh Wolf	10/14/2022	(707) 267-2264
Project Manager	**Date**	**Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	720,000
2	**Pavement Structural Section**	$	1,135,400
3	**Drainage**	$	200,000
4	**Specialty Items**	$	25,000
5	**Environmental**	$	289,300
6	**Traffic Items**	$	731,400
7	**Detours**	$	50,000
8	**Minor Items**	$	346,700
9	**Roadway Mobilization**	$	349,800
10	**Supplemental Work**	$	174,900
11	**State Furnished**	$	71,500
12	**Time-Related Overhead**	$	-
13	**Roadway Contingency**	$	1,023,500
	TOTAL ROADWAY ITEMS	**$**	**5,117,500**

Estimate Prepared By : Erin Gibbs 7/22/2022 (916) 865-0932

Name and Title Date Phone

Estimate Reviewed By : Daniel Kehrer 7/22/2022 (916) 918-0614

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

EA: N/A PID: N/A

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY	8,000	x	80.00	=	$	640,000
170101	Develop Water Supply	LS	1	x	20,000.00	=	$	20,000
XXXXXX	Remove/ Salvage Signal	LS	1	x	60,000	=	$	60,000

TOTAL EARTHWORK SECTION ITEMS $ 720,000

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
390132	Hot Mix Asphalt (Type A)	TON	2,300	x	145.00	=	$	333,500
26020X	Class 2 Aggregate Base	CY	650	x	110.00	=	$	71,500
397005	Tack Coat	TON	4	x	1,265.00	=	$	5,060
731521	Minor Concrete (Sidewalk)	CY	130	x	1,015.00	=	$	131,950
012891	Minor Concrete (Roundabout Truck Apron)	CY	50	x	1,500.00	=	$	75,000
731504	Minor Concrete (Curb and Gutter)	CY	100	x	1,085.00	=	$	108,500
730020	Minor Concrete (Curb)	CY	100	x	2,200.00	=	$	220,000
398200	Cold Plane Asphalt Concrete Pavement	SQYD	10,050	x	17.00	=	$	170,850
750001	Miscellaneous Iron and Steel	LB	3,900	x	4.88	=	$	19,032

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS $ 1,135,400

EA: N/A PID: N/A

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Additional Drainage	LS	1	x	200,000.00	=	$	200,000

TOTAL DRAINAGE ITEMS	**$**	**200,000**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Specialty Item (OH Signs/Fortuna Sign)	EA	1	x	25,000.00	=	$	25,000

TOTAL SPECIALTY ITEMS	**$**	**25,000**

EA: N/A PID: N/A

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	25,000.00	=	$	25,000
160110	Temporary High Visibilitiy Fence	LF	250	x	13.00	=	$	3,250

Subtotal Environmental Mitigation $ 28,250

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Landscaping Costs	LS	1	x	150,000.00	=	$	150,000

Subtotal Landscape and Irrigation $ 150,000

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost
210010	Move In/Move Out (Erosion Control)	LS	1	x	20000	=	$	20,000

Subtotal Erosion Control $ 20,000

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
130300	Prepare SWPPP	LS	1	x	4,000.00	=	$	4,000
130100	Job Site Management	LS	1	x	20,000.00	=	$	20,000
130330	Storm Water Annual Report	EA	1	x	2,000.00	=	$	2,000
130310	Rain Event Action Plan (REAP)	EA	20	x	500.00	=	$	10,000
130320	Storm Water Sampling and Analysis Day	EA	10	x	500.00	=	$	5,000
XXXXXX	Temporary Erosion Control	LS	1	x	50,000.00	=	$	50,000

Subtotal NPDES $ 91,000

TOTAL ENVIRONMENTAL $ 289,300

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

EA: N/A PID: N/A

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXX	Street Lighting Systems	LS	1	x	400,000.00	=	$	400,000

Subtotal Traffic Electrical $ *400,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
820480	Roadside Sign - One Post	EA	20	x	500.00	=	$	10,000
820250	Remove Roadside Sign	EA	20	x	200.00	=	$	4,000
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night \	LF	9,700	x	2.00	=	$	19,400
846012	Thermoplastic Crosswalk and Pavement Marking (E	SQFT	1,800	x	10.00	=	$	18,000
120090	Construction Area Signs	LS	1	x	10,000.00	=	$	10,000

Subtotal Traffic Signing and Striping $ *61,400*

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost
12865X	Portable Changeable Message Signs	LS	1	x	$ 20,000	=	$	20,000

Subtotal Traffic Management Plan $ *20,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	250,000.00	=	$	250,000

Subtotal Stage Construction and Traffic Handling $ *250,000*

TOTAL TRAFFIC ITEMS $ 731,400

EA: N/A PID: N/A

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
XXXXXX	Temporary Detour Route	LS	1	x	50,000	=	$ 50,000

* Includes constructing, maintaining, and removal

TOTAL DETOURS	**$**	**50,000**

SUBTOTAL SECTIONS 1 through 7	$	3,151,100

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items						
ADA Items				5.0%	$	157,555
8B - Bike Path Items						
Bike Path Items				1.0%	$	31,511
8C - Other Minor Items						
Other Minor Items				5.0%	$	157,555
Total of Section 1-7	$	3,151,100	x	11.0%	= $	346,621

TOTAL MINOR ITEMS	**$**	**346,700**

SECTIONS 9: ROADWAY MOBILIZATION

Item code							
999990	Total Section 1-8	$	3,497,800	x	10%	=	$ 349,780

TOTAL ROADWAY MOBILIZATION	**$**	**349,800**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
	Total Section 1-8	$	3,497,800		5%	=	$ 174,890

TOTAL SUPPLEMENTAL WORK	**$**	**174,900**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066901	Water Expenses	LS	1	x	1,000.00	=	$1,000
066916	Annual Construction General Permit Fee	LS	1	x	500.00	=	$500
	Total Section 1-8	$	3,497,800		2%	= $	69,956

TOTAL STATE FURNISHED $71,500

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization	$3,497,800	(used to calculate TRO)
Total Construction Cost (excluding TRO and Contingency)	$4,094,000	(used to check if project is greater than $5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **0%**

Item code	Unit	Quantity	Unit Price ($)	Cost

TOTAL TIME-RELATED OVERHEAD $0

SECTION 13: ROADWAY CONTINGENCY

Total Section 1-12	$	4,094,000	x	**25%**	=	$1,023,500

TOTAL CONTINGENCY $1,023,500

EA: N/A PID: N/A

II. STRUCTURE ITEMS

DATE OF ESTIMATE	00/00/00		00/00/00		00/00/00
Name	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX		57-XXX		57-XXX
Structure Type	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0 LF		0 LF		0 LF
Total Length (Feet)	0 LF		0 LF		0 LF
Total Area (Square Feet)	0 SQFT		0 SQFT		0 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0		$0		$0
COST OF EACH	**$0**		**$0**		**$0**

TOTAL COST OF BRIDGES	**$0**
TOTAL COST OF BUILDINGS	**$0**
STRUCTURES MOBILIZATION 10%	**$0**

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total recommended percentages includes any quantified risk based contingency from the risk register.

STRUCTURES CONTINGENCY 10%	**$0**
TOTAL COST OF STRUCTURES	**$0**

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXXX ------ Division of Structures Date

EA: N/A PID: N/A

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees		$	25,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	0
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	0

L)	**TOTAL RIGHT OF WAY ESTIMATE**	**$25,000**
M)	**TOTAL R/W ESTIMATE: Escalated**	**$30,000**
N)	**RIGHT OF WAY SUPPORT**	**$162,865**

Support Cost Estimate Prepared By _____
Project Coordinator[1] Phone

Utility Estimate Prepared By _____
Utility Coordinator[2] Phone

R/W Acquisition Estimate Prepared By _____
Right of Way Estimator[3] Phone

Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required