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W12b

1-23-0773 (Caltrans)

December 13, 2023

EXHIBITS

Exhibit 1 – Project Area Vicinity Map

Exhibit 2 – Project Location Map

Exhibit 3 – Project Description

Exhibit 4 – Caltrans Multimodal Analysis

Exhibit 5 – Project Layouts

ATTACHMENT 6

VICINITY MAP

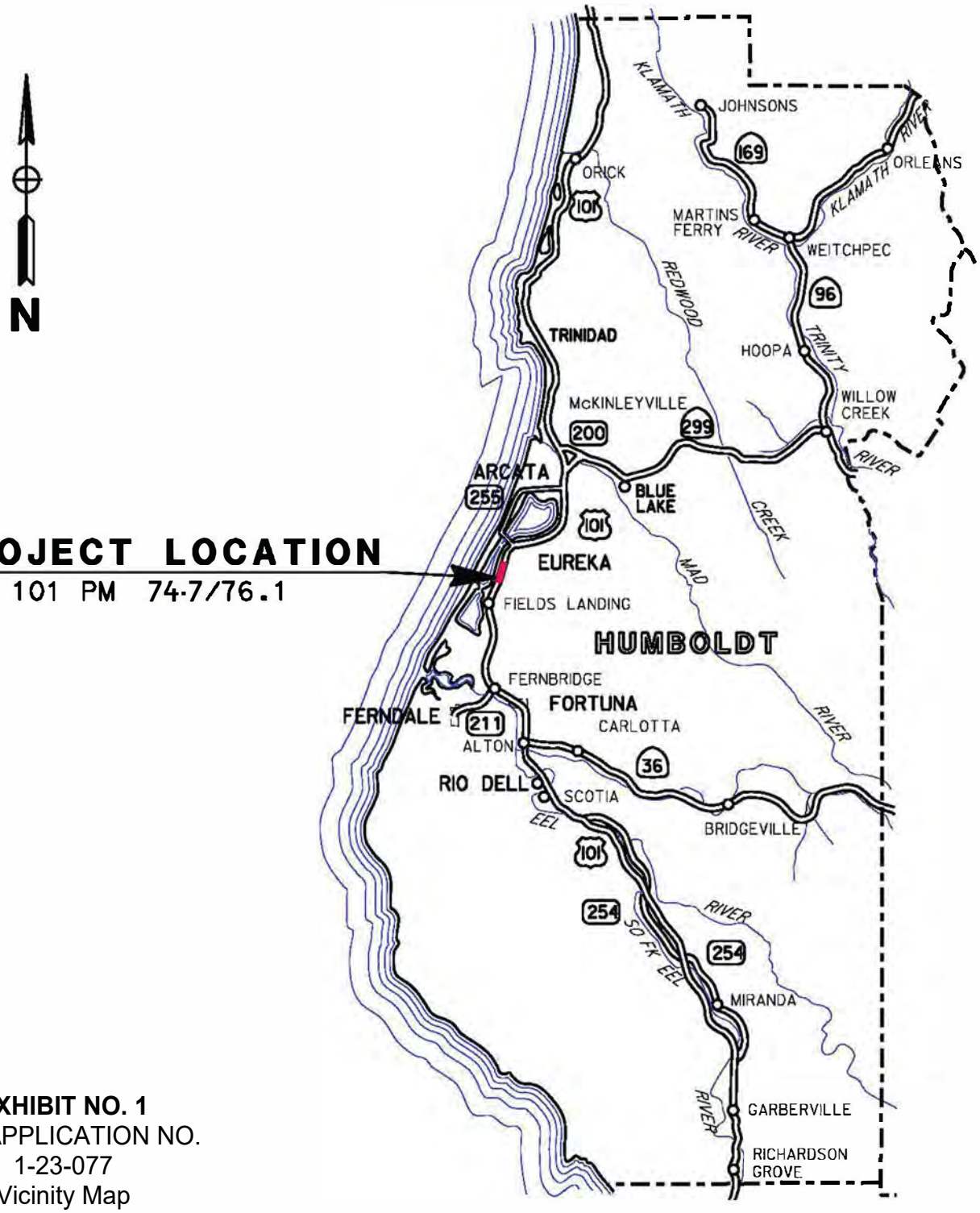

EXHIBIT NO. 1
CDP APPLICATION NO.
1-23-077
Vicinity Map
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SOUTH BROADWAY COMPLETE STREETS
01-HUM-101 (PM 74.7 TO 76.1)
EA 01-0K940 (01 2100 0033)

No Scale

EXHIBIT NO. 2
CDP APPLICATION NO.
1-23-0773
Project Location Map
Page 1 of 1

ATTACHMENT 12: PROJECT DESCRIPTION

INTRODUCTION

This project is nicknamed Broadway Complete Streets. It is in Humboldt County on part of United States Highway 101 (US 101) known as Broadway, which is a main street through the city of Eureka. This project was initiated as a stand-alone Complete Streets project to improve the safety, connectivity, and livability for non-motorized and transit users. The project limits are from post mile (PM) 74.7 (Herrick Avenue Overpass) to PM 76.1 (south Bayshore Mall entrance).

***Note**: The Caltrans Postmile Services tool may be useful throughout this project description: https://postmile.dot.ca.gov/PMQT/PostmileQueryTool.html?*

The project proposes one build alternative to construct a Class IV separated bikeway within the project limits, as well as other improvements. This project would reconfigure the existing highway lanes, creating new northbound and southbound Class IV bikeways from Herrick Avenue (including on the overpass, on the northbound entrance ramp, and the southbound exit ramp) to the south Bayshore Mall entrance. The Class IV bikeways would generally consist of a 5-foot-wide path separated from the edge of the traveled way by a 3-foot-wide striped buffer including flexible bollard post vertical elements.

BACKGROUND

US 101 along the entire north coast, including the Broadway Corridor, is the only north-south bicycle route and experiences high volumes of bicycle use on insufficient bicycle facilities. Broadway is the busiest main street segment of the State Highway System within District 1, serving local, regional, and interregional traffic. There are no bicycle facilities on the corridor, although several local roads perpendicular to the corridor have bicycle facilities. Broadway is a barrier to bicycle and pedestrian connections to the city of Eureka's Waterfront Trail (Hikshari' Trail[1]). Sidewalks are present for about two-thirds of the project area. There are only five existing marked pedestrian crossings across Broadway within the project area.

The Broadway corridor is currently a barrier to multimodal transportation in numerous ways, as described in a number of studies and public meetings over the years. The surrounding residential communities are essentially cut off from accessing the Hikshari' Trail or business and services by the nature and operation of the corridor and the lack of

[1] Hikshari' is the Wiyot place name for this area. Hikshari' Trail will be used in this document to refer to the segment of the Eureka Waterfront Trail between Truesdale Street and Herrick Avenue.

multimodal options along or across Broadway. Very few—except the more confident or those with limited transportation options—are willing to use or cross the corridor on foot or by bike.

This project is identified in the Broadway Corridor Plan for the City of Eureka. Congestion contributes to higher collision rates, and vehicle volumes are projected to increase into the future.

Public meeting and outreach details are summarized in Attachment 12-A. Public comments and Caltrans's responses are included.

NEED AND PURPOSE

Need

US 101 (Broadway) serves as a main street through the city of Eureka and is one of the busiest corridors in District 1 (33,000 Annual Average Daily Traffic (AADT)). There are limited crossing opportunities and no dedicated bicycle facilities on Broadway, which has created barriers to bicyclists and pedestrians utilizing the corridor. Transit routes generally run behind schedule due to the inability to merge back into traffic after stops. Because of these conditions, surrounding residential communities are discouraged from using active transportation to access destinations on Broadway, local and regional transit on Broadway, and the regional trail network.

Purpose

The purpose of this project is to increase pedestrian and bicyclist safety, connectivity, and level of comfort and to improve accessibility and on-time performance of the transit facility.

PROBLEM, DEFICIENCIES, JUSTIFICATION

- There are no dedicated bicycle facilities on the corridor and cyclists are currently required to share the roadway shoulder.
- Marked pedestrian crossings are widely spaced and only at signalized intersections. Sidewalks do not extend to the southernmost services.
    - Southbound sidewalk ends near Papa & Barkley (PM 75.24)
    - Northbound sidewalk ends north of Carole Sund Center (PM 75.13)

REGIONAL AND SYSTEM PLANNING

- This segment of US 101 is designated as a "Non-Interstate Strategic Highway Network" (STRAHNET) Route in the National Highway System, along with the following designations:
    - US 101 is classified as a Principal Arterial
    - US 101 is within the Interregional Strategic Plan segment of San Jose/San Francisco Bay Area – North Coast Corridor
    - US 101 is listed as Other Freeways or Expressways on the California Road System (CRS)
    - This segment of US 101 has a truck network designation of Terminal Access (Surface Transportation Assistance Act (STAA))
- US 101 through the project area is the Pacific Coast Bike Route. Numerous cyclists travel this route seasonally, primarily in the southbound direction.

TRAFFIC COLLISION RATES

Collision rates per million vehicle miles for the most recent 36-month period from October 1, 2019, to September 30, 2022, are from the Traffic Accident Surveillance and Analysis System (TASAS) and reflect the most recent available rates as of November 3, 2022.

Actual collision rates records show a total of 35 collisions within the segment of US 101 between Herrick and the Bayshore Mall (from PM 74.7 to PM 76.1) in Humboldt County within the study periods summarized above. The combined total rate of fatal and injury-related collision rate is less than the average combined collision rate for similar facilities statewide, and the total collision rate is less than the average for similar facilities statewide. The total fatal collision rate was zero.

There were 35 reported collisions within this segment: 0 fatal, 21 injury, and 14 property damage only (PDO). These collisions included 24 multi-vehicle, 1 wet road surface, and 10 dark.

Three collision location concentrations were identified on US 101 near Herrick Avenue (5), near the signal system at the Pierson Building Center/Tetrault Tire Center (4), and from Tomlinson Street to Truesdale Avenue (7).

BUILD ALTERNATIVE PROJECT DESCRIPTION

There is one proposed Build Alternative, which proposes the following features:

- Class IV bikeway from Herrick Avenue to the south Bayshore Mall entrance (PMs 74.7/76.1).
    - Class IV bikeway would generally consist of a 5-foot-wide path with a 3-foot-wide striped buffer with flexible bollard post vertical elements.
    - Increase bicycle lane mileage by 1.4 miles on US 101 through Eureka.
- Short segments of accessible pedestrian sidewalks would be adjusted or maintained to conform to the new Class IV bikeway:
    - northbound: near Tetrault Tire Center (PMs 75.6/76.0)
    - southbound: near Pierson Building Center (PMs 75.5/76.1)
- Remove most striping from US 101. Micro-surface the pavement where new striping is to be placed.
- Restripe US 101.
    - Decrease all lane widths between Carole Sund Center and south Bayshore Mall entrance.
- Immediately south of the Carole Sund Center, lanes would begin to decrease in width (PM 75.05 to PM 75.10) for a transition area of approximately 250 feet.
    - In transition area, all lanes would be 12 feet wide.
- Between PM 75.10 and PM 76.1, all travel lanes would decrease to 11 feet wide.
    - The center two-way left turn lane would remain 12 feet wide.
- Restripe Herrick Avenue overcrossing (OC) to provide multimodal access to the Hikshari' Trail.
- Construct bicycle/pedestrian railing/fencing on the Herrick Avenue OC.
- Install new traffic signal at Hilfiker Lane (PM 75.7). Add new electrical cabinets to service new signal.
- Adjust locations of pedestrian signals at Papa & Barkley entrance (PM 75.2) and Pierson Building Center/Tetrault Tire (PM 75.5) to be closer to the US 101 pedestrian and bicycle crossing.
- Add light standards north of the Papa & Barkley entrance (PM 75.2) to provide bicyclist and pedestrian lighting, increasing the visibility of pedestrians and bicyclists. Lighting would also aid in alerting motorists of the change from freeway to city surface streets, encouraging reduced motorized vehicle speed.
- Construct new bus stops at the following locations:
    - Southbound: immediately south of Pierson's (PM 75.52)

    - Northbound: in front of Tetrault Tire (PM 75.55)
- The northbound bus stop at Broadway and McCullen Avenue would be moved closer to McCullen Avenue. The southbound bus stop at McCullen Avenue would remain, and the reconfigured striping would allow buses to stop entirely outside of the traffic lane. (The existing configuration requires southbound busses to stop partially in the number two lane).
- Add decorative (mountable) median treatment at select locations (not interfering with emergency vehicle access or vehicle turning movements) to alert motorists of the change from freeway to city surface streets, encouraging reduced motorized vehicle speed.
- Landscaping trees would be planted to further alert motorists of the change from freeway to city surface streets, encouraging reduced motorized vehicle speed.

COMPLETE STREETS

Caltrans' Complete Streets Directive promotes a transportation system that accommodates bicyclists, pedestrians, and transit users (Director's Policy (DP) 37, Attachment 12-B). This is a Complete Streets project intended to directly address DP-37.

Pedestrian Facilities

- Two other projects have been planned within this project's limits; therefore, minimal new sidewalk work is included in 01-0K940:
    - Project 01-0B620 (Broadway ADA Improvements) has filled sidewalk gaps and brought most driveways and curb ramps within the 01-0K940 project area to ADA standards. This project was completed prior to August 2023.
    - Project 01-0H20U (5th Street Combine) would upgrade two additional driveways within the 01-0K940 project limits to ADA standards. This project began construction in Summer 2023.
- Pedestrian crossings would be added to the project at Hilfiker Lane, where a new full traffic signal would be installed to provide connections between the Hikshari' Trail and the rest of the city.
- New curbs and pedestrian striping at Truesdale would improve access for pedestrians to the Hikshari' Trail at the foot of Truesdale.

- Minor sidewalk widening to existing paved areas:
    - At three corners of the Pierson Building Company/Tetrault Tire Company intersection (1 northbound and 2 southbound, PM 75.47/75.57)
    - Immediately adjacent to the Lamplighter Inn driveway entrance, to the north and south (northbound, PM 75.68)
    - Immediately north of the southern entrance to the Oceanview Cemetery (northbound, PM 75.66)
    - Humboldt Motorsports (southbound, PM 75.65)
    - Golden Harvest Café (southbound, PM 75.83)
    - AT&T building (northbound, PM 75.90)
        - This is the northbound bus stop at McCullen Avenue. The widened sidewalk will be at the front of sidewalk to service the bus stop.

Pedestrian Lighting

- Per the Roadway Lighting Manual, Division of Traffic Operations, First Edition, July 2021, Chapters 3 and 4, lighting should be considered where there are high volume sections with pedestrian/Class IV bikeway facilities. It would be anticipated that new lighting would have benefits of:
    - illuminating pedestrians and bicyclists for passing motorists
    - providing improved visibility for pedestrians and bicyclists
    - slowing motorists with the visual cue and awareness of entering city surface streets with mixed traffic and multimodal users
    - demonstrating DarkSky compliance

Bicycle Facilities

- There are no existing dedicated bicycle facilities in the project area. Bicycles currently ride in the shoulder where vehicles also park and make turning movements.
- Proposed Class IV separated bikeways would provide a more comfortable experience for bicyclists and would help delineate the bikeway so that all roadway users know where the bicyclists are expected.

- Separated bicycle crossings would be added crossing Broadway at the signalized intersections:
    - Papa & Barkley (to connect to future planned Hikshari' Trail connector, project 01-0L780)
    - Pierson Building Center/Tetrault Tire Center
    - south Bayshore Mall entrance
    - proposed new signal system at Hilfiker Lane
- New proposed signal system at Hilfiker Lane would improve access for non-motorized users to the Hikshari' Trail at the foot of Hilfiker Lane.

Access Control

- Reducing the number of redundant driveways that access the Broadway Corridor is expected to reduce the frequency and severity of collisions. Five existing driveways would be closed, and one existing driveway would be paved and made ADA compliant.
    - Closure of north driveway at Patriot (APN: 019-211-021-000)
    - Closure of north driveway at Tetrault Tire Company (APN: 019-211-020-000)
    - Closure of south driveway at AT&T (APN: 008-111-001-000)
    - Closure of south driveway at 3534 Broadway (APN: 007-093-009-000)
    - Closure of north driveway at O'Reilly Auto (APN: 008-101-008-000)
    - Driveway improvement at Carole Sund (APN: 302-171-035-000)

Emergency Services

- Median landscaping treatment would be another traffic calming visual cue for motorists entering city surface streets with mixed traffic and users.
    - One location, near the Carole Sund center (PM 75.05), would be constructed with low (4-inch high) mountable curbs with imprinted and colored texture to cue motorists that they are entering a city, surrounded by vertical flexible bollards.
    - Other median "islands" would be flush with pavement and would be an imprinted and colored texture surrounded by vertical flexible bollards.
- The vertical flexible bollard post elements of the 8-foot-wide Class IV bicycle lane would be yielding and replaceable.

- Access for emergency services vehicles would otherwise remain unchanged from the existing conditions.

Transit Facilities

- There are two existing transit stops within the proposed work location of PM 74.7 to PM 76.1 at the McCullen Avenue intersection–one northbound and one southbound. These two transit stops would be minimally adjusted as described above.
- Two new bus stops would be added at:
    - Northbound: Tetrault Tire Center (PM 75.55)
    - Southbound: Pierson Building Center (PM 75.52)

Park-and-Ride Facilities

- There is one Park-and-Ride facility within the proposed work limits (PM 74.7 to PM 76.1): the Herrick Avenue Park-and-Ride.
    - In addition to providing commuter parking, the Herrick Avenue Park-and-Ride provides parking for pedestrians and cyclists accessing the Hikshari' Trail. There are no proposed changes to the Park-and-Ride.
    - A portion of the Herrick Avenue Park-and-Ride may be used as a potential staging area for the project.
        - Pedestrian and bicycle access between Herrick Avenue and the Hikshari' Trail would be maintained at all times.
        - Caltrans would determine which area, if any, could be used for staging.
        - If Caltrans determines staging is allowed, the portion left open for trail and Park-and-Ride users would be at least 28% (11 of 39) of regular parking spaces and 100% of (2 of 2) existing Americans with Disabilities Act (ADA) parking spaces (Figure 1).
    - A future project (EA 01-0N300, 2026 SHOPP candidate) may convert the Park-and-Ride to a mobility hub. A mobility hub would create a central, accessible location for users to transfer modes of transportation (e.g., transit, bicycle, passenger carpool, etc.) For more information, please see: *https://mtc.ca.gov/planning/transportation/mobility-hubs*.

Figure 1. **Drawing is for illustration purposes only to show the minimum number of parking spaces to remain open. Parking spaces inside the blue oval, including 100% of ADA spaces, would be accessible to the public during construction. Actual area for public use may differ during construction.**

BIOLOGICAL RESOURCES

Species

A Biological Memorandum was completed by Caltrans staff on November 29, 2022 (Attachment12-C). Caltrans determined this project would have no effect on any federally listed, proposed for listing, or special status species, or their critical habitat, including:

- Beach layia (*Layia carnosa*)
- Chinook salmon (*Oncorhynchus tshawytscha*) – California Coastal ESU
- Coho salmon (*Oncorhynchus kisutch*) – Southern Oregon/Northern California Coast ESU
- Eulachon (*Thaleichthys pacificus*)
- Green sea turtle (*Chelonia mydas*)
- Green sturgeon (*Acipenser medirostris*)
- Longfin smelt (*Spirinchus thaleichthys*)
- Pacific marten (*Martes caurina humboldtensis*) – Coastal DPS
- Marbled murrelet (*Brachyramphus marmoratus*)
- Menzies' wallflower (*Erysimum menziesii*)
- Monarch butterfly (*Danaus plexippus*)
- Northern spotted owl (*Strix occidentalis caurina*)
- Tidewater goby (*Eucyclogobius newberryi*)
- Western lily (*Lilium occidentale*)
- Western snowy plover (*Charadrius nivosus* ssp. *nivosus*), and
- Yellow-billed cuckoo (*Coccyzus americanus*) – Western DPS

In addition, no state-listed or California special status species would be affected by this project. No biological permits or certifications would be required.

Wetlands and ESHA

A wetland delineation was conducted by Caltrans staff on April 28, 2022. A non-tidal, forested, seasonally flooded wetland borders the western side of the southbound lane between PM 75.06 and PM 75.34. A non-tidal, partially drained emergent wetland borders the Environmental Study Limits (ESL) on the eastern side of the northbound lane between PM 74.7 and PM 75.06. There is also a non-tidal, emergent, seasonally flooded drainage on the western side of the southbound US 101 exit ramp toward Herrick Avenue between PM 74.96 and PM 74.84. **No work would occur within wetlands**.

There is no Environmentally Sensitive Habitat Area (ESHA) present within the proposed work limits. All proposed work is within the existing edge of pavement. However, to prevent potential sediment or erosion impacts to the nearby drainage and wetlands, temporary Environmentally Sensitive Area (ESA) and silt fencing would be placed in two locations prior to the start of construction:

- on the southbound slope behind existing sidewalk between Papa & Barkley and Eureka Chrysler/Dodge Service Center (PM 75.34/75.06), to prevent impacts to wetlands from the light pole installations occurring within the existing sidewalk (Figure 2)
- between the existing pavement and the drainage along the southbound US 101 exit ramp toward Herrick Avenue (Figure 3)

Due to the steep slope off the northbound shoulder between PM 74.7 and 75.06, and the minimal restriping work planned, no work is expected to occur off the existing pavement and ESA fencing would not be required at this location. Therefore, Caltrans determined that no impacts to Coastal wetlands or Environmentally Sensitive Habitat Area (ESHA) would occur from this project.

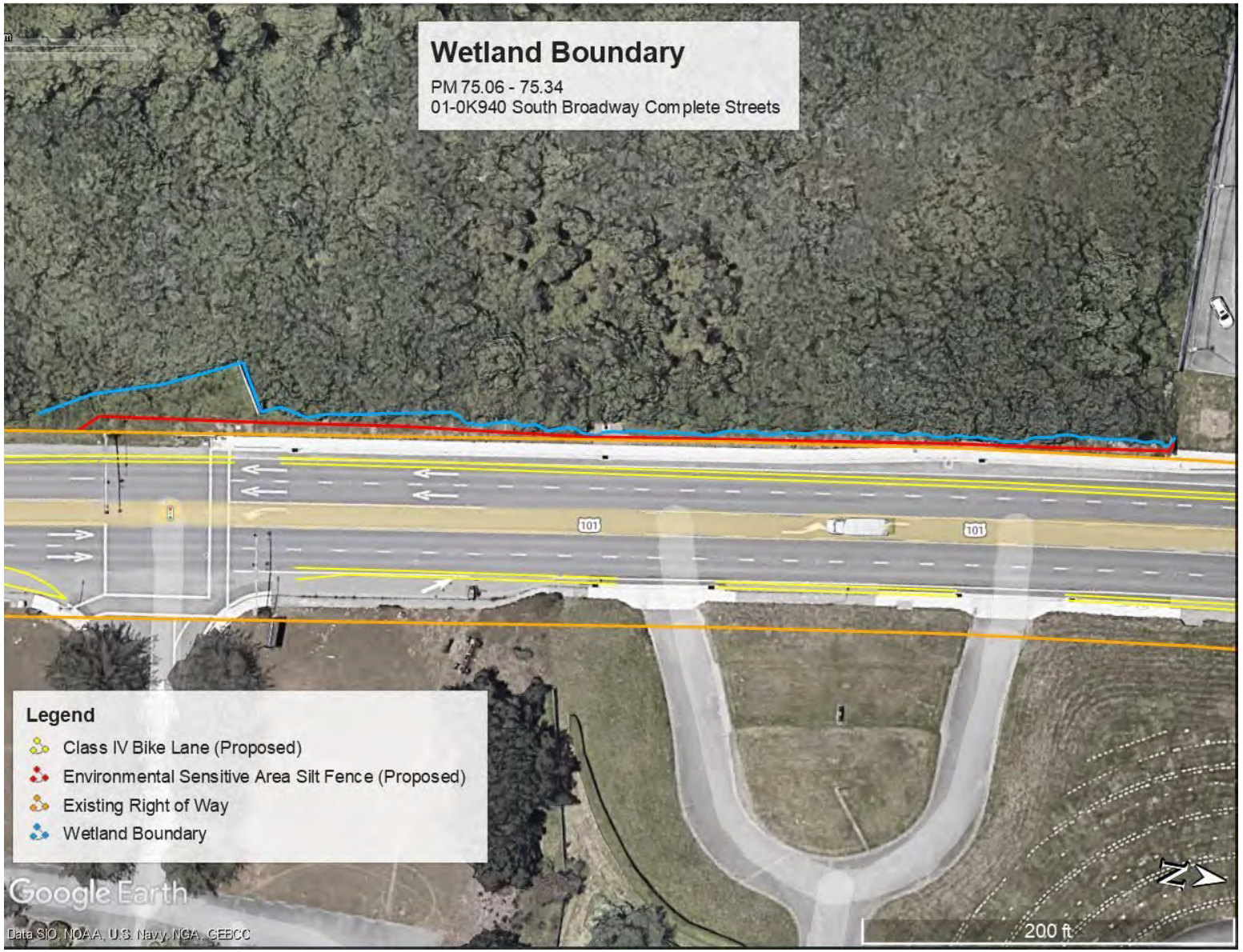

Figure 2. Wetland boundary and proposed location of silt/ESA fencing behind existing sidewalk near Papa & Barkley.

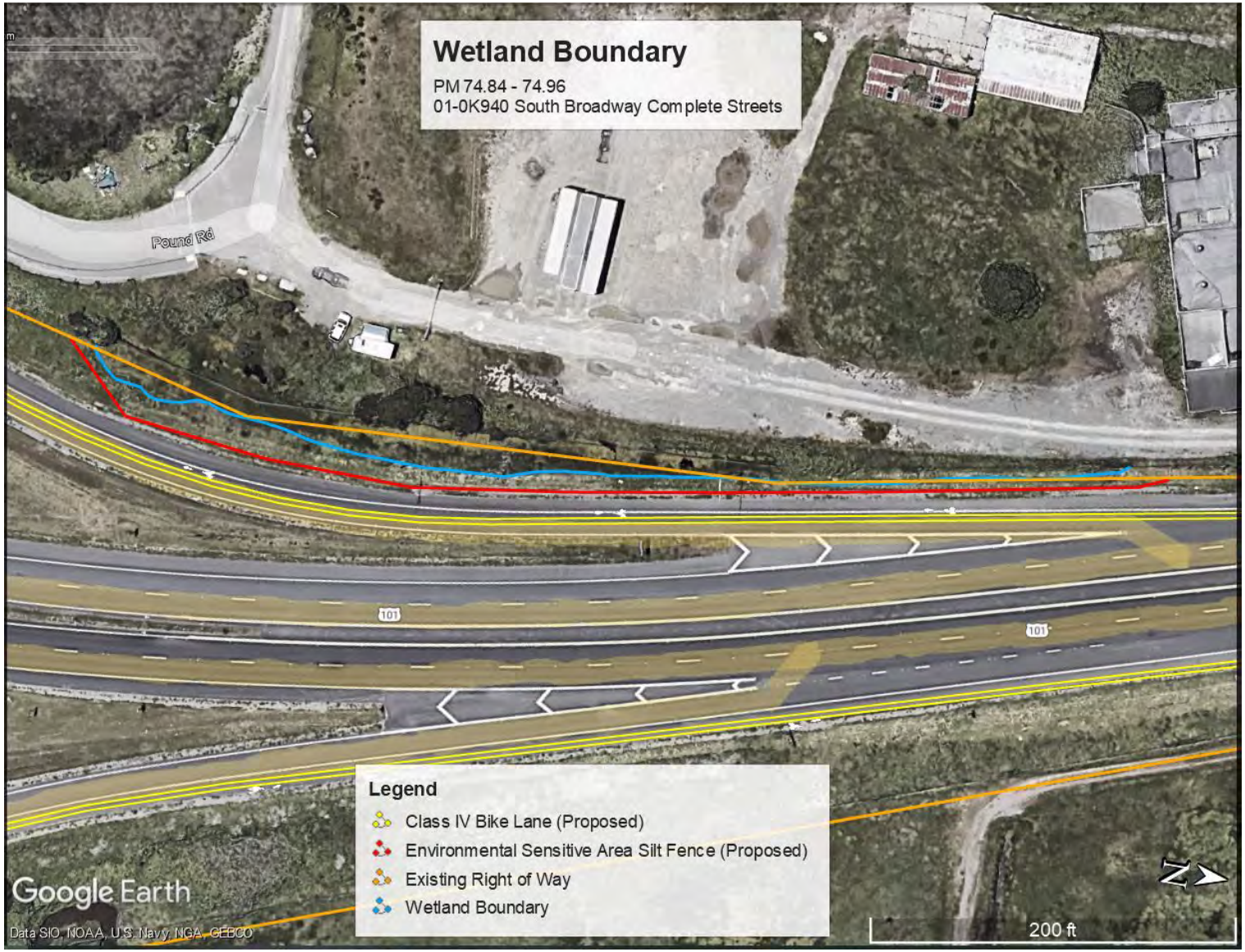

Figure 3. Wetland boundary and proposed section of silt/ESA fencing between drainage and pavement on southbound exit ramp.

CLIMATE CHANGE CONSIDERATIONS

Emissions

- For the anticipated short-term construction on this 1.4-mile segment of highway, this project would generate 207 metric tons of $CO2_e$ greenhouse gas emissions.
- Short term construction greenhouse gas (GHG) emissions are estimated based on an estimate of 180 days construction. Construction GHG emissions consist of emissions produced as a result of material processing, construction equipment emissions, and traffic delays due to construction. The project is not expected to result in increased operational emissions as no additional roadway capacity would be added.
    - In addition, the planned addition of fiber connectivity between traffic lights on Broadway would improve operations (e.g., traffic flow) and would be expected to decrease idling emissions at intersections.
- A long-term reduction in GHG is anticipated from the project. Improvements to pedestrian and bicyclist safety, connectivity, and level of comfort, as well as accessibility and performance of public transit, is anticipated to encourage roadway users to choose non-motorized options and/or public transportation.

Sea Level Rise

- This project is located near areas subject to inundation due to Sea Level Rise.
    - The pavement lifespan of this project is expected to be approximately 5-10 years, which means the pavement built in this project may be at the end of its life in 2030.
    - Sidewalk segments added during this project would likely have a lifespan until approximately 2050.
- Existing NAVD 88 elevations of this segment of US 101 generally varies between 13.0 feet and 20.0 feet.
- The California Coastal Commission Sea Level Rise (SLR) Policy Guidance dated November 7, 2018, notes that year 2050 SLR risks in the area of Eureka could be up to 1.5 feet in the low risk scenario; up to 2.3 feet in the medium-high risk scenario, and 3.1 feet in the extreme risk scenario.
- In the year 2060 projections, the risks are 1.9 feet (low), 3.1 feet (medium-high), and 4.3 feet (extreme).
    - Current maximum tidal elevations are approximately 9 feet. Adding 3.1 feet for the year 2050 projection would bring maximum tide elevations to 12.1

feet, which would be below this segment of US 101. Flooding would not be expected.

- However, adding 4.3 feet for the year 2100 projection would bring maximum tide elevations to 13.3 feet, which could potentially flood portions of US 101 between PM 74.7 and 75.2.

Hazards/Shoreline Development and Protection

- Shoreline protection is not proposed for this project.
- Channelization or alteration of streams is not proposed for this project.
- The project would not include activities that may make the area more vulnerable to hazards or sediment erosion.

CULTURAL RESOURCES

Caltrans completed a Cultural Memo for this project on August 3, 2022. Native American tribes were contacted by email on June 7, 2022. Representatives from all tribes responded with requests that Caltrans follow standard guidance and protocols for inadvertent discovery.

The results of the archaeological foot survey, literature review, and Native American consultation indicated cultural resources are not likely to be present within the project footprint. Cultural resources were not observed during any field surveys. None of the archival literature, past studies, or consultation indicated the presence of cultural resources or eligible historical properties. Therefore, Caltrans has determined this project has no potential to affect historic properties.

The following standard measures would be included in the Environmental Commitments Record (ECR):

- If human remains and related items are discovered on private or State land, they would be treated in accordance with State Health and Safety Code § 7050.5. Further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to California Public Resources Code (PRC) § 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD).
- If archaeological resources were discovered during the project, all onsite work shall cease within a 60-foot buffer of location until a qualified archaeologist can assess the nature and significance of the find in consultation with the local tribes,

Caltrans Cultural Studies Office, and the State Historic Preservation Officer (SHPO).

HAZARDOUS WASTE

This project is anticipated to impact sites on the Cortese List; however, contamination is not expected to be encountered in any areas to be acquired. A Preliminary Site Investigation (PSI) was conducted in July 2022 to address potential concerns of aerially deposited lead (ADL), petroleum hydrocarbons, and Title 22 metals from leaking underground storage tanks.

According to the 2016 DTSC/Caltrans Agreement for Soil Reuse and Management, hazardous ADL soils (Type R-2) can be reused in the ROW if placed at least 5 feet above maximum historical water table and covered in pavement.

Non-hazardous, but regulated, soils (Type Com) may be disposed of at a Class II or Class III disposal facility in California or reused within the ROW with no cover requirement.

Reuse of regulated soils (Type R-2 or Type Com) will be determined by the design team.

The hazardous ADL soils that cannot be reused (Type Z-2) within the ROW would be transported and disposed of at a Class I disposal facility in California.

Sampling of groundwater indicated elevated concentrations of heavy metals. If excavations reach groundwater that requires dewatering, discharge water would not be suitable for storm drains and would require temporary storage and disposal to a wastewater treatment facility or permitted offsite facility.

RIGHT OF WAY

The existing right-of-way (ROW) is approximately 100 feet wide within the urbanized area from PM 75.0 to the northern project limit of PM 76.1. The ROW within the freeway portion (PMs 74.7 to 75.0) varies from 100 feet wide up to 900 feet wide at the Herrick Avenue overcrossing. There is access control south of PM 75.0.

Caltrans ROW staff are actively working with property owners in the project area to acquire small slivers of permanent ROW, several permanent highway easements, and temporary construction easements (TCEs) (Table 1; Attachment 1).

ROW agreements are expected to be completed by May 2024, prior to construction. Caltrans requests permission to submit proof of legal interest in property prior to construction.

A total of five TCEs would be required to:

- Pave driveway at PM 75.12 (Carole Sund Center)
- Pave and re-stripe at PM 75.3 (existing Papa & Barkley intersection signal system, two parcels).
- Pave and conform sidewalk at approximately PM 75.50 (Chin's Café)
- Restripe pavement on two parcels at PM 76.06 (south Bayshore Mall entrance)

Permanent highway easements would be required to:

- Construct two new bus stops at PMs 75.52 and 75.55 (Pierson Building Center, southbound; and Tetrault Tire Center, northbound).
    - Work at this signalized intersection would require approximately 0.06 acres of new ROW and would remove one driveway (immediately north of the signalized driveway) from Tetrault Tire Center.
- Reconstruct portions of a signal system at PM 75.5 (Pierson Building Center and Tetrault Tire Center)
- Construct relocated sidewalk (Pierson Building Center and Tetrault Tire Center)

Permanent utility easements would be required from private property owners for:

- New electrical equipment (loop detectors in the pavement) in five locations at the Papa & Barkley (1), Pierson Building Center (1), Tetrault Tire Center (1), and the south Bayshore Mall signals (2).

Table 1. Right of way (ROW) agreement information in 01-0K940 Project Limits. Colors correlate to mapping in Attachment 1.

Parcel Number	APNs	Agreement Type	Area Needed (square feet)	Appendix XX, Page
13531-1	302-171-041, 302-171-040	Permanent Utility Easement	2512	1
13531-2	302-171-041, 302-171-040	Temporary Construction Easement	2194	1
13530-1	302-171-035	Temporary Construction Easement	672	2
13532-1	019-251-004	Permanent Highway Easement	2012	3
13532-2	019-251-004	Permanent Utility Easement	1420	3
13533-1	019-261-011	Temporary Construction Easement	2890	3
13534-1	019-211-020	Permanent Highway Easement	340	3
13534-2	019-211-020	Permanent Utility Easement	1347	3
13535-1	007-130-013	Permanent Utility Easement	270	4
13535-2	007-130-013	Temporary Construction Easement	468	4
13536-1	007-130-005	Permanent Utility Easement	800	4
13536-2	007-130-005	Temporary Construction Easement	2727	4

VISUAL RESOURCES

Visual Impact Assessment

- Caltrans completed a Scenic Resources Evaluation and Visual Impact Assessment in January 2022. Caltrans determined the project would not result in adverse impacts to the visual environment or any Designated Scenic Resource.
- Bay views would not be impacted by this project.
- Aesthetic treatments would be applied to median areas to address traffic calming.
- Pedestrian rail added to the Herrick Avenue overcrossing would likely be designed and installed in coordination with the City of Eureka to complement the City's vision for their "Gateway Element."
- New overhead lighting would match the existing light poles in the area and would be DarkSky compliant, as is the existing highway lighting.
- Pending agreements with the City of Eureka, any new pedestrian lighting would also be DarkSky compliant.
- Landscaping palettes would be carefully designed to maintain a balance between aesthetic value, maintenance staff safety, and thoughtful compatibility with other plantings along Broadway.
- Trees would be planted in all available areas within Caltrans right of way.
- A preliminary list of tree species was provided by Caltrans Landscape Architecture staff. The final tree species would be selected after further collaboration with the City of Eureka and other stakeholders.
    - Trident maple (*Acer buergerianum*)
    - Paperback maple (*Acer griseum*)
    - Red maple (*Acer rubrum*)
    - Italian alder (*Alnus cordata*)
    - Raywood ash (*Fraxinus oxycarpa*)
    - Catalina fernleaf ironwood (*Lyonothamnus floribundus*)
    - Southern magnolia *(Magnolia grandiflora* 'St. Mary')
    - Mayten tree (*Maytenus boaria*)
    - Olive (*Olea Europaea* 'Swan Hill')

- Brisbane box (*Tristania conferta*)
- Water gum tristania (*Tristania laurina*)

Recreation and Harbor Areas

- A walking tour by Caltrans staff concluded that existing light standards on Broadway are occasionally distantly visible from the southern end of the Hikshari' Trail (Attachment 12-D: Figures 4-7). Therefore, newly placed light poles would blend into the current built highway environment.
- New light poles would not be visible (even when using binoculars) from the Eureka Public Marina.
- New decorative bicycle and pedestrian rail on the Herrick Avenue OC would be distantly visible from the Hikshari' Trail near Pound Road (Attachment 12-D: Figure 8) and from the trail near Humboldt Hill. The decorative rail would be considered a positive aesthetic addition to the existing built highway environment.

WATER QUALITY

- The project was exempt from a CEQA-level Water Quality Assessment because the project, as proposed, is unlikely to impact water quality. Any potential impacts are minimal and would be addressed with Caltrans Standard Measures and Best Management Practices (BMPs). A project-specific Water Pollution Prevention Plan or Program will be included in the construction bid package. The contractor will be required to provide the plan or program to Caltrans for approval prior to construction.
- The project would comply with the Provisions of the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit (Order 2022-0033-DWQ) which became effective January 1, 2023, and the Construction General Permit (Order 2022-0057-DWQ) for projects that result in a land disturbance of one acre or more.
- Before any ground-disturbing activities, the contractor would prepare a Stormwater Pollution Prevention Plan (SWPPP) (per the Construction General Permit Order 2022-0057-DWQ) or Water Pollution Control Program (WPCP) (projects that result in a land disturbance of less than one acre) that includes erosion control measures and construction waste containment measures to protect Waters of the State during project construction.

- The SWPPP or WPCP would identify the sources of pollutants that may affect the quality of stormwater; include construction site Best Management Practices (BMPs) to control sedimentation, erosion, and potential chemical pollutants; provide for construction materials management; include non-stormwater BMPs; and include routine inspections and a monitoring and reporting plan. All construction site BMPs would follow the latest edition of the Caltrans Storm Water Quality Handbooks: Construction Site BMPs Manual to control and reduce the impacts of construction-related activities, materials, and pollutants on the watershed.
- The project SWPPP or WPCP would be continuously updated to adapt to changing site conditions during the construction phase.
- Construction may require one or more of the following temporary construction site BMPs:
    - Any spills or leaks from construction equipment (e.g., fuel, oil, hydraulic fluid, and grease) would be cleaned up in accordance with applicable local, state, and/or federal regulations.
    - Accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities would be removed by dewatering.
    - Water generated from the dewatering operations would be discharged on-site for dust control and/or to an infiltration basin, or disposed of offsite.
    - Proper concrete curing and finishing procedures will be used to minimize any potential for runoff.
    - Concrete washout facilities, re-fueling areas, as well as equipment and storage areas should be covered and located away from drainage inlets and waterways to prevent both stormwater and non-stormwater discharges.
    - Temporary sediment control and soil stabilization devices would be installed.

BROADWAY CORRIDOR COMPLETE STREETS PROJECTS

Four projects are proposed to improve the Broadway Corridor (Herrick Avenue to 4th Street). As a whole, these projects would propose segments of new parallel and connecting transportation facilities that would enhance corridor safety and multimodal connectivity, reduce corridor congestion, improve corridor reliability, plan for sea level rise, and expand access to coastal visitor destinations, essential local services, and regional commerce.

- Improvements proposed for the southern segment of Broadway, between the Herrick Avenue Overpass and Truesdale Street, are now known as the Broadway Complete Streets Project (EA 01-0K940), the applicant project.
- The most recent alternative proposed for 01-0L090 (Broadway Middle) would build improvements similar to those proposed in 01-0K940.
- The Koster Couplet Project (EA 01-0H830) would divert southbound traffic from Broadway westward on to West Washington, then south to Koster. Southbound traffic would merge together on the existing US 101 alignment south of Del Norte Street. Northbound traffic would continue north on the existing US 101 alignment and divert onto Commercial Street on to the existing 5th Street/US 101 alignment.
- The Broadway Complete Streets Shared Use Path project (EA 01-0L780) proposes six build alternatives to consider a Class I shared use path from PM 74.8 to PM 75.2. This project would connect Herrick Avenue with the Hikshari' trail and current Broadway facility at Papa & Barkley (PM 75.24).

Preliminary plans for all four Broadway Corridor projects include traffic calming and multimodal elements such as:

- Landscaping trees
- Wayfinding signage to assist travelers in locating local amenities
- Pedestrian refuges
- Widened sidewalks
- Continuous separated bikeways
- New striping to highlight bicycle and pedestrian facilities
- New transit stops
- New transit lanes to improve transit service reliability
- New signals
- Signal optimization via new fiber
- Improved pedestrian and bicyclist visibility
- Reduced conflict zones at intersections

The improved bicycle facilities would reduce commuter vehicle trips by an estimated average 9.2 miles, twice per day. Therefore, the daily vehicle miles traveled (daily VMT) would be expected to decrease by 7,346 miles per day.

Relative to the applicant project (01-0K940 Broadway Complete Streets), the other three Broadway Corridor projects are more complex and would likely require higher level environmental documentation. Please see Table 2 to compare current target project schedules and funding status.

Table 2. Anticipated environmental milestone and construction dates for Broadway Multimodal Corridor Plan projects if all projects receive funding.

Nickname/ Project EA	**Broadway Complete Streets/ 01-0K940**	**Koster Couplet/ 01-0H830 ****	**Broadway Middle Couplet/ 01-0L090**	**Broadway Complete Streets Shared Path/ 01-0L780**
Funding Status	Funded	Seeking funding	Seeking funding	Seeking funding – 2024 SHOPP candidate
Anticipated CEQA Environmental Document	Categorical Exemption (CE) (complete)	Environmental Impact Report (EIR)	Initial Study (IS)	Initial Study (IS)
Anticipated NEPA Environmental Document	Categorical Exclusion (CE) (complete)	Complex Environmental Assessment (EA)	Categorical Exclusion (CE)	Categorical Exclusion (CE)
Begin Environmental	February 2022 (complete)	October 2023	October 2023	August 2024
Public Comment Period	February 2023 (complete)	February 2025	July 2025	November 2025
Target Permit Application Date	October 2023 (in progress)	February 2027	November 2026	October 2026
Construction Start	November 2024	September 2028	May 2028	Spring 2028
Construction Ends	December 2025	December 2030	December 2030	December 2029

**Planning-level studies for a new, reduced footprint alternative of the Koster Couplet Project were completed in early 2023. This alternative, which avoids the Balloon Track parcel, was determined to be the programmable alternative. Once the project design is more developed and technical studies complete, it may be determined that an IS and CE are appropriate documents, not an EIR and EA.

MULTIMODAL AND COMPLETE STREETS ELEMENTS CONSIDERED AND REJECTED FOR THIS PROJECT

Select elements are described here. For a comprehensive analysis, please see Attachment 12-E (pages 22-36 of the PIR)

- Widened bikeway/sidewalk between Eureka Chrysler/Dodge and Papa & Barkley
    - Wetland and cultural resource impacts from a widened US 101 would delay project schedule
- Trees would be planted between the sidewalk and Broadway as a buffer between pedestrians and motorists/bicycles in every location where existing ROW allows.
    - However, at certain locations this would result in a sidewalk that was narrower than required by ADA (e.g., bordering cemeteries). Trees in those locations would be planted at the back of sidewalk.
- Class I Bike Path from Papa & Barkley (old K-Mart)
    - Moved to future project (Broadway Complete Streets Shared Path, 01-0L780 – see below) because it would delay the safety improvements of 01-0K940 due to permitting and potential mitigation timelines.
- Pedestrian level lighting
    - Not included in this project because lighting maintenance agreements would have delayed the other safety improvements of 01-0K940.
    - Instead, corridor lighting would be installed to serve all users and these lights would likely be maintained by Caltrans.
        - Corridor lighting would illuminate the roadway and provide more visibility for pedestrians outside of designated crosswalks than pedestrian lighting, which only illuminates sidewalks.
- Pedestrian/bicycle crossing and left turn lane at Truesdale Street
    - Removed for safety and operational concerns.

TRAFFIC CALMING ELEMENTS CONSIDERED AND REJECTED FOR THIS PROJECT

- Mountable median islands were considered for multiple median locations
    - Rejected all but one location in favor of aesthetic treatment to allow flexible traffic control during maintenance, utility work, and emergency situations
- Low profile plantings in the separated bikeways were proposed
    - Rejected due to narrow ROW and maintenance concerns
- Mid-block crossing at Hilfiker Lane
    - Rejected in favor of a full traffic signal to improve the operation of this section of Broadway/US 101.
    - Once this and related projects are constructed, all traffic signals and camera systems on US 101 through Eureka would be connected by fiber to the Caltrans District 1 Transportation Management Center. This would provide previously unavailable levels of optimization in corridor traffic flow and help improve safety for bicyclists and pedestrians.

Alternative 4 – Programmable Project Alternative

Proposed Engineering Features

This alternative has several key components. They have been broken out for discussion below. See Attachment A for Layouts and Typical Sections.

Striping/Marking Improvements (Station "A" 77+50 ***to*** *"A" ~101+00)*

Investigation will be conducted in the next project phase to determine if there are any possibilities for including striping and/or marking improvements to the shoulders on and near the Herrick Avenue Overcrossing for non-motorized users.

Since Alternative 4 doesn't include a Class I path, striping and marking options for non-motorized users will also be investigated between the Herrick Avenue Overcrossing and the Papa & Barkley Co. intersection.

Class IV Separated Bikeways ***(Station*** *"A" ~101****+00 to*** *"A" ~141+00)*

The existing shoulders will be converted to Class IV separated bikeways from the Papa & Barkley Co. intersection to Truesdale Street. The bikeways will be five-feet wide at minimum and will be wider when there is extra width available. These bikeways are separated from the traveled way with a physical separation. The details of the physical separation remain to be decided and will require future investigation in the next project phase. There are several options for the physical separation, each with their own pros and cons. These options are detailed in the table below. For preliminary project cost estimating, it is assumed that the physical separation will be a continuous raised curb with some locations of raised bikeway.

Separation Type	Pro	Con
Continuous Raised Concrete Curb (widened to island where applicable)	• More comfortable • Durable	• Expensive • Limited bikeway delineation • Fewer opportunities to exit the bikeway
Planting Strip (where roadway width allows)	• More comfortable • Durable • Potential to be a bioswale	• Expensive • Limited bikeway delineation • Fewer opportunities to exit the bikeway • Increased maintenance of plants and plant debris

Separation Type	Pro	Con
Raised Bikeway (roadway, bikeway, and sidewalk at different elevations)	• Durable	• Expensive • Requires drainage modifications • Limited bikeway delineation • Entering and exiting the bikeway can be dangerous due to curb
Flexible (Durable) Posts (Like K-71, Rubber Posts, or Posts used at Sunset Blvd Overpass in Arcata)	• Increased bikeway delineation • Inexpensive • Removable for operations and maintenance if needed	• Less durable • Worker safety issue to maintain or replace posts • Lack of public/stakeholder support • May be a sight obstruction for children
Armadillos (lower version of posts)	• Inexpensive • Removable for operations and maintenance if needed	• Less durable • Limited bikeway delineation • Worker safety issue to maintain or replace armadillos
Parking Stops (Concrete or Rubber)	• Inexpensive • Removable for operations if needed	• Less durable • Limited bikeway delineation • Worker safety issue to maintain or replace parking stops
Planting Boxes	• Increased bikeway delineation • Inexpensive • Removable for operations if needed	• Less durable • Worker safety issue to maintain or replace planting boxes • Increased maintenance of plants and plant debris • May be a sight obstruction for children

For this phase of project development, the bikeway is presented as one-way on each side of Broadway. An alternative to this design is a two-way bikeway on one side of Broadway. Further studies and public surveys will be required to determine the optimal design. Below is a table of pros and cons for the two designs:

	Pro	Con
Two-Way (SB side of Broadway)	• Some NB cyclists currently use SB side. This design accommodates existing use with greater safety. • A two-way facility is essentially one bicycle facility, rather than being two facilities (one on each side). This may potentially require less space since there would only be one buffer versus two.	• Minimal separation of NB cyclists from SB cyclists and vehicles • Bikeway termination requires NB cyclists to cross Broadway. • Cyclist merging into motorized traffic for turning movements is more difficult • Would require bicycle signalization • Bicyclist access to destinations would be limited to one side of Broadway
Two-Way (NB side of Broadway)	• A two-way facility is essentially one bicycle facility, rather than being two facilities (one on each side). This may potentially require less space since there would only be one buffer versus two.	• Minimal separation of SB cyclists from NB cyclists and vehicles • Bikeway termination requires SB cyclists to cross Broadway. • Cyclist merging into motorized traffic for turning movements is more difficult • Wrong-way riding could perpetuate (some NB cyclists on SB side) • Would require bicycle signalization • Bicyclist access to destinations would be limited to one side of Broadway
One-Way	• Cyclists riding with traffic • Cyclist merging into motorized traffic for turning movements is simple • Bicyclists have access to destinations on both sides of Broadway	• Wrong-way riding could perpetuate (some NB cyclists on SB side)

Protected Intersection at Papa & Barkley Co. and Broadway ***(Station "A" ~101+00 to "A" ~1****04+50)*

The Papa & Barkley Co. and Broadway intersection requires a redesign because:

- It is the junction of the future Class I path and the Class IV separated bikeways.
- Widening is required along the eastern side of Broadway near the intersection to accommodate the Class IV separated bikeways (see next Section)
- The intersection is the first signal on the south end of Eureka, so there are high speeds in the transition to/from freeway and urban main street. These high speeds mean that special consideration needs to be made for intersection design, including non-motorized movements.

Protected intersections provide the greatest amount of comfort for non-motorized users. In general, key design elements include:

- Setback pedestrian and bicyclist crossings: these allow turning drivers to better see crossing pedestrians and bicyclists
- Corner islands: raised islands on the corners of the intersection slow turning vehicle speeds. For this project, the corner islands are placed where there is already sidewalk, so there is no increased benefit over existing conditions.
- Pedestrian refuge islands and bicycle queuing areas: these spaces allow pedestrians and bicyclists to wait comfortably and reduce the crossing distances

Constructing the protected intersection will require replacing the existing traffic signal and streetlights.

One discussion topic to be carried into the next project phase is what the scope of the southern crossing is. There is no existing pedestrian crosswalk here. When bicycle crossings were scoped with the protected intersection, one was added to the southern crossing without adding a pedestrian crosswalk. There are concerns that pedestrians will use this southern bicycle crossing, so it may be desirable to either add a pedestrian crosswalk or remove the bicycle crossing. If the bicycle crossing is removed, then the northern and potentially eastern bicycle crossings should be two-way to accommodate both directions of bicycle flow.

Associated with the above discussion is if there is only one Broadway pedestrian crosswalk, is it safer to place it on the northern (existing) or southern side of the intersection. For the purposes of this Project Initiation Document, it is assumed there is a bicycle crossing on the northern and southern sides of the intersection, and a pedestrian crosswalk only on the northern side to match existing conditions. The reason for an existing pedestrian crosswalk only on the northern side of the

intersection is likely because there is sidewalk only on the northern side of the Papa & Barkley Co. driveway.

Consideration should be given to modifying or removing the right turn lanes coming into (not an official lane, but is wider here) and out of Papa & Barkley Co. The intersection could be tightened and/or these could be converted to maintenance pullouts.

Broadway Widening from Papa & Barkley Co. Intersection to Lithia ***(Station "A" ~104+50 to "A" ~1****09+00)*

Project 01-0B6204 Broadway ADA will construct sidewalk along SB Broadway from the Lithia car dealership to the Papa & Barkley Co. intersection. Shoulder width will be reduced to avoid impacts to wetlands on 01-0B6204. Widening will be required on this project on the NB side of Broadway to accommodate the Class IV separated bikeways.

Upgrades to the Intersection of Pierson Building Center and Broadway ***(Station "A" ~117+0****0 to "A" ~1****18+50)*

The existing intersection of Pierson Building Center and Broadway is difficult to navigate for pedestrians along SB Broadway. Pedestrians must cross the free right-turn lane into Pierson's (with no crosswalk marking) to a small island refuge and then cross Pierson's SB and NB exit lanes on a bent crosswalk. The entire movement requires changing direction twice and is difficult for visually impaired pedestrians.

Another issue for pedestrians is there is no marked crosswalk across Broadway on the southern side of the intersection, so a pedestrian on the SW corner of the intersection could have to wait through three stoplight cycles to get to the SE corner, and vice versa. This may lead to some people crossing Broadway south of the intersection where there is no marked crosswalk.

Another issue was raised in the US 101 (Broadway) K-Mart to 4th Street Pedestrian and Bicycle Road Safety Audit. There are four vehicle access points on the NB side of Broadway near the intersection at Pierson's that all connect to one large paved area. If project funding allows and businesses consent, these access points should be reduced to leave only the one at the traffic signal. This would allow the Class IV bikeway separation to be continuous though most of this area and would limit conflict points between vehicles and non-motorized users.

Due to limited funding, the intersection cannot be altered like the Papa & Barkley Co. intersection. Also, due to limited time and resources in this phase of project development, options have not been fully investigated for the intersection. Concepts to be investigated in the next project phase include:

- Adding a crosswalk to the southern side of the intersection
- Adding a raised passageway in the SW corner of the intersection. This will have to be weighed against the proper design vehicle turning radii for this intersection
- Modifying the existing raised passageway in the NW corner of the intersection to be more robust.
- Consideration of modifying or removing the free right turn lanes coming into and out of Pierson Building Center. Morgan Randall (store Manager at Pierson Building Center) has indicated that removing the acceleration lane out of Pierson Building Center would cause queuing issues into their parking lot. There are also often queuing issues on Broadway even with the existing free right turn lane into Pierson Building Center, so removing either lane could cause operational issues. Some modifications to these two lanes might be preferred if budget allows. The US 101 (Broadway) K-Mart to 4th Street Pedestrian and Bicycle Road Safety Audit stated: "Consider eliminating acceleration lanes and creating bicycle lanes where possible."
- If the right turn lane into Pierson Building Center is maintained, then an R4-4 sign will be needed where the right turn lane begins
- Modifying the NB sidewalk to accommodate any of the above changes.

Funding has been programed with this project for intersection study and design work in the next phase.

New Transit stops at the 76 Gas Station and Pacific Motorsports ***(Station "A" ~121+00 to "A" ~123+50)***

Two new transit stops are proposed: SB at the 76 Gas Station and NB at Pacific Motorsports. These locations were decided based upon discussions with Greg Pratt, General Manager at Humboldt Transit Authority. Widening will be required to accommodate the bus width. The transit stops will be designed as follows:

- Bus pad that is somewhere between 50-feet to 70-feet long and ten-feet wide
- Sidewalk that is between six-feet and eight-feet wide
- A Class III mixing zone between buses and bicyclists to minimize widening at these locations. This is especially important for avoiding operational impacts at the 76 Gas Station because the roadway is already close to some fuel pumps, which are used by large trucks.

Further investigation in the next phase is necessary to determine if widening these transit stops to eliminate Class III mixing zones is feasible. It is likely feasible at Pacific Motorsports but may not be at the 76 Gas Station due to the conflicts with large trucks and fuel pumps. Funding may also be limited.

Broadway Pedestrian Crossing Near Hilfiker Lane ***(Station "A" ~126+50 to "A" ~127+00)***

One goal of this project was to provide better non-motorized connections across Broadway. One of these key connections is at Hilfiker Lane because this provides a connection to the Hikshari' Trail. There is no signalized intersection at this location. Implementing a standard crosswalk with no other modifications would provide little benefit over existing conditions. Therefore, a crosswalk with a pedestrian refuge island in the median and a two-stage beacon will be implemented. Two-stage beacons alert opposing vehicular traffic of a crossing pedestrian in two parts separated by a pedestrian island. There is an existing streetlight at the crossing that will be used to illuminate the crossing at night.

The median is often used by emergency responders to bypass heavy traffic in emergency situations. The median can also be used for construction staging and evacuation routes. Thus, median island design will be low and mountable. Pedestrian detector loops will be implemented to eliminate fixed pedestrian push button poles.

An alternative to raised median islands is removable flexible posts that delineate pavement in the shape of the islands, but the islands would be flush with the roadway. These posts would be removed during construction staging or an evacuation. They would also be flexible so they could be run over by first responders. However, maintenance of these posts would create a maintenance worker safety issue.

Another consideration is the type of pedestrian activated beacon to use. There are two types commonly used:

- Rectangular Rapid Flashing Beacon (RRFB): this beacon does not require vehicles to stop and will require that the pedestrians wait for vehicles to yield.
- Pedestrian Hybrid Beacon (PHB): this beacon requires drivers to stop, like a traffic signal. Unlike a traffic signal however, this beacon is only activated by pedestrians. The PHB would require coordination with the two nearest traffic signals.

The selection of beacon type is deferred to the next project phase for detailed modeling of the traffic impacts. Funding for the PHB was conservatively programmed since this is the more expensive option of the two. This funding includes cost for advance warning beacons. However, implementation of advance warning beacons also needs to be investigated in the next project phase.

The crossing location was chosen to minimize the conflicts with left turn movements. Hilfiker Lane serves large trucks which need the two way left turn lane, and there are several driveways to the north of the intersection. Thus, a location to the south was chosen; it should not interfere with operations at adjacent businesses since there are

two large driveways serving these businesses. This location was also chosen since it places the crossing equidistant between the nearby traffic signals, balancing the effects on traffic operations.

Upgraded Transit stops at McCullens Avenue and Broadway Intersection ***(Station "A" ~136+50 to "A" ~139+50)***

There is a NB and SB transit stop located at the McCullens Avenue and Broadway intersection. The NB transit stop currently functions well; however, the SB stop requires buses to take up a small portion of the traveled way due to narrow shoulders. Both transit stops will be upgraded. The transit stops will be designed as follows:

- Bus pad approximately 50-feet long and 12-feet wide.
- Unlike the transit stops at the 76 Gas Station and Pacific Motorsports, these transit stops will incorporate raised Class IV separated bikeways that become part of the ADA landing area for the buses. This removes conflicts between buses and bicyclists. The raised bikeways will be five-feet wide.
- Sidewalk that is between six-feet and 12-feet wide.
- The SB transit stop will require removal of one driveway and the NB transit stop will require removal of two driveways. Both affected properties have another access point along McCullens Avenue.

Another topic for the McCullens Avenue intersection is the curve radius for the SE corner of the intersection. It is larger than the other three corners and reducing this radius would help slow vehicles and increase safety. For now, reducing this curve radius is not included in the scope, but it is added as a future investigation item. It would require balancing the needs of all users, including the design vehicle.

Pedestrian and Bicycle Crossing Between Highland Avenue and Truesdale Street ***(Station "A" ~141+50 to "A" ~143+50)***

The City of Eureka plans on making Highland Avenue a Class III bike route. Truesdale Street provides a connection to the Hikshari' Trail. This indicates that there will be pedestrian and bicyclist traffic between the two streets. The two streets intersect with Broadway offset from each other which creates challenges in moving non-motorized users between the two streets. A two-part treatment was designed for the intersection: treatment for pedestrians and treatment for bicyclists. The treatment for pedestrians is like the one at Hilfiker Lane, using a RRFB or a PHB (see discussion above). There is an existing streetlight at the crossing that will be used to illuminate the crossing at night.

A possible solution for bicyclists is to implement a median protected bicycle center turn lane. This uses a raised barrier in the center of the median to both prevent vehicles from using the median and to separate the two directions of bicycle travel. It

offers a protected area free from vehicles for bicyclists to cross one direction of traffic at a time. However, it blocks vehicle travel between the two streets, and prevents left turns to and from the two streets. This means that there will be impacts to traffic operations on the local network. Vehicles would be redirected to the two nearest traffic signals at McCullens Avenue and the southern Bayshore Mall entrance, and then would have to use local streets to get to their destination.

Another solution is to have bicyclists cross Broadway directly from the separated bikeway. The design could include small median islands for bicyclist refuge.

The following table lists the pros and cons of the two options:

	Pro	Con
Median Protected Bicycle Center Turn Lane	• Best solution for bicyclists • Would eliminate an existing collision concentration by preventing the vehicle movement • This area was identified as a place for median islands in the US 101 (Broadway) K-Mart to 4th Street Pedestrian and Bicycle Road Safety Audit: "Consider installing median islands along Broadway, especially between Truesdale St. and McCullens Ave."	• Out of direction travel for vehicles • More volume at two nearest traffic signals may necessitate intersection modifications • Impacts the businesses in the vicinity • Drivers may use driveways instead of using the nearby traffic signals • Creates impacts to first responders and a pinch point in available pavement width for evacuations (could be mitigated by using removable flexible posts, as mentioned in the Hilfiker Lane crossing discussion above)
Crossing Straight Across Broadway	• Little impact to vehicle traffic.	• Provides little benefit to bicyclists if no median island built • This is an "unnatural" crossing movement. Bicyclists are supposed to cross like vehicles.

The current layouts (Attachment A) show the crossing straight across Broadway with no median islands. Median islands can be added for little cost. The switch can also be made to the median protected bicycle center turn lane at little cost. The final design

for this intersection will be deferred to the next phase where operational impact studies can be performed.

Roadway Narrowing and Pavement Overlay ***(Station "A" ~99+50 to "A" ~144+50)***

The roadway will be narrowed to make room for non-motorized improvements. The following are the typical widths:

- Median reduced from 13-feet/14-feet to 12-feet
- Inside lane reduced from 12-feet to 11-feet
- Outside lane will remain at 12-feet
- Shoulder reduced from four-feet/eight-feet to two-feet

When the existing striping is removed, there will be slight grooves in the pavement. A pavement overlay (micro-surfacing) has been included in the scope to remove this effect and to provide a smooth finish over the roadway since there will be several locations where the pavement is excavated and replaced. The southern end of the pavement overlay should logically tie into the limits of paving from project 01-0C5704 King Salmon Rehab 2R which is currently in construction.

Previous pavement overlays have reduced the curb heights along Broadway and have made some areas of nonstandard cross slopes. Cold planing prior to this pavement overlay has been included in spot locations to mitigate these issues.

Structural Sections

There are many different project components all requiring different materials and material thicknesses. Below is a table summarizing that information. The acronyms are as follows:

- SEG: subgrade enhancement geotextile
- AB: Class II aggregate base
- HMA-A: hot mix asphalt type-A
- JPCP: jointed plain concrete pavement
- LCB: lean concrete base

Project Component	Material and Thickness
Class I Shared Use Path	• 0.25' HMA-A • 0.60' AB • SEG
Class IV Separated Bikeways (Where Reconstructing Shoulder)	• 0.35' HMA-A • 0.50' AB
Class IV Separated Bikeways (Where Overlaid)	• 0.25' HMA-A

Project Component	Material and Thickness
Broadway Mainline Pavement Overlay	• Micro-surfacing (type II or III TBD)
Broadway Mainline Pavement Reconstruction	• 0.55' HMA-A • 0.85' AB
Bus Pads	• 0.85' JPCP • 0.50' LCB
Sidewalks and Curb Ramps	• 0.33' minor concrete • 0.35' AB
Sidewalks and Curb Ramps (at Commercial Driveways)	• 0.50' reinforced minor concrete • 0.50' AB
Raised Median	• 0.50' reinforced minor concrete • 0.50' AB
Hardscaping	• 0.50' reinforced minor concrete • 0.50' AB

See Section 17 Additional Considerations – Recycled Materials for discussion on alternative types of material that could be used pending further investigation.

Necessary Drainage Upgrades ***(Station "A" ~101+50 to "A" ~141+50)***

Water currently drains off Broadway into either drainage inlets along the sidewalk or onto local roads and driveways. The required drainage scope will depend heavily on the type of Class IV separation selected. If the separation is continuous and raised, then the water will be captured and a new drainage pattern will be created. Several drainage features would be required due to the shoulder reduction.

If the type of Class IV separation is non-continuous such as flexible posts, then the existing drainage patterns can be largely perpetuated, and drainage improvements will be minimal.

The separation conservatively selected for the purpose of project cost estimating is the continuous raised curb with some locations of raised bikeway. Drainage is scoped appropriately to capture adequate funding for this type of separation. Cuts in the raised separation were scoped to minimize the number of additional drainage features required. The drainage worksheet can be found as Attachment M.

Street Trees and Landscaping Opportunities ***(Station "A" ~107+50 to "A" ~143+00)***

Broadway has an industrial aesthetic which creates an uncomfortable environment for non-motorized users. Street trees and landscaping opportunities have been identified to mitigate this aesthetic and create a more welcoming appearance for all roadway users, similar to the street trees along US 101 on 4th and 5th Streets in Eureka.

These features will also help with traffic calming. The scope for these areas is still preliminary, but funding has been set aside for this work. Coordination with the City of Eureka and groups such as Keep Eureka Beautiful is vital to ensure that the appropriate features are selected and that they can be maintained in the future.

Curb Ramps and Driveways ***(Station "A" ~102+00 to "A" ~141+****50)*

There is little sidewalk, curb ramp, or driveway work included in this project since much of it is being completed with project 01-0B6204 Broadway ADA. Where curb ramp work is required, they will be designed as directional curb ramps to the extent feasible to help guide people with visual impairments. Where driveway work is required, the driveways should be narrowed to the extent feasible based on the design vehicle to help slow turns into and out of the driveways and to shorten driveway conflict areas for non-motorized users.

Potential Developments

There are several areas along Broadway that may be repurposed and could change the scope of this project, either directly or indirectly through required driveways and increased traffic. Coordination with developers is necessary moving forward.

Traffic Signal Upgrades for Non-Motorized Users

There are several small upgrades that can be made to the signalized intersections that can have large safety benefits. A small lump sum of money has been allocated to funding these upgrades, but the exact selection and design of upgrades has been left for the next phase to determine. Here are some possibilities:

- Right-turn yield to pedestrian signage
- Bicycle signals (Papa & Barkley Co. intersection)
- Blank-out signs that indicate when pedestrians are crossing to alert right turning vehicles to the conflict
- Leading pedestrian intervals which will give pedestrians a head-start to cross the roadway

Maintenance of New Facilities

The proposed facilities will require special maintenance efforts. The Class I path will require shoulder mowing and occasional sweeping. Depending on the alternative chosen for this path, maintenance will fall either with Caltrans, the City of Eureka, or a combination of Caltrans and the City of Eureka (Alternatives 1-3 only).

The Class IV separated bikeways will require sweeping as well. Normal street sweepers will not fit on these facilities. The equipment needs for maintenance of these facilities will need to be communicated to Maintenance.

Electrical Systems

This project requires replacing several existing electrical systems as well as constructing several new ones. Below is a summary of the electrical system work, some of which has been mentioned previously:

- Relocate and replace three lights
- Two PHBs
- Coordinate nearby signals with the Hilfiker Lane and the Highland Avenue PHBs
- Replace Papa & Barkley Co. traffic signal at PM 75.24
- Pedestrian/bicycle count station on the Class I path (Alternatives 1-3 only)
- Modify census station at PM 75.02 to also count pedestrians and bicyclists (Alternative 1 will potentially require moving this entire census station location due to the Class I path alignment)
- Class I path lighting (Alternatives 1-3 only)
- Traffic signal upgrades for non-motorized users

Design Vehicles

Detailed investigation of design vehicles is deferred until the next project phase when there is more time to investigate the turning movements at the driveways and roads throughout the project limits. The design vehicle for the mainline is a Terminal Access (Surface Transportation Assistance Act (STAA)) semi-truck. This truck passed through the mainline with the proposed lane width reductions.

Future Investigation for This Project

As noted throughout this discussion, there are several design features that will need to be investigated in more detail in the next project phase. Those items are summarized below:

- Marking and striping options on and near the Herrick Avenue Overcrossing for non-motorized users
- Marking and striping options from the Herrick Avenue Overcrossing to the Papa & Barkley Co. intersection for non-motorized users (Alternative 4 only)
- Class IV separated bikeway separation type
- One-way vs two-way Class IV separated bikeway design
- Pedestrian crosswalk and bicycle crossing locations, as well as the need for right turn lanes at the Papa & Barkley Co. intersection
- Pierson Building Center intersection design

- Removing the mixing zones for bicyclists and buses at the two new transit stops at the 76 Gas Station and Pacific Motorsports
- Use of RRFB or PHB at the Hilfiker Lane and Truesdale Street/Highland Avenue pedestrian crossings, along with the use of advance warning beacons
- Reducing the curve radius of the SE corner of the McCullens Avenue intersection
- Bicyclist crossing improvements at the Truesdale Street/Highland Avenue intersection
- Coordination with developers along Broadway
- Traffic signal upgrades for non-motorized users
- Design vehicle movements
- Recycled material usage

Ideas for Future Projects

There were some concepts that could not be incorporated into this project. These concepts would enhance mobility and livability for non-motorized users. Therefore, it is recommended that these concepts be pursued as future projects or as add-ons to this project. The concepts have been divided into the following three projects:

The first project is to upgrade pedestrian and bicycle facilities along Herrick Avenue and Pound Road. There are many residences on Herrick Avenue, but there are no non-motorized facilities on or near the Herrick Avenue Overcrossing. This lack of facilities presents a barrier for non-motorized users who want to access the trails west of Broadway. Project features could include any combination of the following:

- Sidewalk
- Class II bike lanes or Class IV separated bikeways
- Class I path
- Pedestrian/bicycle overcrossing over the freeway
- Pedestrian and bicyclist crossings
- Transit stops. Possible ideas for transit stops include at the freeway off ramps, in the park-and-ride, and/or in the gravel pullout to the east of the overcrossing on Herrick Avenue.

The second project is to implement features to the south of the Papa & Barkley Co. intersection that create a sense of arrival to Eureka. This has been preliminarily studied for the Eureka South Entry Project in 2015. A project study report-project development support was written and can be found at this link. Project features could include:

- A gateway monument
- Median islands
- Streetlights
- Street trees

- Textured pavement

The third project is to implement a Class I path from Pound Road to the Papa & Barkley Co. intersection. Alternatives 1-3 include this but were deemed infeasible for completion in the 2020 State Highway Operation and Protection Program (SHOPP) due to programming constraints for Complete Streets reservation funds .

California Highway Patrol (CHP) Enforcement Activities

This project will use the Construction Zone Enhanced Enforcement Program (COZEEP) to provide additional officers on the job site during the work. COZEEP monies were included in the cost estimate. Any median islands implemented will affect CHP activities and other emergency responders since the median is currently used to bypass heavy traffic. Therefore, median islands will be mountable. CHP activities and other emergency responders will also be temporarily impacted during construction.

Context Sensitive Solutions

This project requires close coordination with local entities such as the City of Eureka. The project has been designed with consideration of local needs. For example, the plan to make Highland Avenue a Class III bike route with Truesdale Street being a connection to the Hikshari' Trail and the existing offset intersection at Highland/Truesdale necessitates special design of the improvements proposed at this location. Another example is the scoping of landscape features/street trees to give a less industrial aesthetic to Broadway.

Another context sensitive solution is that this project is the southern portion of the Broadway Corridor Plan. The rest of Broadway still requires upgrades to increase safety and livability for non-motorized users.

Current Construction and Right-Of-Way Cost Estimates

The current non-escalated construction and right-of-way capital costs are $6,245,000 and $555,000 respectively for Alternative 4.

Earth Retaining Systems

There are two small retaining walls required for this project: one at the 76 Gas Station transit stop and one at the SB McCullens Avenue transit stop. Both will be standard plan retaining walls and will be approximately two-feet tall (above ground).

Erosion Control

This project will use soil stabilization and sediment control in locations within project limits where the soil is disturbed due to earthwork.

High-Occupancy Vehicle Lanes

There are no proposed high-occupancy vehicle lanes for this project.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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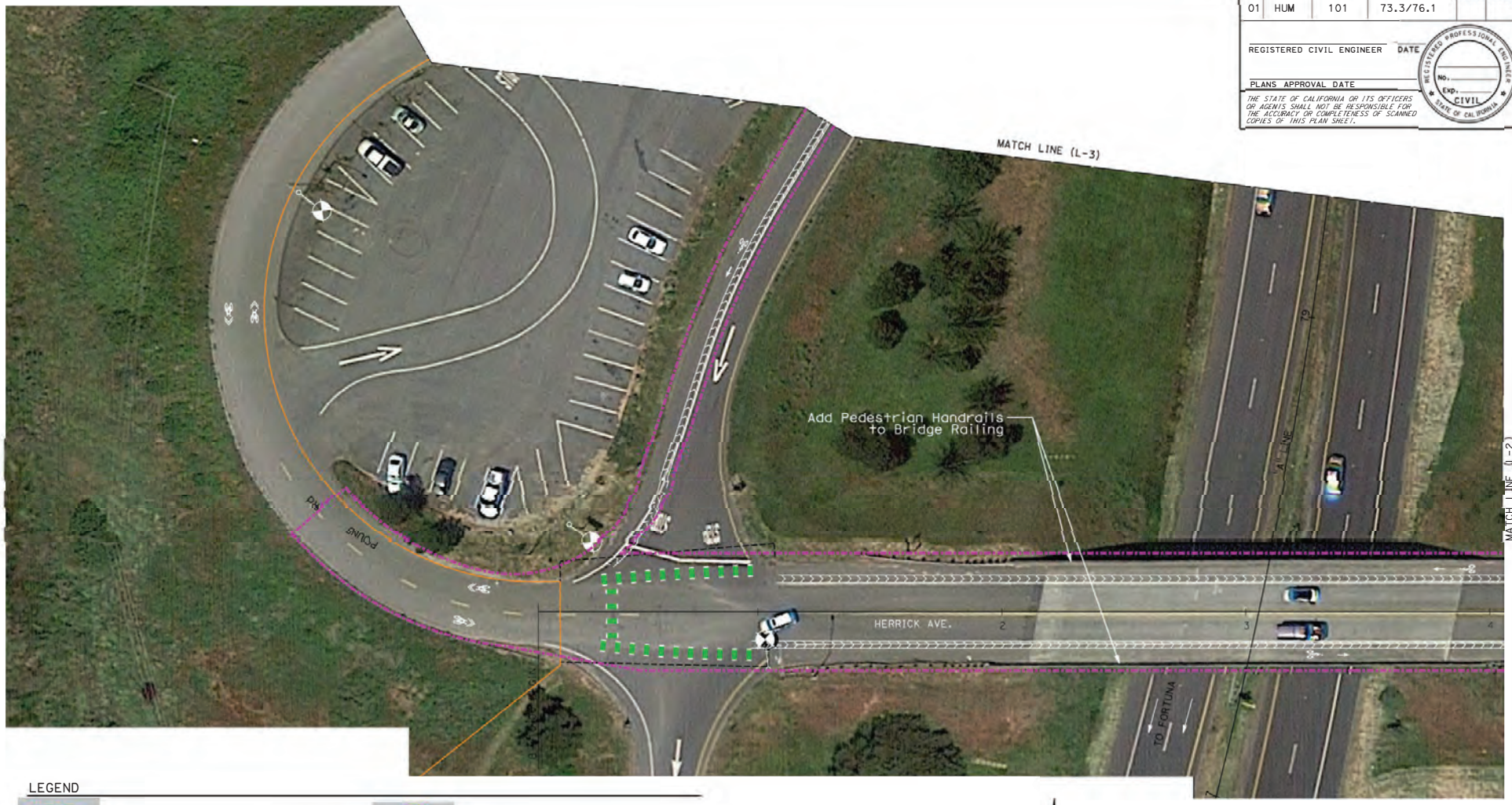

LEGEND

- Environmental Study Limit
- New or Replaced Sidewalk
- Raised Curb Island (Mountable in Median) textured concrete or landscaped
- Existing Electrolier
- New Electrolier
- New Caltrans Electric and Caltrans Fiber
- Class IV Buffer Strip (Thermoplastic)
- Bicycle Path Crossings (Thermoplastic)
- New Plants/Trees (tree grates shown where in sidewalk)
- Cold Plane and Microsurfacing
- Approximate Existing Right of Way
- New Right of Way
- New Maintenance Easement
- Temporary Construction Easement

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LAYOUT
SCALE: 1" = 20'

L-1

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UNIT 0313
PROJECT NUMBER & PHASE 01210000331

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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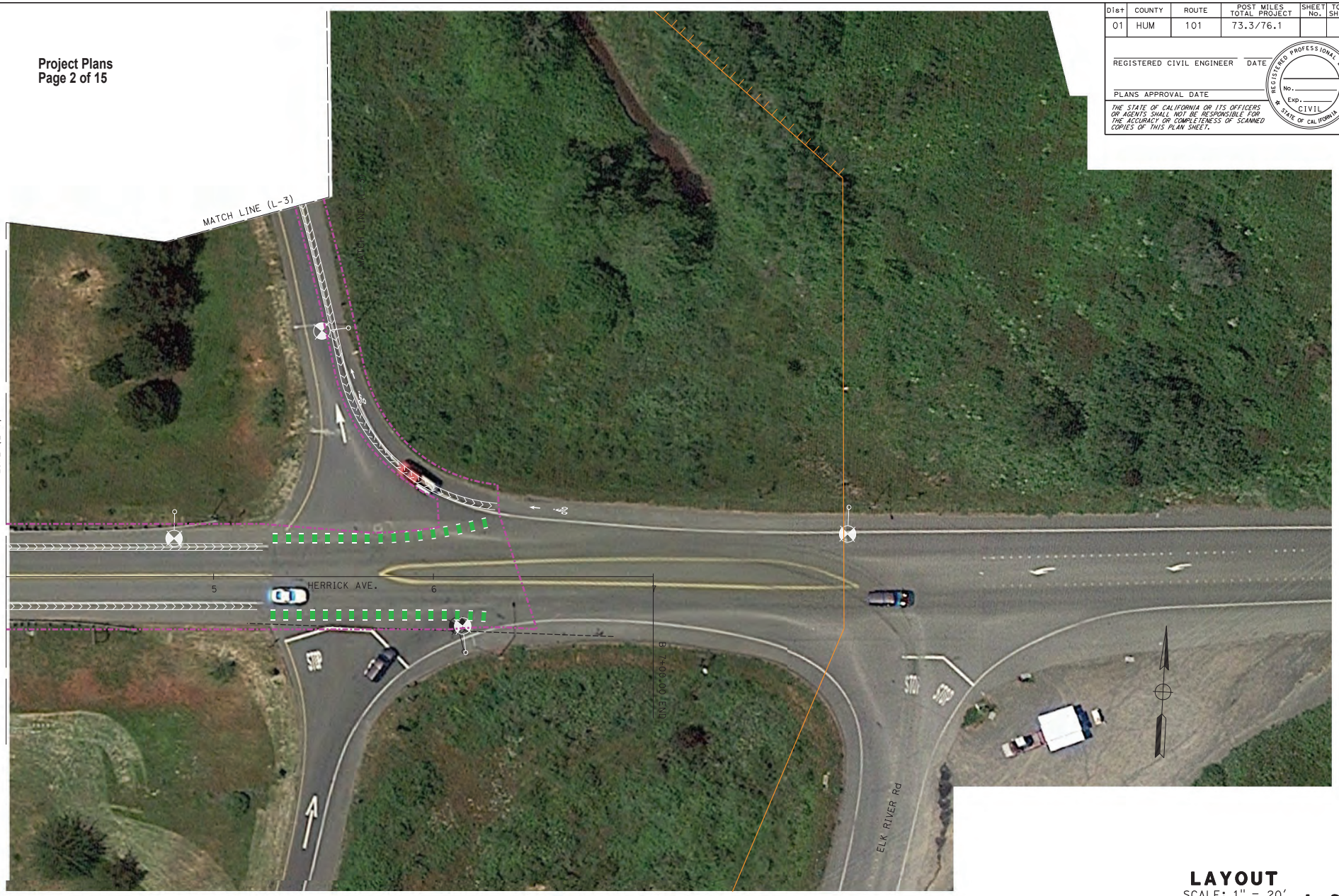

LAYOUT
SCALE: 1" = 20'

L-2

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UNIT 0313

PROJECT NUMBER & PHASE 01210000331

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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LAYOUT
SCALE: 1" = 20'

L-3

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UNIT 0313

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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LAYOUT
SCALE: 1" = 20'

L-4

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UNIT 0313

PROJECT NUMBER & PHASE 01210000331

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LAYOUT
SCALE: 1" = 20'

L-5

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UNIT 0313
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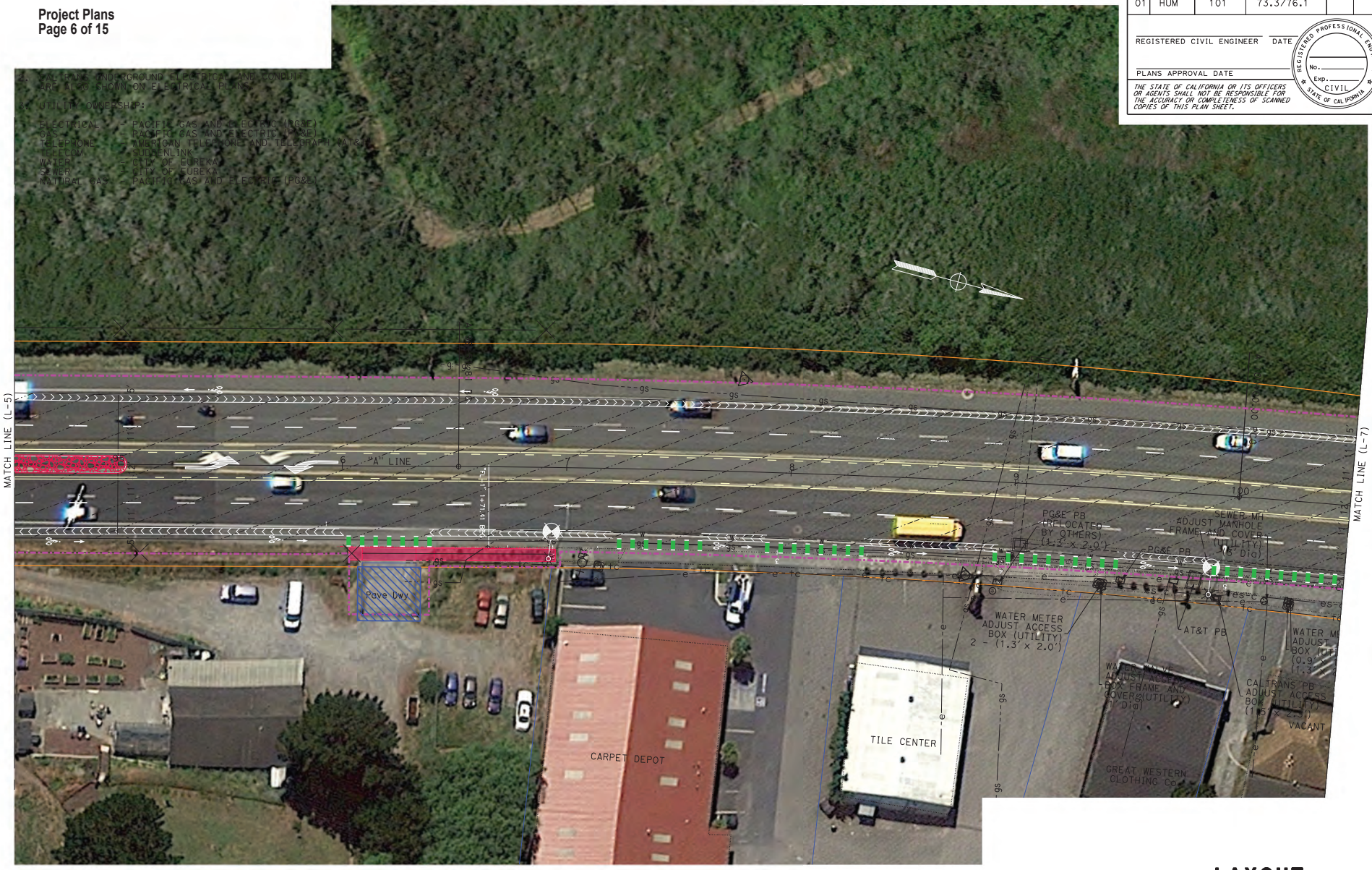
4. CALTRANS UNDERGROUND ELECTRICAL AND CONDUIT ARE ALSO SHOWN ON ELECTRICAL PLANS.

5. UTILITY OWNERSHIP:

ELECTRICAL	PACIFIC GAS AND ELECTRIC (PG&E)
GAS	PACIFIC GAS AND ELECTRIC (PG&E)
TELEPHONE	AMERICAN TELEPHONE AND TELEGRAPH (AT&T)
TELECOM	SUDDENLINK
WATER	CITY OF EUREKA
SEWER	CITY OF EUREKA
NATURAL GAS	PACIFIC GAS AND ELECTRIC (PG&E)



LAYOUT
SCALE: 1" = 20'

L-6

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01	HUM	101	73.3/76.1		

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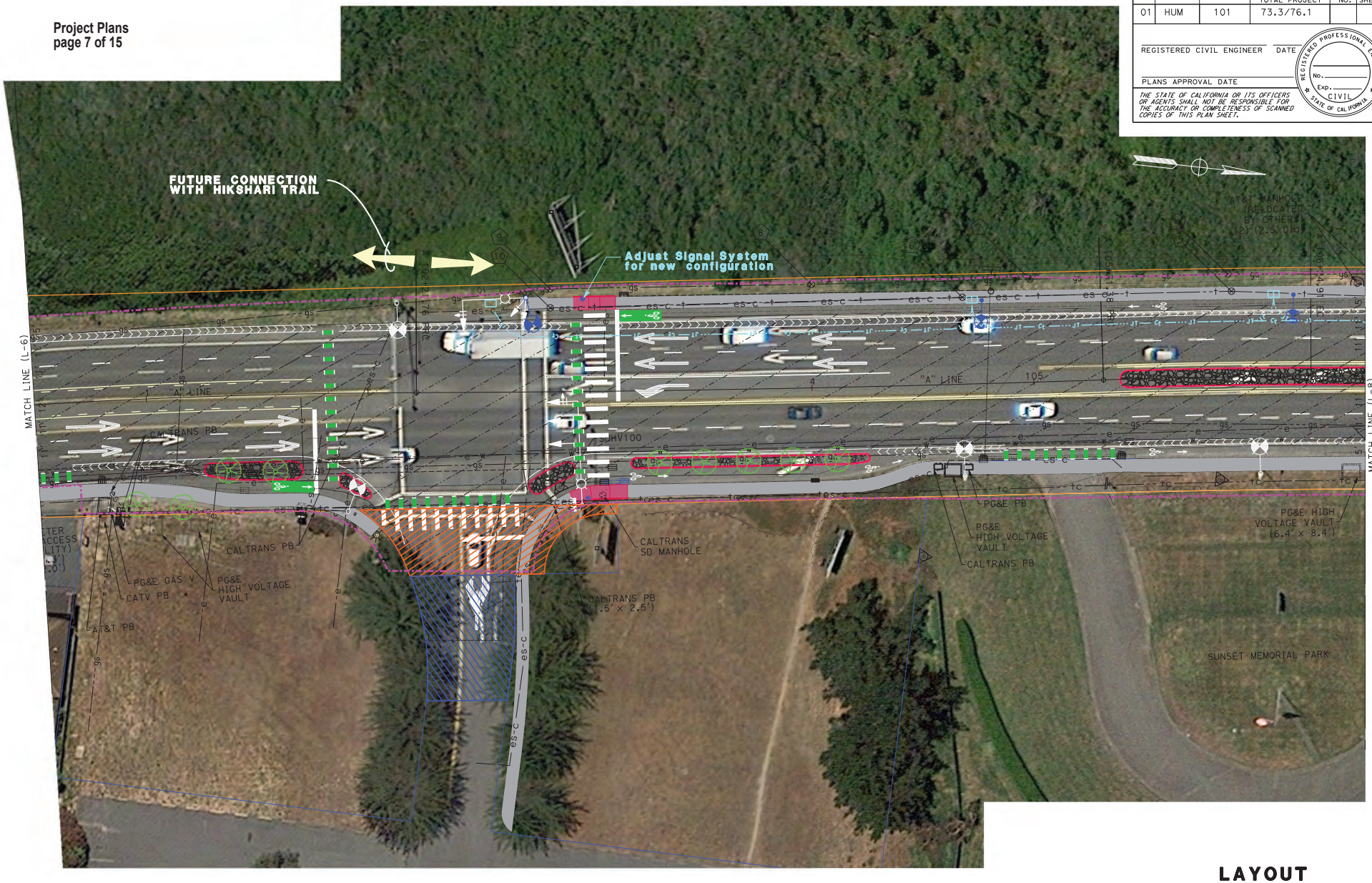

LAYOUT
SCALE: 1" = 20'

L-7

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01	HUM	101	73.3/76.1		

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LAYOUT
SCALE: 1" = 20'

L-8

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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LAYOUT
SCALE: 1" = 20'

L-9

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01	HUM	101	73.3/76.1		

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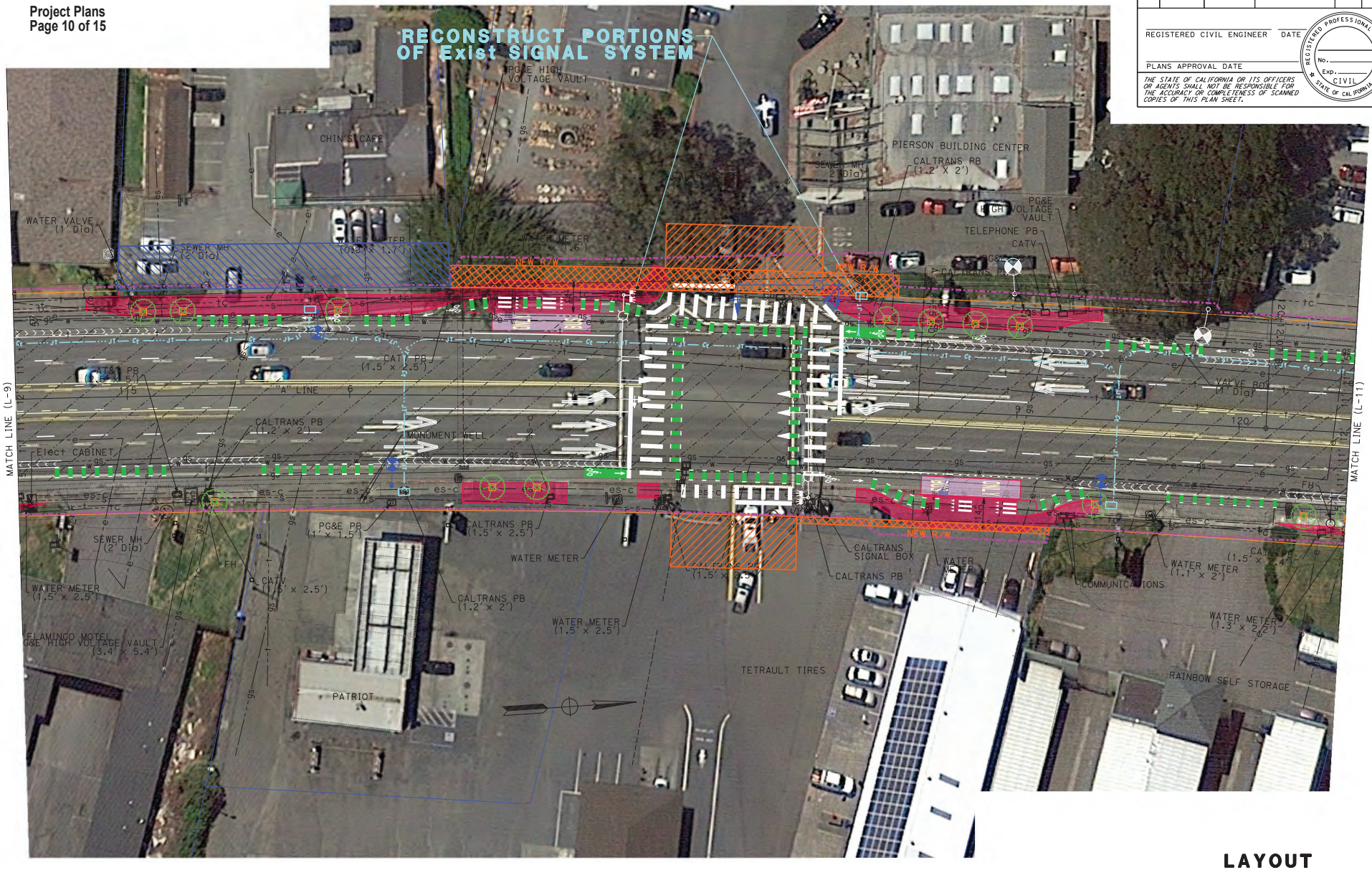

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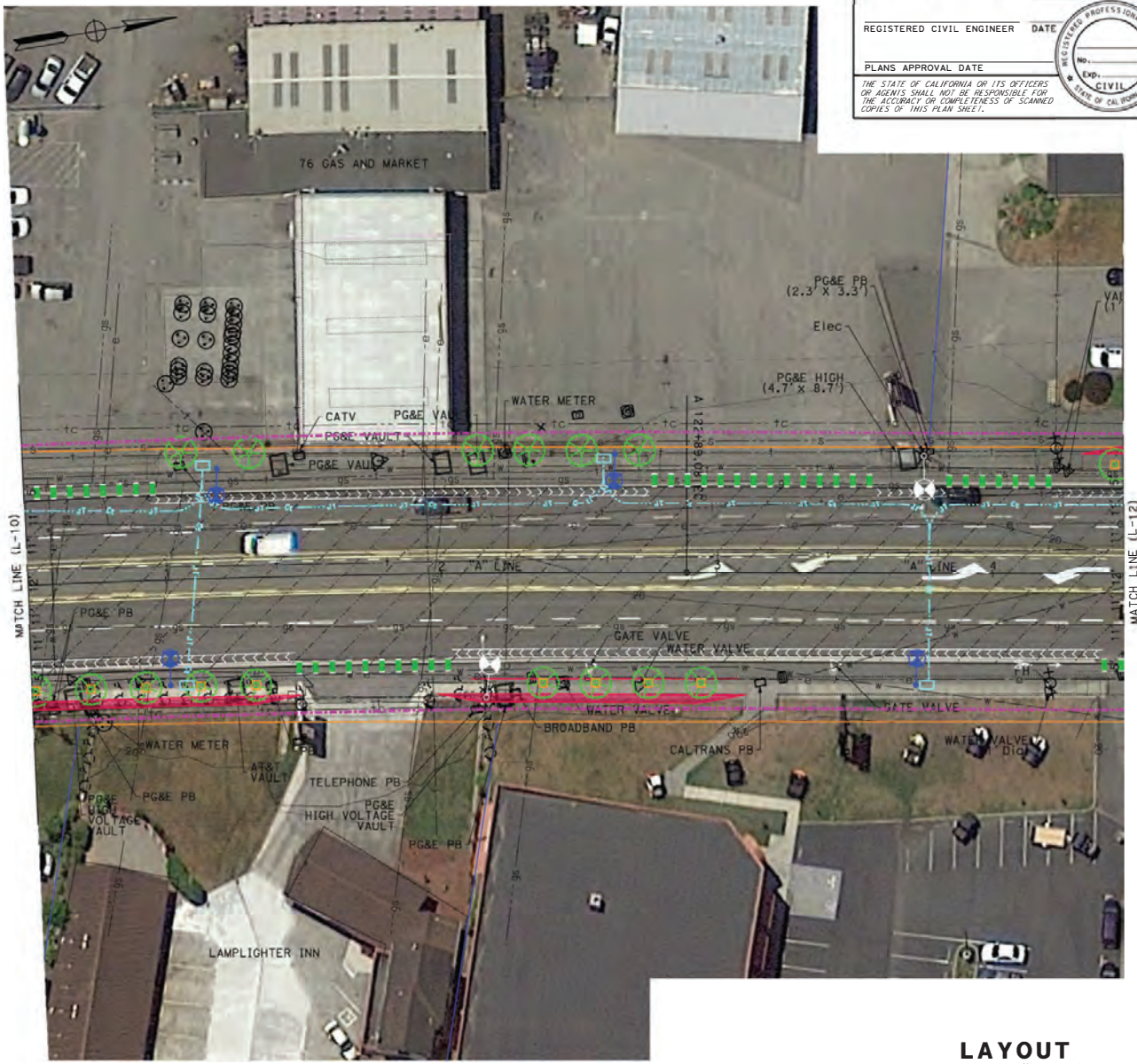

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01	HUM	101	73.3/76.1		

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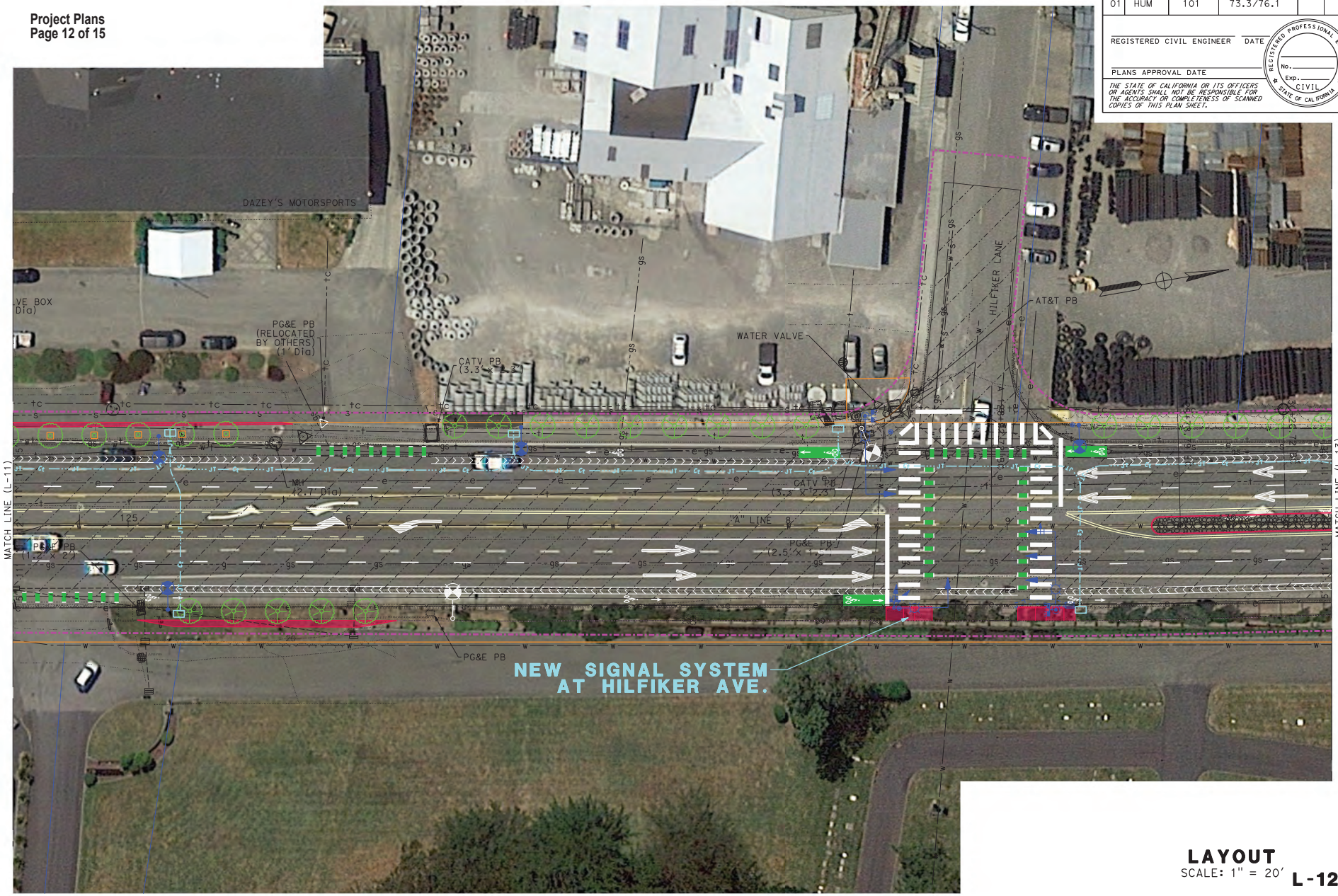

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	HUM	101	73.3/76.1		

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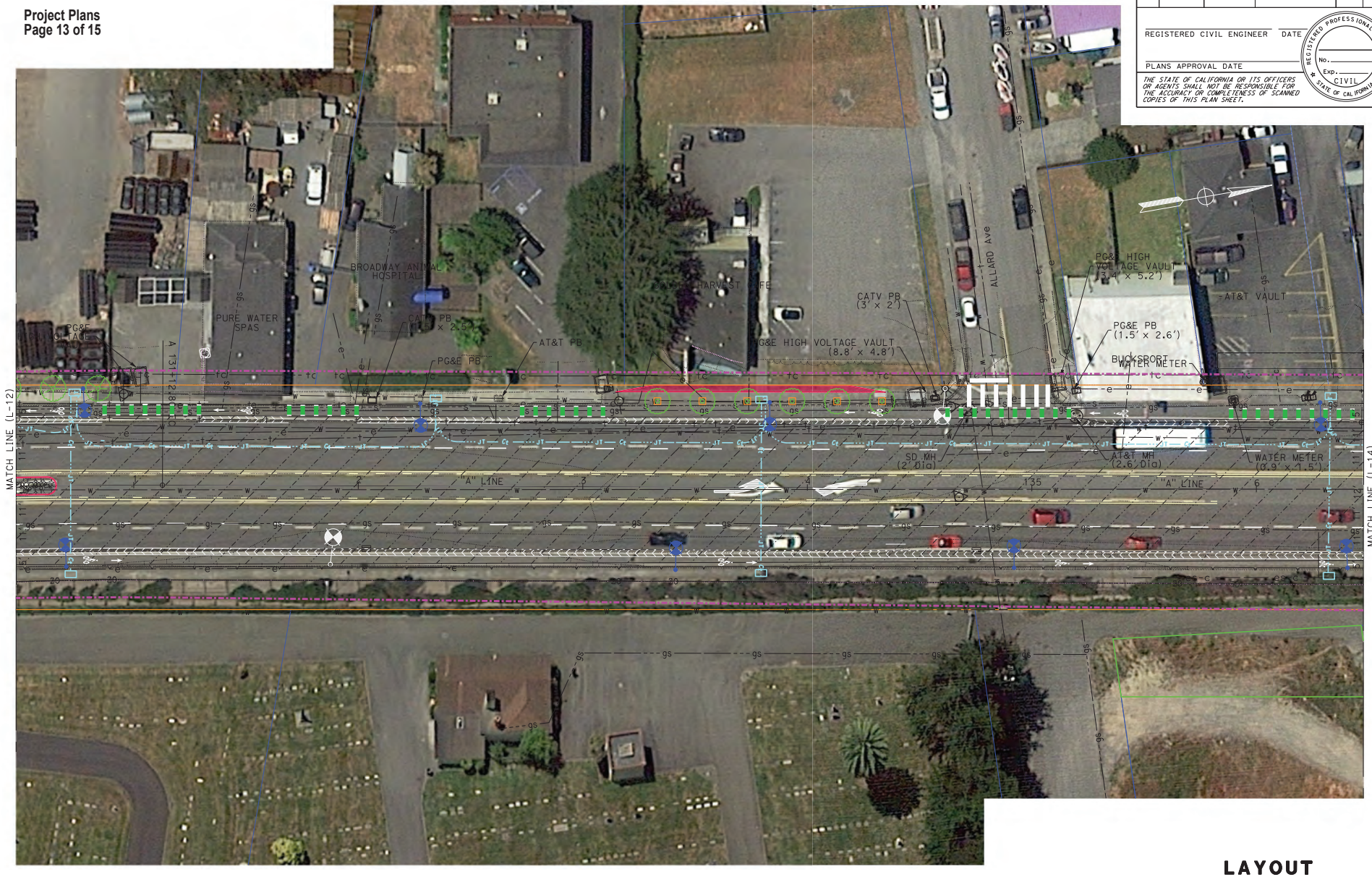

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01	HUM	101	73.3/76.1		

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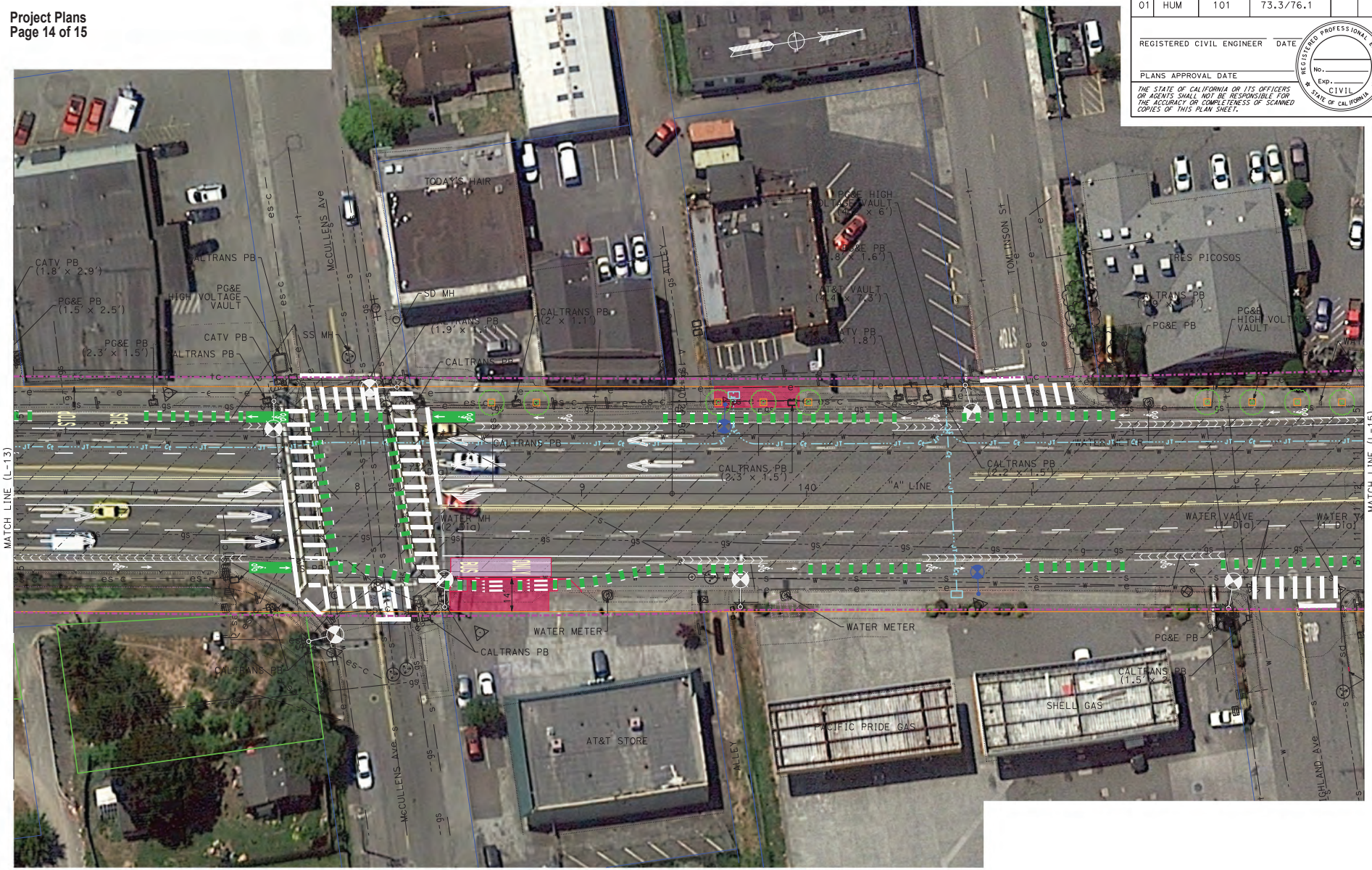

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L-14

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0313

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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LAYOUT
SCALE: 1" = 20'

L-15

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